Typological Studies in Language 121

Typological Hierarchies in Synchrony and Diachrony

edited by
Sonia Cristofaro and Fernando Zúñiga

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Volume 121

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Table of contents

Part I. Setting the stage

Synchronic vs. diachronic approaches to typological hierarchies **3**
Sonia Cristofaro & Fernando Zúñiga

Part II. Foundational issues

CHAPTER 1
Evolutionary Phonology and the life cycle of voiceless sonorants **31**
Juliette Blevins

CHAPTER 2
The Obligatory Coding Principle in diachronic perspective **59**
Denis Creissels

CHAPTER 3
Deconstructing teleology: The place of synchronic usage patterns among processes of diachronic development **111**
Marianne Mithun

Part III. Hierarchical effects and their origins

CHAPTER 4
The development of referential hierarchy effects in Sahaptian **131**
Spike Gildea & Joana Jansen

CHAPTER 5
Diachrony and the referential hierarchy in Old Irish **191**
Aaron Griffith

CHAPTER 6
From ergative case-marking to hierarchical agreement: A reconstruction of the argument-marking system of Reyesano (Takanan, Bolivia) **217**
Antoine Guillaume

CHAPTER 7
The direction(s) of analogical change in direct/inverse systems **257**
Guillaume Jacques & Anton Antonov

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CHAPTER 8
Are the Tupi-Guarani hierarchical indexing systems really motivated by the person hierarchy? 289
Françoise Rose

CHAPTER 9
Incipient hierarchical alignment in four Central Salish languages from the Proto-Salish middle 309
Zalmai Zahir

Part IV. Conflicting hierarchical patterns and how to deal with them

CHAPTER 10
Deictic and sociopragmatic effects in Tibeto-Burman SAP indexation 345
Scott DeLancey

CHAPTER 11
Morphosyntactic coding of proper names and its implications for the Animacy Hierarchy 377
Johannes Helmbrecht, Lukas Denk, Sarah Thanner & Ilenia Tonetti

CHAPTER 12
Generic person marking in Japhug and other Gyalrong languages 403
Guillaume Jacques

Author index 425

Language index 429

Subject index 433

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PART I

Setting the stage

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Synchronic vs. diachronic approaches to typological hierarchies

Sonia Cristofaro & Fernando Zúñiga

1. Introduction

A distinguishing feature of the so-called functional-typological approach that originated from the work of Joseph Greenberg is the role of diachrony in the shaping of recurrent cross-linguistic patterns, traditionally indicated as language universals. These are regarded as a result of historical processes whereby individual speakers create the relevant constructions at some point in the evolution of a language, and these constructions become conventionalized in the language as a result of their being frequently used. To the extent that the same processes take place from one language to another, a cross-linguistic pattern will emerge (Greenberg 1978 and 1995; Bybee 1988; 2006; and 2008; Mithun 2003; Dryer 2006; Newmeyer 1998; 2002; and 2005; Cristofaro 2011, among others). This view is in contrast with formally oriented research approaches, where cross-linguistic regularities are generally assumed to be a result of constraints inbuilt in a speaker mental grammar. These constraints operate synchronically by allowing the production of particular constructions and blocking the production of other constructions. Since the constraints are universal, languages will uniformly display the same grammatical patterns (for an application of this view to patterns specifically described in the typological literature see, for example, Baker 2001; Aissen 2003; Baker and McCloskey 2007, or Kiparsky 2008).

The theoretical emphasis placed on diachrony in the functional-typological approach means that, in principle, explanations for recurrent cross-linguistic patterns should be based on the specific historical processes that give rise to these patterns, rather than on the patterns in themselves. This point has explicitly been raised by several scholars over the years (Givón 1979; Bybee 1988; 2006 and 2008; Aristar 1991). For example, Bybee (1988: 357) argues that, in order for any proposed factor to qualify as an explanation for some grammatical pattern, it should be shown that that factor plays a role in the actual diachronic development of that pattern.

This view, however, has not actually made its way into the actual typological practice. A number of typologists interested in diachrony have developed methods

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to improve our understanding of the actual geographical and genealogical distribution of individual patterns, mainly in order to investigate how this distribution comes into being and whether it reflects general principles valid for all languages or specific genetic or areal trends (Dryer 1992; Nichols 1992; Maslova 2000; Bickel 2007, among others). Comparatively little attention, however, has been devoted to how particular patterns arise in the first place, both in the sense that there has been little investigation of what source constructions and developmental processes give rise to individual patterns, and in the sense that what is known on the topic (particularly through grammaticalization studies and studies of language change in general) has seldom informed the explanations proposed for the relevant patterns.

In phonology, a full-fledged diachronically oriented approach to cross-linguistic regulatities is the Evolutionary Phonology model developed by Blevins (see, for example, Blevins 2004).[1] As far as morphosyntactic patterns are concerned, however, this line of research has only been explored with regard to a limited number of patterns so far. Instead, explanations for individual patterns are usually proposed on synchronic grounds. If the synchronic properties of some pattern can plausibly be related to some explanatory factor, then that factor is assumed to motivate the pattern, independently of the actual diachronic processes that actually shape the pattern from one language to another.

This is apparent, for example, in classical explanations of structural markedness, an asymmetric distribution of zero and overt marking across different meanings (e.g. singular and plural, inalienable vs. alienable possession, or animate vs. inanimate direct objects). This distribution is assumed to reflect an economic principle whereby speakers use overt marking only for meanings that are more in need of disambiguation (Greenberg 1966; Comrie 1989; Croft 2003; Haspelmath 2008a, among others). This is based on what meanings are encoded by zero vs. overt marking synchronically, not how zero vs. overt marking originates in individual languages. Similarly, a number of word order correlations are explained by assuming that they lead to syntactic configurations that are easier to process (Hawkins 1994; 2004, among others). This is based on the synchronic syntactic configurations produced by particular word orders, not how these word orders actually develop in individual languages.

Progress in grammaticalization studies and historical linguistics in general means, however, that more and more diachronic evidence is now available about the origins of the cross-linguistic patterns investigated in functional-typological

1. A comparable approach in a different research tradition is Panchronic Phonology, see for example Jacques (2011) and Michaud, Jacques, and Rankin (2012).

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research. In many cases, this evidence points to different explanations than those traditionally proposed for the relevant patterns on synchronic grounds. For example, addressing two quite robust correlations – the one between prepositions and preposed possessums, as well as the one between postpositions and postposed possessums –, Bybee (1998) and Aristar (1991) argue that these correlations originate from the fact that adpositions both evolve from nouns encoding a possessum and maintain the position of these nouns within the erstwhile possessive construction. This is different from a number of principles traditionally invoked to account for the correlations on synchronic grounds and relating to processing ease, such as Cross-Categorial Harmony (Hawkins 1983) and the Branching Direction Theory (Dryer 1992; 2006).

The general goal of the present volume is to explore in what ways diachronic evidence can further our understanding of one of the most important patterns investigated in functional-typological research, typological hierarchies. While the various chapters have different concerns and scope, they all discuss data relevant to the origins of phenomena described by typological hierarchies, either in a cross-linguistic perspective or in the context of particular language families. Most chapters address the same hierarchy, namely the animacy/referential hierarchy. This is one of the most widely investigated typogical hierarchies, and the one potentially relevant to the highest number of different grammatical domains. The points raised in these chapters, however, are relevant to typological hierarchies in general, and are in line with chapters addressing other hierarchies or grammatical domains.

In what follows, as an introduction to the volume, a number of general issues will be illustrated that emerge from the data presented in individual chapters, as well as from earlier work on the possible diachronic origins of several patterns investigated within the functional-typological approach. Does diachronic evidence about the origins of the patterns described by typological hierarchies support the explanations proposed for these patterns on synchronic grounds? Do individual patterns reflect some general underlying principle, as is traditionally assumed, or are they a combined result of several distinct processes? What does diachronic evidence suggest about the nature of typological hierarchies in general?

2. Typological hierarchies: Some traditional explanations and open issues

Typological hierarchies are widely perceived as one of the major research results of the functional-typological approach. In their classical sense, typological hierarchies are generalizations describing chains of synchronic implicational

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relationships pertaining to the distribution of different grammatical phenomena cross-linguistically. A case in point is the number hierarchy in (1):

(1) Singular > plural > dual > trial/paucal (Croft 2003: 126, among others)

Among other phenomena, this hierarchy describes the use of overt marking for different number values. If overt marking is used for some value, then it is used for all values to the right, but not necessarily for those to the left.

Another case in point is the animacy/referential hierarchy in (2):

(2) 1st person pronouns > 2nd person pronouns > 3rd person pronouns > human > animate > inanimate (Croft 2003: 130, among others)

This hierarchy has been used to describe a number of cross-linguistic distributional patterns pertaining to various grammatical phenomena, including number distinctions and case marking alignment. If a language makes a number distinction, for example singular vs. plural, for any NP type on the hierarchy, then it makes that distinction for all NP types to the left, but not necessarily for those to the right. If accusative case marking alignment is used for any NP type on the hierarchy, then it is used for all NP types to the left, but not necessarily for those to the right. On the other hand, if ergative case marking alignment is used for any NP type, then it is used for all NP types to the right, but not necessarily for those to the left.

Typological hierarchies have also been used to describe non-implicational patterns. For example, the animacy/referential hierarchy is also used to describe hierarchical alignment, a differential grammatical treatment of speech act and non-speech act participants (Siewierska 2004; Zúñiga 2006; Lockwood and Macaulay 2012, among others). In some languages, the verb indexes first or second person arguments independently of their grammatical role, while third person arguments can sometimes be indexed, but only if no first or second person argument is present. Also, some languages use a dedicated verbal affix, the inverse, when a speech act participant is being acted upon by a non-speech act participant, while the reverse situation where a speech act participant acts upon a non-speech act participant is either not indicated overtly or indicated by means of a different affix, the direct. Direct and inverse affixes are also sometimes used to indicate various configurations of speech act participants (first person acting on second, or vice versa) or non-speech act participants (for example, third person obviative acting on third person proximate, or vice versa). As also observed by Rose (this volume), hierarchical alignment does not involve any cross-linguistic implicational relationship between logically distinct phenomena (such that, for example, some arguments would be indexed only if other arguments are also indexed, or inverse marking would be used for some participant configurations only if it is also used for other

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participant configurations). Instead, the notion refers to the fact that there seems to be an underlying person-based rationale to which indexes are selected in the case of multiple arguments competing for a limited number of marking slots, or what morphology is selected to mark different participant configurations. The use of the animacy/referential hierarchy to describe hierarchical alignment, then, is based on an assumption that the hierarchy provides a scalar representation of the relative degree of prominence of speech act and non-speech act participants, as manifested in specific grammatical patterns.[2]

Classical explanations of typological hierarchies within the functional-typological approach usually postulate general organizational principles of language that favor particular grammatical configurations as opposed to others. For example, the distribution of zero vs. overt marking for different number values, as described by the number hierarchy, has been accounted for in terms of an economy principle whereby speakers tend to use overt number marking only when it is really needed, that is, for the number values more in need of disambiguation. Each value on the hierarchy is less frequent than the values to the left. More frequent values are easier to identify, so they are less in need to be disambiguated through overt marking. As a result, the use of overt marking may be restricted to less frequent values, for example plural as opposed to singular. Alternatively, overt marking may be used for both more frequent and less frequent values, but it won't be restricted to a more frequent value (Greenberg 1966; Corbett 2000; Croft 2003; Haspelmath 2006 and 2008a).

A similar line of reasoning has been applied to the animacy/referential hierarchy. Among the patterns described by this hierarchy is one whereby accusative case marking alignment occurs just with animates, or animates and inanimates, but not just inanimates. Conversely, ergative case marking alignment occurs just with inanimates, or inanimates and animates, but not just animates. This has been accounted by assuming that speakers tend to use dedicated case marking only when it is really needed, that is, when some grammatical role is more in need of disambiguation. Patients are more likely to be inanimate than animate, hence inanimate patients are easier to identify than animate ones. Dedicated case marking for patients, leading to accusative alignment, may then be limited to animates. Alternatively, it may be used for both animates and inanimates, but it won't be used just for inanimates. Agents, on the other hand, are more likely to be animate

2. Such scalar rankings have been postulated to account for a wide variety of grammatical patterns, for example ones pertaining to word order and argument realization. For extensive discussion and exemplification, see, among others, Levin and Rappaport Hovav (2005) and Haspelmath (2008b).

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than inanimate, hence animate agents are easier to identify than inanimate ones. Dedicated case for agents, leading to ergative alignment, may then be limited to inanimates. Alternatively, it may be used for both animates and inanimates, but it won't be used just for animates (Silverstein 1976; Dixon 1979 and 1994; Comrie 1989; DeLancey 1981; Song 2001; Croft 2003).

The animacy/referential hierarchy also captures a pattern whereby number distinctions are made just for animates, or possibly animates and inanimates, but not just inanimates. This too has been accounted for by postulating an economy principle, namely one whereby speakers tend to only make grammatical distinctions when they are more relevant. Number distinctions are more relevant to animates than to inanimates, because the former are inherently individuated. Sometimes, then, number distinctions will be made just for animates, or they may be made both for animates and inanimates, but they won't be made just for inanimates (Comrie 1989; Corbett 2000; Croft 2003; Haspelmath 2005).

This type of explanation is based on the synchronic distributional patterns described by individual hierarchies, not the specific diachronic processes that give rise to these distributions from one language to another. For example, assumptions about the motivations for the use of overt number marking or dedicated case marking are based on the synchronic distribution of the relevant forms across different contexts, rather than the actual diachronic processes that shape this distribution cross-linguistically. Likewise, the idea that speakers tend to make grammatical distinctions only when these distinctions are more relevant is based on the synchronic distribution of particular distinctions across different domains, not how this distribution actually originates in individual languages. A similar synchronic perspective is manifested in formally oriented explanations of typological hierarchies, as provided for example in Baker (2001); Aissen (2003); Baker and McCloskey (2007), or Kiparsky (2008). In these explanations, individual hierarchies reflect constraints inbuilt in a speaker's mental grammar, which lead speakers to produce particular structures and prevent them from producing other logically possible structures. The constraints are postulated based on the synchronic distributional patterns that they are meant to explain, rather than on specific diachronic processes that give rise to these patterns in individual languages. For example, Aissen (2003) provides a model where the distribution of accusative case marking alignment is a result of the interaction between different constraints pertaining to the encoding of direct objects through overt marking. These constraints are universal, but can be ranked differently in different languages, thus yielding the distributional patterns described by the animacy/referential hierarchy. The constraints are formulated based on the synchronic distribution of overt marking for different types of direct objects, not diachronic evidence about the origins of this distribution in individual languages.

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In many cases, however, recurrent cross-linguistic patterns have been shown to originate from processes that do not appear to be related to the synchronic properties of the pattern. Rather, individual patterns directly reflect the properties of particular source constructions. A case in point is the correlation mentioned in Section 1 between the order of adposition and noun and that of possessor and possessum. While at the synchronic level this correlation may be accounted for by assuming that it leads to syntactic configurations that are easier to process, in many cases the correlation actually arises because adpositions develop through the reanalysis of possessive constructions, and reflect the original word order of these constructions.

Another case in point is provided by alignment patterns. For example, different alignment patterns (accusative, ergative, and active alignment, that is) have all been accounted for in terms of principles that lead speakers to associate particular argument roles as opposed to others. Several such principles have been postulated in the literature, for example, S arguments may be encoded in the same way as A arguments because both of these roles typically correspond to agentive participants, topical participants, or, more generally, participants that represent a starting point in discourse. Alternatively, S arguments may be encoded in the same way as P arguments, because both of these roles typically correspond to participants introduced for the first time in discourse, because certain types of S arguments correspond to nonagentive participants, or, in some analyses, because the participants most immediatey involved in the state of affairs being described occur in S or P role (Moravcsik 1978; Dixon 1979 and 1994; DeLancey 1981; Du Bois 1985 and 1987; Mithun 1991a; Mithun and Chafe 1999; Givón 2001; Song 2001, among several others).

Diachronic evidence shows, however, that alignment patterns may reflect the properties of particular source constructions, rather than principles leading speakers to associate particular argument roles in themselves. For example, Gildea (1998) shows that accusative case marking alignment can arise as intransitive constructions involving nominalized verbs are reanalysed as transitive ones, that is, constructions of the type 'X is occupied with V-ing', 'X is occupied with the V-ing of Y' become, respectively, 'X is V-ing', 'X is V-ing Y'. In the resulting constructions, P arguments (Y) derive from the possessor of the nominalized verb, and maintain possessor marking. A and S arguments (X) are encoded in the same way because they both derive from the S argument of the source construction, rather than because of some principle that leads speakers to associate these two argument roles. Holton (2008) and Mithun (2008) show that active alignment in indexation can arise as transitive constructions with no overt third person arguments are reinterpreted as intransitive constructions, e.g. '(something) angers me' becomes 'I am angry'. In this case too, different argument roles (P arguments and some types

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of S arguments) come to be encoded in the same way because they originate from one another, rather than because speakers independently establish an association between these roles.

Constraints on the use of particular alignment patterns are also traditionally explained in terms of the synchronic properties of the resulting distributions. The available diachronic evidence shows, however, that these constraints too can be directly motivated in terms of properties of the source constructions. For example, in a number of languages, ergative alignment is restricted to perfective constructions. This pattern has been related to an assumed connection between perfectivity and ergativity (Dixon 1994, among others). A number of researchers have argued, however, that it is actually a result of the fact that ergative alignment can develop through the reanalysis of the argument structure of constructions usually used in contexts involving perfectivity, such as passives or possessive constructions where the possessed item is in a state resulting from some previous action ('X is done by Y' > 'Y ERG has done X'; 'To Y is an X done' > 'Y ERG has done X', with the original marker on Y becoming an ergative marker (see Anderson 2016 and Creissels, this volume), for reviews of the relevant arguments and literature).

Similar issues arise for typological hierarchies. A diachronically oriented account of several major patterns described by the animacy/referential hierarchy has recently been provided in Cristofaro (2013). This paper discusses split alignment in case marking, hierarchical alignment, and the presence of singular vs. plural distinctions for different NP types. In line with the diachronically oriented literature on word order and alignment patterns, the paper makes the general point that the patterns described by particular hierarchies can originate through processes that are not obviously related to principles pertaining to the synchronic properties of the pattern. Rather, the pattern reflects the properties of particular source constructions and developmental processes. Also, since individual patterns are often shaped by several distinct diachronic processes, it is not clear that they can be accounted for in terms of some overarching principle. Finally, a diachronically oriented approach provides a natural explanation for the fact that typological hierarchies usually have exceptions. These points are also explicitly or implicitly at the core of the various chapters in the present volume, and will be taken up in detail in the next sections.

3. Synchronic distributional patterns and their diachronic sources

A fundamental issue in explaining typological hierarchies is just in what way the principles assumedly underlying a hierarchy operate to give rise to the relevant distributional patterns for particular grammatical phenomena. Existing explanations generally share an (often implicit) assumption: particular principles that can be postulated to account for individual patterns by looking at their synchronic

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properties will trigger the development of these patterns cross-linguistically. According to functionally oriented approaches, these principles lead speakers to recurrently use particular constructions as opposed to others, eventually leading to the conventionalization of those constructions in the language. For example, speakers will recurrently use overt marking to disambiguate less frequent, rather than more frequent, number values. Over time, this will give rise to languages with overt marking for less frequent values and zero marking for more frequent values, rather than the other way round (Haspelmath 2008a, among others). According to formally oriented approaches, hierarchies capture inbuilt grammatical constraints that lead to the configurations described by the hierarchy and block the diachronic development of other logically possible configurations (Kiparsky 2008).

The diachronic evidence discussed in this volume poses a general challenge for this view. In many cases, the emergence of the distributional patterns described by typological hierarchies is not obviously related to principles pertaining to the synchronic properties of the distribution, in the sense of principles that favor particular grammatical configurations as opposed to others. Rather, individual patterns directly reflect properties of particular source constructions and developmental processes independent of the resulting distributions.

For example, among the phenomena discussed in Mithun's chapter is the development of ergative case markers from instrumentals in Hanis (Coosan, USA). This is an instance of a process originally postulated by Garrett (1990) for Anatolian. In constructions with a phrase expressing an instrument and no overt third person A arguments, the former is reinterpreted as an agent, that is, sentences such as 'With that arrow (he) hit the little dog' become 'That arrow hit the little dog', with the original instrumental marker evolving into an ergative marker. In Hanis, the distribution of the ergative marker conforms to the animacy/referential hierarchy to the extent that the marker does not apply to pronouns. The development of the marker, however, is plausibly triggered by the absence of an overtly expressed agent and the semantic connection between instruments and agents. In this respect, there is no evidence that the use of the marker reflects the relative need to disambiguate particular argument roles, as assumed in traditional explanations of the distribution of ergative case marking across different NP types along the hierarchy. In fact, Mithun argues, to the extent that ergative markers derive from instrumental markers, this provides an explanation for their being restricted to a right end portion of the hierarchy, as instruments are not usually animate.

These points receive general support from the phenomena discussed in Creissels's chapter. Creissels does not specifically address implicational hierarchies, but discusses several diachronic processes that can lead to the development of new alignment patterns. While involving a variety of different source constructions, including several types of TAM periphrases, constructions with ellipsed arguments, and light verb compounds undergoing univerbation, these processes

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all reflect the same basic mechanism. New alignment patterns emerge as the reanalysis of pre-existing constructions leads to particular arguments within these constructions taking on an A, S or P role. As these arguments maintain their original marking, this may give rise to new ways to encode the relevant roles, possibly leading to new alignment patterns in the construction. For example, in transitive future periphrases derived from intransitive constructions with motion verbs, of the type 'John is going to watch the news', the A argument will be encoded in the same way as S arguments because it was originally the S argument of the motion verb. In an otherwise ergative language, this will lead to an accusative pattern restricted to these periphrases. Similarly, univerbation of light verb compounds can lead to an originally transitive construction becoming intransitive, e.g. 'The children are doing sleep' becomes 'The children are sleeping'. The S argument of the resulting construction will be encoded in the same way as A arguments because it was an A argument in the source construction. In an otherwise ergative language, this will lead to an accusative pattern restricted to the relevant constructions. These processes show that the development of particular alignment patterns need not be related to any synchronic property of these patterns (such as the fact that they make it possible to disambiguate particular argument roles, as assumed in traditional explanations of the alignment splits described by the animacy/referential hierarchy). Rather, these patterns directly reflect the original structure of often highly particularized source constructions, and their development is triggered by whatever factors lead to the reanalysis of these constructions (for example, in the case of motion verb constructions, the fact that these are easily reinterpreted as future periphrases, as extensively documented in grammaticalization studies).

Similar issues arise for hierarchical alignment in indexation. This phenomenon is traditionally assumed to reflect the fact that speech act participants are somehow more prominent than non-speech act participants, and represent natural agents and privileged points of view from which to describe events (Comrie 1980; DeLancey 1981; and Song 2001, among others). As a result, the verb will index speech act participants in preference to non-speech act ones. The chapters by Gildea and Jansen, Guillaume, Griffith, Rose, and Zahir show, however, that hierarchical alignment in indexation can originate through processes independent of this assumed prominence.

For example, in line with previous proposals (Mithun 1991b; Cristofaro 2013; Gildea and Zúñiga 2016; see also Griffith, Mithun, this volume), Rose argues that the indexation patterns found in Tupi-Guarani languages can be explained by the original absence of third person pronouns. Indexation is usually the result of the affixation of independent pronouns, and many languages only have first and second person pronouns. If these become affixed, this will give rise to an indexation pattern with first and second but no third person forms.

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A similar process is postulated by Guillaume for Reyesano (Takanan, Bolivia), and by Gildea and Jansen for Sahaptin and Nez Perce (Sahaptian, USA). Verbal prefixes in Reyesano and second-position enclitics in Sahaptin and Nez Perce follow a hierarchical alignment pattern in that they are limited to first and second person. In Reyesano, Guillaume submits, this was a result of the fact that verbal prefixes developed from independent pronouns occurring in clause second position. As third persons were already encoded through verbal suffixes, third person pronouns were not used in this position, so they failed to evolve into verbal prefixes. Likewise, Gildea and Jansen argue that the Sahaptin and Nez Perce enclitics developed from Proto-Sahaptian independent pronouns, and these were not used for third persons as the latter were already indexed on the verb.

Griffith discusses *notae augentes*, a set of Old Irish person clitics that can be used in combination with person affixes on the verb and index first person as opposed to second and third person, second person as opposed to third person, and animates as opposed to inanimates. Part of this distribution is explained by Griffith in terms of the origins of the various person forms. In particular, as in other languages (see, for example, Heine and Song 2011), first and second person forms and one of the third person forms evolved from deictics. When occurring with an overt NP, the deictics would have attached to the latter, rather than to the verb. While first and second persons were never encoded through overt NPs, third persons often were. As a result, deictics pertaining to a first or second person eventualy attached to the verb, evolving into clitic person markers, while ones pertaining to third persons didn't.

These facts show that hierarchical alignment in indexation can be a result of what independent pronouns originally existed in the language, or whether or not forms pertaining to a third person (including independent third person pronouns) were used in particular contexts, rather than some principle that leads speakers to index speech act rather than non-speech act participants due to the higher prominence of the former.[3]

The chapters by Zahir and Mithun show that, in some cases, a difference in the grammatical treatment of first and second person as opposed to third does

3. This raises the question of why many languages do not have third person pronouns, or why forms pertaining to a third person are not used in particular contexts. This question, however, is logically distinct from the issue of the possible motivations for hierarchical alignment, see Cristofaro (2013) for discussion. In fact, Griffith, Guillaume, Gildea and Jansen all provide specific reasons for why particular forms pertaining to a third person are not used in contexts that give rise to hierarchical alignment. In the cases described by Guillaume, Gildea and Jansen, third person participants are already indexed by other elements. In the case described by Griffith, the relevant forms attach to NPs rather than verbs, thus failing to give rise to verbal clitics.

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indeed originate from a difference in the status of these persons. This, however, pertains to specific diachronic processes and source constructions that give rise to the relevant grammatical patterns, rather than the encoding of first, second, and third person in general. Zahir charts how some voice alternations in four Central Coast Salishan languages (Canada and USA) have become ever more specialized for specific person configurations, thus giving rise to a pattern whereby whenever the two core arguments of a clause are a speech act participant and a third person, the speech act participant is always an unmarked core argument, whereas the third person is most often marked. While this pattern pertains to case marking rather than indexation, it resembles traditional instances of hierarchical alignment in that first and second person are treated differently than third person regardless of grammatical role. Zahir shows that this is the result of an increase in the use of a passive construction to encode situations where a third person acts upon a first or second person. In the passive construction, the third person agent is marked as an oblique, which results into overt marking for third person as opposed to first and second person. A similar process is described by Mithun for Siuslaw (Coosan, USA), where it eventually resulted in ergative case marking being restricted to nouns as opposed to pronouns (see also Mithun 2005). Mithun argues that the use of passive constructions to encode this particular person configuration is a strategy to maintain topic continuity by always casting first and second persons as subjects. In such cases, in line with traditional explanations of hierarchical alignment, a difference in the grammatical treatment of first and second person as opposed to third ultimately reflects a difference in the (pragmatic) status of these persons, namely a difference in topicality which leads to the use the passive construction for particular person configurations. This difference, however, pertains to the use of a particular construction, the passive, rather than the encoding of the relevant person configurations in general.

Another process that can contribute to the diachronic shaping of the patterns described by typological hierarchies is the analogical extension of some construction from one context to another. Analogy is generally assumed to be driven by perceived similarities between the relevant contexts and the relative frequency of particular forms as opposed to others. This process too, then, is arguably independent of the synchronic properties of the resulting grammatical configurations.

For example, building on previous literature, Antonov and Jacques reconstruct a process whereby the use of inverse morphemes was analogically extended in Algonquian languages from various participant configurations in the direct order, the set of verbal forms normally used in independent clauses, to the same configurations in the conjunct order, a set of verbal forms used primarily in dependent clauses. As in the case of hierarchical alignment in indexation, the distribution of inverse markers is traditionally accounted for in terms of the relative degree

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of prominence of speech act and non-speech act participants. Due to the higher prominence of speech act participants and their status as privileged points of view from which to describe events, the situation where a speech act participant is being acted upon by a non-speech act participant is morphologically distinguished from the reverse, more natural situation (Comrie 1980; DeLancey 1981; and Song 2001, among others; for extensive discussion, see Zúñiga 2006). While the result of the extension process described by Antonov and Jacques is in accordance with the animacy/referential hierarchy, however, this process is not motivated by any specific property of particular participant configurations. Rather, Guillaume and Jacques argue, this process is motivated by the relative frequency of particular verb forms in discourse, which leads to these forms serving as the basis of analogical levelling (see also Jacques 2016).

If the distributional patterns captured by typological hierarchies reflect properties of particular source constructions and developmental processes, rather than principles that favor particular grammatical configurations as opposed to others, then the question arises of why some configurations do not arise, or are significantly rarer. This issue is specifically adressed in the chapter by Blevins, which shows that the non occurrence or rarity of particular configurations may be due to the non occurrence or rarity of possible sources or developmental processes for those configurations, rather than some general principle that disfavors the configuration in itself.

Blevins argues against the use of phonological markedness hierarchies to account for the cross-linguistic rarity of certain phonological patterns. This rarity is rather best explained in terms of the rarity of possible sources and developmental processes that could give rise to the relevant patterns, and are independent of their assumed markedness. The specific problem addressed by Blevins is the rarity of contrastively voiceless sonorants as opposed to contrastively voiceless obstruents, and contrastively voiceless vowels as opposed to contrastively voiceless sonorant consonants. In principle, this phenomenon could be accounted for in terms of a hierarchy

(3) Voiceless obstruents > voiceless sonorant consonants > voiceless vowels

where each segment is marked, or dispreferred, with respect to the segments to the left. Such a hierarchy could be part of a speaker's phonological grammar and operate so that each segment can only occur in a language if the segments to its left, which are universally preferred, or less marked, also occur. This, however, is in contrast with the fact that voiceless sonorants actually occur rather frequently in the world's languages as allophones of their voiced counterparts. The rarity of contrastively voiceless sonorants, Blevins argues, is best explained by the fact that they can only arise through a relatively complex two-step process: the development

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of non contrastive voiceless sonorants through co-articulation with an adjacent glottal spreading gesture and their subsequent phonologization due to opacization of the conditioning environment. A possible source for this process, clusters of sonorants and sounds involving glottal spreading gestures, is also quite rare cross-linguistically, and the phonologization of voiceless vowels is often prevented at phrase boundaries by the loss of these vowels due to low perceptual saliency, or by the fact that the voiced counterparts of these vowels in non- phrase final position support their continuation as allophones in phrase final position.

Traditional explanations of typological hierarchies and language universals in general are goal-oriented (Blevins 2004), in the sense that particular distributional patterns are assumed to arise because of principles that favor particular grammatical configurations involved in the pattern. These principles are postulated based on the synchronic properties of the pattern and include, for example, the tendency to only mark meanings that are more in need of disambiguation, the tendency to encode categorial distinctions (such as number distinctions) only when they are more relevant, the tendency to only index more prominent participants, or the tendency not to have phonologically marked segments. If, however, the emergence of individual patterns is related to the properties and relative frequency of specific source constructions or developmental processes, then a different explanatory approach is called for. This approach should be a source-oriented one based on what pre-existing constructions and developmental processes are involved in the shaping of particular patterns, rather than the synchronic properties of the patterns in themselves. This is further supported by another aspect of typological hierarchies, to be discussed in the next section: the grammatical configurations described by individual hierarchies are often a result of several distinct processes.

4. Multiple diachronic origins

Synchronically based explanations for typological hierarchies are usually meant to account for all of the instances of the relevant grammatical configurations. For example, the hypothesis that the use of ergative case marking alignment reflects the relative need to disambiguate A arguments is meant to account for all of the cases where this alignment type is used for particular types of A arguments as opposed to others. Likewise, the hypothesis that hierarchical alignment in indexation reflects the relative degree of prominence of speech act and non-speech act participants is meant to account for all of the cases where the former are indexed on the verb while the latter are not.

In line with previous observations in the literature (Blevins 2004; Bybee 2006; Cristofaro 2013 and 2014), several chapters in this volume show, however, that

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the grammatical configurations described by individual hierarchies can be a combined result of different diachronic processes, not obviously amenable to a unified explanation in terms of some overarching principle.

For example, the animacy/referential hierarchy captures a configuration whereby ergative case marking alignment is not used with first and second person pronouns. The data in the chapters by Mithun and Zahir discussed in Section 3 suggest that this can be a result of the ergative marker reflecting the distribution of two distinct source elements. Neither of these applies to first and second person pronouns, but for different reasons.

Sometimes, the relevant ergative markers originate from instrumentals, and these do not usually apply to first and second persons. In other cases, the ergative marker derives from the oblique marker used to encode the agent in passive sentences used to cast first or second persons as subjects. The oblique marker will never occur with a first or second person, as the agent of this type of passive sentence is always a third person. Thus, while in both cases ergative markers display the same distributional constraints, this is a result of two distinct processes, which independently lead to those constraints.

The chapters by Griffith, Rose, Gildea and Jansen and Guillaume show that hierarchical alignment in indexation can also be a result of a variety of factors. In some cases, as pointed out by Rose, bound third person markers fail to develop because the language does not have independent third person pronouns. In other cases, described by Gildea and Jansen, Guillaume, and Griffith, the language does have independent third person pronouns or other elements used to refer to third persons, but these are not used in the contexts that give rise to bound person markers, for reasons that vary from one language to another. These factors, as pointed out in Section 3, do not appear to be related to the explanatory principle invoked in traditional explanations of hierarchical alignment, the relative degree of prominence of speech act and non-speech act participants. However, they also appear to be unrelated to each other, which means that different instances of hierarchical alignment may not be amenable to a unified explanation.

Blevins's chapter illustrates a similar situation for phonological configurations. From one language to another, the non-occurrence of contrastive voiceless sonorants, which leads to the overall cross-linguistic rarity of these segments, may be due to different factors preventing the phonologization of non-contrastive voiceless sonorants. For example, contrastive voiceless sonorants may fail to develop due to maintainance of their conditioning environment. At phrase boundaries, allophonic voiceless sonorants may be lost before they become contrastive, or they may be maintained as allophones due to the influence of their voiced counterparts in non phrase-final position. Languages may also lack the clusters that give rise to

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non-contrastive voiceless sonorants in the first place. While these factors all lead to the absence of contrastive voiceless sonorants, they are difficult to relate to a single underlying motivation.

The idea that particular grammatical configurations involved in a hierarchy can be accounted for in terms of a single principle implies that, in addition to describing the distribution of these configurations, the hierarchy also provides an indirect representation of the factors that motivate this distribution. For example, in addition to representing the distribution of indexation across speech act and non-speech act participants, the animacy/referential hierarchy also provides an indirect representation of the factor that assumedly motivates this distribution, namely the relative degree of prominence of different participants. Likewise, the position of different NP types along the hierarchy provides both a direct representation of the distribution of case marking alignment patterns or singular vs. plural distinctions across these NPs, and an indirect representation of the factors assumed to motivate this distribution (the relative likelihood of the relevant NP occurring in particular argument roles, the relative degree of individuation of these NPs). In phonology, the hierarchies that capture the cross-linguistic distributional patterns attested for particular segments also provide an indirect representation of the relative markedness of the relevant segments, which is assumed to give rise to the relevant patterns.

If particular grammatical configurations can have multiple origins, however, the factors that motivate these configurations cannot be read off from the configuration in itself, because different processes, motivated in terms of different principles, can all lead to the same configuration, and this is not apparent at the synchronic level.[4]

As observed by some of the contributors to this volume (Mithun, Rose), and in line with previous proposals (Gildea 1998; Blevins 2004; Bybee 2006; Cristofaro 2013), this suggests that typological hierarchies might actually be just

4. From a logical point of view, this does not rule out the possibility that there might be principles that favor the development or maintenance of particular configurations independently of how these configurations originate. For example, while particular configurations involving ergative case marking or bound person markers may originate through different processes in different languages, there could be principles that favor their development or maintenance independently of these processes. In this case, particular synchronic configurations would ultimately reflect some overarching principle, as assumed in traditional explanations of typological hierarchies. A number of problems with this hypothesis are discussed, however, in Cristofaro (2017). In particular, to the extent that different diachronic processes can all lead to the same synchronic configurations for different reasons, the synchronic configuration provides no evidence for principles independent of these processes.

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a representation of particular distributional patterns, rather than an (indirect) representation of particular factors that ultimately motivate these patterns. In this case, once again, explanations for individual patterns should be based not so much on these patterns in themselves, but rather on what source constructions and developmental processes can give rise to the patterns, and the relative frequency of these constructions and processes cross-linguistically.

5. Accounting for exceptions

The distributional patterns described by typological hierarchies usually have a varying number of exceptions. For example, as far as hierarchical alignment is concerned, there is clear evidence about the ranking of first and second person as opposed to third, but conflicting evidence about the ranking of first and second person vis-à-vis each other in situations where a first person acts upon a second person or vice versa (Zúñiga 2006 and 2008; Lockwood and Macaulay 2012). A similar situation is described in the chapter by Helmbrecht, Denk, Thanner and Tonetti in regard to the distribution of ergative vs. accusative case marking alignment along the animacy/referential hierarchy. This distribution is traditionally assumed to be sensitive to whether or not the relevant NPs are proper names. This is consistent with the fact that the distribution is traditionally assumed to be motivated by animacy, as the referents of proper names are usually animate. Helmbrecht, Denk, Thanner and Tonetti show, however, that evidence about the role of proper names in the distribution of accusative and ergative case marking alignment is significantly more limited than evidence about the role of other NP types, such as pronouns and common nouns.

Another well-known case in point is the grammatical relation hierarchy in (4):

(4) Subject > object > indirect object > oblique (Levin and Rappaport Hovav 2005: 142)

This hierarchy has been used to describe argument realization for different languages and across different predicate classes. In particular, mapping algorithms are often postulated between the grammatical relation hierarchy and ranked inventories of semantic roles, e.g. agent > patient/beneficiary > theme > goal/source/location. While the ranking of agents vis-à-vis other semantic roles is uncontroversial, however, there is conflicting evidence about the ranking of other roles depending on the phenomenon taken into account, for example subject selection, base direct object selection or applied direct object selection (for critical discussion, see, among others, Levin and Rappaport Hovav 2005: Chapter 6 and Kittilä and Zúñiga 2014).

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One way to deal with these problems has been to postulate an interplay of different factors that favor different grammatical configurations in different cases, very much in the spirit of competing motivation models (Du Bois 1985; 1987; see, more recently, the papers in MacWhinney, Malchukov, and Moravcsik 2014). For example, it has been assumed that, while verbal indexation patterns reflect the relative degree of animacy of different persons, first and second person may be attributed different degrees of animacy in different languages. As a result, in situations where a first person acts upon a second person or vice versa, either person may be indexed in preference to the other (see Zúñiga 2006 and 2008 and Lockwood and Macaulay 2012 for a critical review). Likewise, it has been proposed that argument realization might be sensitive to different semantic facets of thematic roles, leading to contrasting encodings of these roles from one language to another (Levin and Rappaport Hovav 2005: Chapter 6).

If particular distributional patterns result from preferences for particular grammatical configurations as opposed to others, however, exceptions to these patterns are a problem, because one needs a non-ad hoc way to explain why the assumed preference is being violated in some particular case. For example, one needs to explain why some preference to index first as opposed to second person or to map particular thematic roles onto particular grammatical relations can be violated in some languages. This is, in fact, one of the major criticisms that have been raised to competing motivation models (Newmeyer 1998; Cristofaro 2014).

If, on the other hand, particular grammatical configurations reflect the properties of specific source constructions and developmental processes, exceptions are unproblematic, as also observed by Mithun (this volume). Languages do not all have the same source constructions, nor will the same developmental processes take place in all languages. Particular source constructions and developmental processes will be significantly more frequent than others, leading to a higher frequency of the resulting grammatical configurations, as described by the relevant hierarchies (see also Blevins, this volume). Less frequent sources or developmental processes, however, will occasionally give rise to other grammatical configurations, leading to exceptions to the general distributional patterns described by individual hierarchies.

This is illustrated, for example, by several indexation patterns in Tibeto-Burman languages discussed in the chapters by DeLancey and Jacques. These patterns provide contrasting evidence about a possible ranking of first and second person in terms of prominence. In line with earlier work by Mithun (1993) and Heath (1996), DeLancey and Jacques show, however, that the various patterns result from the evolution of different source constructions, which encode different combinations of first and second person and are typically used for sociopragmatic reasons in order to deflect attention from either the speaker or the hearer.

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Synchronically based explanations also often postulate principles that are actually in contrast with some of the attested grammatical configurations described by the relevant hierarchies. For example, restrictions in the distribution of ergative case marking alignment along the animacy/referential hierarchy are accounted for by assuming that speakers will use dedicated marking for A arguments only when these arguments are more in need of disambiguation. This is in contrast with the fact that in many languages dedicated case marking is used for all types of A arguments, including those less in need of disambiguation. Also, this explanation implies that the reason why dedicated case marking is used for the relevant types of A arguments is that these arguments are in need of disambiguation. This is in contrast with the fact that many languages do not use dedicated case marking for A arguments at all, even in cases where these arguments are more in need of disambiguation.[5]

These facts, however, can naturally be accounted for if one assumes that different grammatical configurations described by a hierarchy emerge through different diachronic processes, because these processes will not give the same results, nor will they take place in all languages. For example, ergative markers restricted to particular NP types will originate from sources restricted in the same way, as shown in the chapters by Mithun and Zahir. If some source element is not restricted to particular NP types, however, the resulting ergative markers will not display these restrictions.[6] Also, ergative case marking alignment need not develop in all languages, because the constructions that can give rise to it need not always do so, nor will these constructions be present in all languages.

6. Concluding remarks: Diachronic vs. synchronic explanations of typological hierarchies

A crucial component of classical, synchronically based explanations of typological hierarchies is the idea that the principles that motivate the distributional patterns described by individual hierarchies can be read off from the synchronic properties

5. These problems are sometimes dealt with in terms of competing motivations. For a critique of this approach, see Cristofaro (2014).

6. For example, ergative markers recurrently originate from possessor markers used in nominalizations ('To X it will be the making of Y' > 'X ERG will make Y', 'X is Y's Verbed thing', > 'Y ERG Verbed X'; Bubenik 1998; Gildea 1998, among many others). These markers usually apply to all NP types along the animacy/referential hierarchy, and the resulting ergative markers apply to all of these NP types as well.

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of these patterns. In particular, there is an assumption that individual patterns are motivated by general organizational principles of language, which favor or license particular grammatical configurations as opposed to others.

Diachronic facts of the type discussed in the present volume challenge this view in two major respects. First, explanations in terms of the synchronic properties of particular distributional patterns may fail to capture the actual origins of these patterns. Individual patterns are directly motivated in terms of the properties and relative frequency of the possible sources and developmental processes for the relevant grammatical configurations. In this respect, there is no evidence that they arise because of principles pertaining to these configurations in themselves. The constructions involved in particular configurations often evolve from pre-existing constructions, through processes of reinterpretation driven by the properties of the source construction and its contexts of occurrence (for example, in the case of case marking alignment, properties that lead to the reanalysis of the argument structure of particular source constructions and the consequent development of new case markers). In other cases, the use of some construction is a result of processes of analogical extension also arguably independent of the properties of the resulting configuration. Restrictions in the distribution of particular constructions often directly mirror restrictions in the distribution of the source. For example, restrictions in the distribution of ergative case marking alignment or person indexation can be a result of restrictions in the distribution of the elements that give rise to ergative case markers or person indexes across particular contexts. Particular grammatical configurations may be rare or unattested due to the rarity of the source constructions or developmental processes that could give rise to that configuration, rather than principles disfavoring that configuration in itself.

Another aspect of typological hierarchies that is not captured by synchronically based explanations is that particular grammatical configurations involved in a hierarchy may be a combined result of multiple, unrelated processes. For example, the same distributional constraints for ergative alignment or verbal indexation can originate from different properties of different constructions that give rise to ergative markers or bound person markers. Likewise, the rarity of contrastive voiceless sonorants may be due to several independent factors inhibiting the development of these segments. This means, first, that the synchronic properties of particular configurations cannot be taken as evidence for any explanatory principle in particular, because they may be compatible with multiple origins, and, second, that these configurations may not be theoretically significant in themselves, because different instances of the configuration might be motivated differently.

These facts point to a scenario in which the distributional patterns described by typological hierarchies emerge through several different diachronic processes,

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independent of the properties of the resulting patterns in themselves. This provides a clue to various aspects of these patterns, such as the fact that they usually have exceptions and the fact that they involve distinct grammatical configurations, which are difficult to account for in terms of a single explanatory principle.

This scenario is largely consistent with classical views of grammatical change held within grammaticalization studies and historical linguistics in general. These views are manifested, for example, in accounts of the development of tense, aspect and mood systems, or alignment patterns (Bybee, Perkins, and Pagliuca 1994; Harris and Campbell 1995; Traugott and Dasher 2005, among others). In these accounts, grammatical change is usually not related to synchronic properties of the resulting constructions, for example the fact that the use of these constructions complies with some postulated principle of optimization of grammatical structure. Rather, grammatical change is usually a result of the properties of particular source constructions and the contexts in which they are used. In particular, new grammatical constructions recurrently emerge through processes of context-induced reintepretation of pre-existing ones. Their distribution originally reflects the distribution of the source construction, and they are extended from one context to another due to perceived similarities between these contexts. An explicit refutation of the idea that grammatical change is related to properties of the resulting constructions can in fact be found in Bybee, Perkins, and Pagliuca (1994: 297–300).

While grammaticalization studies and typology are relatively well integrated fields, however, these views are not usually taken into account in explanations of typological hierarchies, and, conversely, scholars of language change do not usually address the implications that their findings may have for these explanations. The evidence discussed in this volume calls for a new approach to typological hierarchies, one in which the investigation of synchronic cross-linguistic pattern is integrated with research on language change in order to cast light on the actual diachronic processes that give rise to these patterns. This involves a host of new research questions, not only, for example, what source constructions and developmental processes play a role in the shaping of individual patterns, but also to what extent each of these constructions or processes contributes to the pattern, and possibly why certain source constructions or developmental processes are rarer than others. In principle, this does not rule out that the patterns captured by typological hierarchies may ultimately be shaped by principles related to the synchronic properties of those patterns, as assumed in traditional explanations. To the extent that individual patterns are a result of specific diachronic processes, however, these principles should be proved to play a role in these processes, and cannot be postulated based on the synchronic evidence alone.

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PART II

Foundational issues

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CHAPTER 1

Evolutionary Phonology and the life cycle of voiceless sonorants

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In this chapter I examine the phonetic origins of voiceless sonorants cross-linguistically within the general framework of Evolutionary Phonology (Blevins 2004; 2006; 2008b; 2015). In terms of a general hierarchy of contrast, we observe that: voiceless obstruents are common; voiceless sonorant consonants are uncommon; voiceless vowels are extremely rare. One phonetic source of voiceless sonorants is coarticulation in RH and HR and clusters, where R is a sonorant and H is a segment produced with a spread glottal gesture. Voiceless sonorants may also arise when laryngeal spreading gestures are associated with prosodic domains. In this second case, voiceless sonorants can arise as allophones of their voiced counterparts. While a fair number of languages show voiceless sonorant glides, liquids and nasals phonologized as a consequence of RH/HR coarticulation, voiceless vowels resist phonologization despite their high frequency as phonetic variants of modal vowels. In some cases, voiceless vowels are lost before phonologization can occur. In other cases, resistance to phonologization may be due to effects of analogy, /h/, word phonotactics, or lexical competition.

Keywords: voiceless vowels; voiceless sonorants; sound change; phonologization; phonetic explanation

1. Introduction

Evolutionary Phonology is the study of synchronic sound patterns as partial reflections of their evolution or history (Blevins 2004; 2006; 2015). Central to Evolutionary Phonology is the goal of explaining why certain sound patterns have the specific properties and typological distributions they do. More specifically, we may ask why some sound patterns are extremely common while others are rare. In the realm of segment inventory and contrast, cross-linguistic hierarchies are in evidence. All spoken languages appear to have segments that might be described

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as voiceless oral stops, whether or not voicing is contrastive. Contrastive voiceless sonorant consonants, on the other hand, are uncommon cross-linguistically, occurring in less than 5% of the world's languages. Even rarer are contrastively voiceless vowels. The central goal of this study is to document this asymmetry, and to offer an explanation for it.

The chapter is structured as follows. In Section 2, we review facts related to the distribution of contrastively voiceless sonorant consonants and contrastively voiceless vowels. Since some have questioned whether contrastively voiceless vowels exist at all, the discussion is non-trivial. Once it is established that contrastively voiceless vowels do exist, we turn, in Section 3 to the historical sources of voiceless sonorants. In Section 4 we address the central analytical problem: voiceless sonorant consonants and voiceless vowels are common allophones of their voiced counterparts cross-linguistically, but voiceless vowels resist phonologization, while voiceless sonorant consonants show less resistance. In other words, some factor or group of factors appears to inhibit the phonologization of voiceless vowels. What factors may play a role in inhibiting the evolution or maintenance of contrastively voiceless vowels? Before turning to these phonological issues, we offer brief remarks on the phonetics of voiceless sonorants.

As *phonetic* segment types, voiceless sonorant consonants are extremely common in the world's languages, though often overlooked as allophones of their voiced counterparts. As an example, consider the fully or partially voiceless sonorants in initial clusters like English [s̥næk] 'snack', [s̥læk] 'slack', [s̥mæk] 'smack'. Voiceless vowels are also common contextual variants of phonologically voiced vowels in many languages. Again, we see examples in English, where, between voiceless consonants, unstressed vowels are often fully devoiced, as the initial vowel of English *potato, pastrami*, *cathartic*, etc. In order to understand what exactly a voiceless sonorant is, we must first have a clear definition of what a sonorant is.

Chomsky and Halle (1968: 302) define sonorant sounds ([+sonorant]) as those produced with a vocal tract cavity configuration in which spontaneous voicing is possible, while obstruents ([-sonorant]) have cavity configurations which make spontaneous voicing impossible. Stevens (1983: 254) ammends these definitions by referring directly to the aerodynamic pressure increase in obstruents and associated turbulent noise (during closure or release), and the absence of this intraoral air pressure and associated noise in sonorants. In later work inhibition of vocal fold vibration is noted as a mechanical effect of air pressure increase in obstruents (Stevens 1997: 490). With these definitions in place, we can turn more specifically to voiceless sonorants.

The articulation of voiceless sonorants, like modal voiced sonorants, involves approximately equal air pressure above and below the glottis, with no significant

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increase of intra-oral air pressure. However, since vocal folds are not in their neutral position, there is no modal voicing. Instead, vocal folds are widely spread at the arytenoid cartilages, or there is some other glottal devoicing gesture. Modally voiced sonorants do not involve these spreading gestures. In general, no vocal cord vibration is present and longitudinal tension, medial compression and adductive tension are minimal, though, in some cases, vocal cords vibrate at low amplitude despite glottal aperture. Depending on glottal area and transglottal airstream turbulence, frication can arise (Ladefoged 1971; Gordon & Ladefoged 2001; Bombien 2006; Tucker & Warner 2010).

Acoustic properties associated with voiceless sonorants include: greater duration of voiceless sonorants than voiced sonorants; increased spectral noise at higher frequencies; decrease in overall acoustic intensity; fall off of energy at higher frequencies (negative spectral tilt, in contrast to modal voice with intermediate values, and positive values for creaky voice); possible raising of fundamental frequency; and possible shifts in formant frequencies (Maddieson & Anderson 1994; Gordon & Ladefoged 2001; Turnbull et al. 2011). In one of the few acoustic and perceptual studies of voiceless vowels, Gick et al. (2012) found final voiceless vowels in Oneida and Blackfoot to be completely silent and inaudible, as measured acoustically and perceptually.

2. Voiceless sonorants as contrastive segment types

Speech sounds of the world's languages make use of a limited number of laryngeal contrasts that can be classified in terms of the following three parameters: (i) whether or not the vocal folds are vibrating; (ii) whether or not the vocal folds are constricted; (iii) whether or not the vocal folds are spread. While the precise phonological feature system used to express these contrasts is not critical, we adopt three standard features for this purpose: [+/−voiced], [constricted glottis], and [spread glottis]. A minimal system of three laryngeal features is necessary to distinguish modal voice in sonorants from voicelessness, creaky voice, and breathy or murmured voice, and two values for voicing appear necessary for a range of assimilatory processes (Blevins 1993; Gordon & Ladefoged 2001; Wetzels & Mascaró 2001; Blevins 2004; 2006).

In Table 1 voiceless sonorants as contrastive segment types in the world's languages are exemplified and described in terms of these features, as well as prosodic properties. Cover symbols used in the following discussion are also presented. In addition to these symbols, we use H to indicate any segment specified as [spread glottis], including aspirated oral stops.

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Table 1. Voiceless sonorants as contrastive segment types: 4 basic types

Description	Cover symbol	Sample segments	Feature make-up	Position in syllable
Voiceless laryngeal glide	h	/h/	[+son, −cons, spread glottis, −voiced] (no PLACE features)	free (see below)
Other voiceless glide	W̥	/w̥, j̥/	[+son, −cons, spread glottis, −voiced] (with PLACE features)	typically non-nuclear
Voiceless sonorant consonant	R̥	/l̥, m̥/	[+son, +cons, spread glottis, −voiced] (with PLACE features)	typically non-nuclear
Voiceless vowel	V̥	/i̥, u̥/	[+son, −cons, spread glottis, −voiced] (with PLACE features)	nuclear

It is important to distinguish between the voiceless laryngeal glide /h/, which is common in the world's languages, and other voiceless glides and voiceless sonorant consonants, which are uncommon. It is also important to distinguish between voiceless sonorant consonants, which are rare, but nevertheless found in a small percentage of the world's languages, and voiceless vowels, which are extremely rare. In Table 2, frequencies for these segment types are drawn from Maddieson (1984), and combined with information regarding genetic/areal distribution and potential implicational relations for segment inventories. While the languages Maddieson (1984) classifies as having distinctive voiceless vowels may be disputed, the general frequencies remain unchanged. Contrastive voiceless sonorants are more than twice as common as contrastively voiceless vowels. It is this asymmetry that we seek to explain.

Implicational relations are evident in the distribution of voiceless sonorants in the world's languages, though these are not often remarked upon. If a language has voiceless sonorants (consonants, glides or vowels), it also has the corresponding modal voiced sonorant.[1] In addition, if a language has a contrast between voiced and voiceless sonorant consonants (nasals, liquids, or glides), it also has /h/. While both of these implicational relationships may be attributed to synchronic markedness hierarchies, the alternative offered here is a two-fold phonetic explanation. First, modal voiced sonorants are more common than voiceless sonorants because sonorant consonants will be voiced when there is no active spreading or constricting gesture at the larynx. Second, as I suggest below, the rarity of contrastive voiceless sonorants can be viewed as a simple consequence of the limited pathways by

1. The only exceptions are sounds that may vary between sonorant and obstruent production, like the noisy <ř> rhotic in Czech. See footnotes 3 and 4 for further discussion.

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which voiceless sonorants can arise: coarticulation must occur between a spread-glottal gesture and a voiced sonorant, yielding voicelessness in the sonorant, and subsequently, the conditioning environment for this voicelessness must be lost.

Table 2. Contrastive voiceless sonorants and linguistic typology

Type	Frequency (Maddieson 1984)	Genetic/areal distribution	General contrastive status	Implications for segment inventory?
h	279/317 **88%**	all major language families*	very common	none
W̥, R̥	11/317 **3.5%**	South-East Asia; American Northwest; Meso-America	uncommon	if W̥ then W; /h/ if R̥ then R; /h/
V̥	2/317 **.6%**	Teso-Turkana (E. Nilotic) Comanche (C. Numic)**	rare	if V̥ then V

*Pama-Nyungan and other Australian languages lack /h/ (and /s/, *s)
**Maddieson (1984) lists Ik (Nilo-Saharan) and Dafla (Sino-Tibetan) as having contrastive voiceless vowels. Teso-Turkana languages and Comanche are not included in his count.

An interesting observation regarding voiceless sonorant consonants is that they appear to be areal features. In the Northwest Coast "zone" of North America, voiceless sonorants are found in at least five unrelated language families or isolates: Aleut (Eskimo-Aleut), Koyukon (Athabaskan), Klamath (Klamath-Modoc), Takelma (Isolate) and Kashaya (Pomoan). In South-East Asia, voiceless sonorant consonants are also found in distinct language families in a more-or-less continguous geographic area, attested in: Sedang (Austro-Asiatic); Lakkia (Tai-Kadai); Burmese (Sino-Tibetan/Tibeto-Burman); Angami (Sino-Tibetan/Naga) and Hmong (Miao-Yao). Blevins (2017) suggests that one recurrent property of areal sound patterns is their relatively high perceptual saliency. While voiceless sonorant consonants may not be loud sounds, like /h/, they may be contextually salient, contrasting with surrounding voiced sounds, and giving an overall "whispered" effect. This saliency may distinguish them from truly voiceless vowels which are both extremely rare, and which, in the recent acoustic study of Blackfoot and Oneida by Gick et al. (2012), have been found to be, in many cases, altogether silent.

The existence of contrastively voiceless vowels is widely debated, as summarized in Blevins (2004: 199–201). The clearest documented contrast between modally voiced vowels and their voiceless counterparts is in the Teso-Turkana subgroup of Eastern Nilotic. This subgroup includes: Karimojong, Dodos Nyakwai, Toposa, Nyangatom, Teso, Turkana, and Jie, and the languages are spoken primarly in eastern South Sudan, northwestern Kenya, southwestern Ethiopia, and northeastern Uganda. Synchronic descriptions of the phonology of Teso-Turkana languages include: Heine (1978) and Dimmendaal (1982; 1983) on Turkana; Schroeder and

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Schroeder (1987a,b) on Toposa; and Novelli (1985) on Karimojong. In addition to these studies, Vossen (1982) details the historical phonology of this group with reconstructions of Teso-Turkana and Eastern Nilotic.

In Toposa (Schroeder and Schroeder 1987a,b), there is a contrast between voiced and voiceless vowels, but the contrast is restricted to pre-pausal contexts, making it highly suspect. Nevertheless, in exactly this context, as illustrated in (1), underlyingly voiced vowels are realized as voiced (1a), while underlyingly voiceless vowels are realized as either whispered vowel, or as zero,with possible devoicing effects on preceding consonants (1b). In the last column of (1) are reconstructions of these roots following Vossen (1982).

(1) Contrastive voiced vs. voiceless vowels in Toposa (Eastern Nilotic)

	Toposa		pre-forms ca. 1000 AD
a.	/kamu/	…nya-kamu// …nya-kamu na//	< *-kamei-u 'dry season'
b	/ruku̥/	…nya-ruku̥// …nya-ruku na//	*-rruk- 'hump of cow'

A similar pattern is described for Turkana (Dimendaal 1982; 1983) and other Teso-Turkana languages.

Schrock (2011: 7–8) contests the contrastive status of voiceless vowels for Ik (Kuliak) and other languages of the northeast Uganda and northwest Kenya region. His reasons for skepticism include the following: voiceless vowels are limited to word-final position, and are voiceless only phrase-finally before pause; voiceless vowels are voiced when in non-final position of a phrase; in some languages, like Ik, the phrase-final reduced vowel variant can be voiceless or a short (voiced) schwa; in some languages, like Teso and Turkana, vowels may not be pronounced at all in phrase-final position; in some languages, like Turkana, a phrase-final RV̥// sequence is pronounced … R̥] with a final voiceless sonorant consonant allophone; in Ik and Toposo, nominal case-endings are often, but not always, voiceless when phrase-final, independent of their underlying voice features; and, finally, there are no minimal pairs distinguished only by final voiced/voiceless vowel pairs. While all of these observations appear to be sound, contrasts like the one illustrated in (1) constitute near-minimal pairs. Further, the devoicing of a preceding sonorant, if the voiceless vowel is lost, is a further indication of a contrastive feature carried by the vowel. While it appears to be extremely limited in its distribution, the contrast between modally voiced vowels and voiceless or whispered vowels appears to be a feature of this small group of Eastern Nilotic languages spoken by close to two million people in this part of Africa.

In contrast, voiceless vowels do not appear to be contrastive in Dafla (aka Nishi, Nyishi), contra Maddieson (1984). Dafla is a Sino-Tibetan language of the Tani/Miric subgroup, spoken on the eastern edge of the Himalayas, bordering

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Tibet, Assam, Bhutan and Myanmar. Though Ray (1967) reports word-final voiceless vowels, these are suspect phonemes for several reasons. First, and most importantly, their distribution is predictable: short /i/ is voiceless word-finally, and voiced elsewhere, while short /u/ is only voiceless word-finally when preceded by a voiceless consonant. Second, more recent descriptions including Das Gupta (1969); Tayeng (1990), and Abraham (2005) do not include voiceless vowels as basic (or derived) sounds. Finally, as illustrated in (2), there is historical evidence for final vowel devoicing/reduction and loss, but not of contrastive voiceless vowels (Abraham 2005).[2]

(2) Nishi dialect evidence for historical final vowel loss

Lower Region	Upper Region	
at, atə	a:te	'elder sister'
ix	ixi	'dog'
ab	abu	'father'
an	ane	'mother'

We are left with an interesting conundrum. Contrastive voiceless sonorant consonants appear to be much more frequent than contrastive voiceless vowels in the world's languages. This is true, despite the fact that voiceless vowels are described as allophones of voiced vowels in a wide range of languages across the world. Some of these languages are listed in (3), arranged alphabetically by language name.

(3) 56 languages with phonetically voiceless vowels
Acoma (Miller 1965); Ainu (Shiraishi 2003); Ashéninka Perené (Mihas 2010: 44–46); Awadhi (Saksena 1971); Bagirmi (Gaden 1909); Blackfoot (Gick et al. 2012); Bulu (Alexandre 1962); Cheyenne (Davis 1962); Chickasaw (Gordon & Munro 2007); Cocama (Faust & Pike 1959); Comanche (Armagost & Miller 2000); Cora (Kim & Valdovinos 2014: 4); Dafla (Ray 1967; Das Gupta 1969); French, Montreal (Gendron 1966; Cedergren & Simoneau 1985); Gadsup (Frantz & Frantz 1973: 408); Galla (Vine 1981); Goajiro (Holmer 1949: 49–51); Greek (Dauer 1980); Hopi (Bright 1976: 236); Hupa (Golla 1970; Gordon 1998a); Ik (Heine 1975; Schrock 2011); Island Carib (Taylor 1952); Japanese (Han 1961; Beckman 1982; Tsuchida 1994); Japhug (Jacques 2004: 343); Kawaiisu (Zigmond et al. 1990); Kinyarwanda (Myers 2005); Korean (Jun & Beckman 1993; 1994; Jun et al.1997; 1998); Lezgi (Chitoran & Iskarous 2008); Malagasy (Kikusawa 2006); Mandarin (Shirai 2011); Mbay (Caprile 1968); Mixtec (Gerfen 1999); Mokilese (Harrison 1976); Nyangumarta (O'Grady 1964); Oneida (Gick et al. 2012); Oromo, Boraana (Voigt 1984; Stroomer 1995); Papago (Saxton et al. 1983); Portuguese, Brazilian (Mateus & d'Andrade 2000; Mendes & Walker 2012); Quechua (Delforge 2009); Saami (Nielsen 1926); Sara

2. A reviewer notes that the data on Nishi may be unreliable.

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(Vine 1981); Shina (Masica 1991); Shoshoni, Big Smokey Valley (Crapo 1976); Southern Paiute (Sapir 1930); Tarascan, aka Purépecha (Foster 1969; Friedrich 1975); Ticuna (Anderson 1959); Tongan (Feldman 1978); Totonac, Filomena Mata (McFarland 2009); Tubu (Lukas 1953); Tunica (Haas 1946); Turkana (Dimendaal 1982; 1983); Turkish (Jannedy 1995); Uyghur (Hahn 1991); Woleaian (Sohn 1975); Yupik (Miyaoka 2012); Zuni (Bright 1976: 236).

In order to solve this problem, we adopt the general explanatory mechanisms first proposed by Greenberg (1966; 1969; 1978) for synchronic distributions of linguistic features.

In the context of what he called "The State-Process Model", Greenberg observed that for any state of a natural human language there must be (i) at least one process leading to that state; and (ii) at least one process leading from it to a different state. If this is the case, then synchronic distribution of linguistic features offers insight into rates of diachronic innovation and transmission. High frequency features may be frequently innovated, robustly transmitted, or both. Rare features may be rarely innovated, poorly transmitted, or both. Genetic and areal distribution of linguistic features can be highly suggestive of innovation and transmission rates. If a feature clusters within related languages or in language areas, especially where there is thought to be significant time depth, the feature shows diachronic fitness, persisting over time, and (in cases of areal features) spreading to unrelated languages. If, on the other hand, there is random distribution of a feature within a language or area, this suggests poor transmission, genetically and/or laterally. Since we have ample evidence that voiceless sonorant consonants and vowels are common allophones of their voiced counterparts, the differential rates of contrastiveness do not appear to be related to innovation. Rather, differences in frequencies of contrastively voiceless sonorant consonants versus voiceless vowels must be related to differential rates of phonologization. Though languages like those listed in (3) show phonetically voiceless vowels, voiceless vowels appear to resist phonologization. In contrast, as demonstrated below, allophonically voiceless sonorant consonants like the voiceless nasal of English [sm̥æk] 'smack' do undergo phonologization under the appropriate circumstances.

Within Evolutionary Phonology (Blevins 2004; 2006; 2008a; 2008b; 2015), Greenberg's general approach is integrated into a theory of phonetically-based sound change that attempts to predict types and frequencies of sound patterns in synchronic systems. A sound or sound pattern ***S*** may be rare because: (i) there is no sound change X*Z*Y > X***S***Y; (ii) the sound change itself is rare, requiring a rare set of conjunctive conditions; or (iii) there is a change X*Z*Y > X***S***Y, but there is also a common sound change X***S***Y > X*Z*Y, whereby ***S*** is eliminated. An example of type (i) rarity are individual sounds with ingressive pulmonic airflow. There

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is no known regular sound change that takes a sound with egressive pulmonic airflow (or ingressive/egressive glottalic, ingressive velaric airflow) to ingressive pulmonic. Therefore, we do not expect individual consonants or vowels with pulmonic ingressive airflow to arise. The one reported example of a sound of this type, the ingressive lateral fricative of the ritual language Damin spoken by Lardil initiates (Hale and Nash 1997), appears to be an invented sound, not a sound that has arisen spontaneously through natural phonetic processes. Rarity of the second type might include click sounds – consonants produced with the ingressive velaric airstream mechanism. Clicks appear to be rare because they rarely originate via natural phonetically-based sound change from non-click sounds. However, once evolved, they are relatively stable, and robust, as indicated, for example by their spread via contact (Blevins 2004: 194–96; Blevins 2017). An example of the final trajectory would be three-way contrasts in vowel length: V vs. V: vs. V::. While these can arise simply from the juxtaposition of a short and a long vowel in languages with two-way length contrasts, extra-long vowels appear to be rare. The explanation for rarity in this case involves subsequent developments: three-way length contrasts appear to place a strain on the perceptual system, and are typically neutralized to two-way contrasts. Only under extreme conditions of lexical competition do such three-way length contrasts appear to survive (Blevins 2004: 201–02; Blevins & Wedel 2009).

The differential distributions of contrastive voiceless sonorant consonants vs. contrastive voiceless vowels may be partially explained by this simple typology, as we highlight below. As a case of the third type, they may evolve in word-final position, and then subsequently, be lost. However, the story is not so simple, as illustrated by the many languages, like those in (3), which appear to maintain voiceless vowels as allophones of voiced vowels, without phonologization. The following summary of the historical sources of voiceless sonorants attempts to provide a deeper understanding of why voiceless vowels rarely phonologize.

3. Historical sources of voiceless sonorants

There appear to be only two contextually conditioned historical phonetic sources of contrastively voiceless sonorants in the world's languages.[3] Voiceless sonorants

3. Spontaneous devoicing of certain sonorants may be associated with loss of sonorancy, as when a rhotic is produced with slightly greater constriction, yielding a more strident sound. A case of this type might be the Czech <ř>, as described by Ladefoged and Maddieson (1996: 228–29): "the frication…has a distinctive whistle-type of relatively narrow-band noise"

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may arise via coarticulation with an adjacent sound that is produced with a glottal spreading gesture, and voiceless sonorants may arise at phrase boundaries when those phrase boundaries are associated with glottal spreading gestures.

3.1 Voiceless sonorants via RH, HR coarticulation

The first pathway is schematized in (4), where '/' is to be interpreted as "in the environment of", where H may precede, follow, or precede and follow the target segment; (4a) shows the evolution of voiceless sonorant consonants, and (4b) the evolution of voiceless vowels, though the paths are parallel and represent the same general development.[4]

(4) Source I: Co-articulation of sonorant and adjacent H

	Stage I Allophony	Stage II Phonologization
a.	R > R̥ / H	R̥H, HR̥ > R̥
b.	V > V̥ / H	V̥H, HV̥ > V̥

The schema in (4) illustrates co-articulation of a sonorant consonant or vowel with an adjacent segment with [spread glottis] specification. Recent work suggests that HR and RH sonorant devoicing is a consequence of gestural overlap or sharing of a single laryngeal spreading gesture (e.g. Gordon 1998b; Tsuchida et al. 2000; Bombien 2006; Tucker & Warner 2010). In (4), two idealized 'stages' are illustrated: the stage where the voiceless sonorant is identifiable as a conditioned allophone of a voiced sonorant; and a later stage where the voiceless sonorant is reinterpreted as a single segment. Note that the order of sounds is not specified: voiceless sonorants can arise when a segment with [spread glottis] specification precedes the sonorant in question, or when it follows. In (5) we illustrate the first case, and (6) we illustrate the second.

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and "is often partially devoiced". The reverse process, where a voiceless obstruent is weakened, and becomes an approximant is rare, but may have occurred in Tahltan, where *ɬ > l̥ (Shaw 1991) and in some varieties of Maori, where *ɸ > w̥. This kind of context-free weakening would provide one additional source for voiceless (non-nasal) sonorant consonants.

An anonymous reviewer also suggests that voiceless sonorants may arise directly from preglottalized sonorants. According to this source, the Proto-Thai contrast between *ʔm and *hm is preserved in Kam Sui languages such as Sui, while in proto-South Western Thai, *ʔm and *hm merged to /m̥/.

4. This evolutionary pathway is meant to include cases where sonorants devoice between voiceless obstruents, as in Japanese, and the history of Japanonic languages (Pellard 2009). The working assumption is that, in these contexts, a spread glottal gesture is responsible for the long-domain absence of voicing.

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Data in (5) is from a range of Tibetan languages, where a reconstructed initial *sm cluster gives rise to a contrastive voiceless nasal in Mngaris and Sbathang (Huang et al. 1992; STEDT 2012). In Labrang we see an /hm/ cluster, but in Sbathang, the same cluster appears to have fused, giving rise to the attested initial voiceless nasal, following the pathway illustrated in (4a). A subsequent development is that of sonorant re-voicing: this appears to have occurred in Chone, where earlier voicing contrasts on sonorants have been phonologized as tonal contrasts on the following vowel.[5]

(5) HR > HR̥ > R̥ in Tibetan

Proto-Tibeto-Burman	*s-man 'medicine'
Written Tibetan	*sman*
Bengni (North Assam)	*si-min*
Labrang (Tibetan)	*hman*
Mngaris (Tibetan)	*rm̥an*
Sbathang (Tibetan)	*m̥ẽ*[55]
Chone (Tibetan)	*mɛ́ː*

In (6), the mirror image sound change is in evidence. Here the data is from two closely related Oceanic languages: Kokota, which shows voiceless sonorants, and Zabana, which does not. Kokota is highly unusual for an Oceanic language in showing clear contrasts between plain voiced and voiceless sonorants in initial and medial position, as in: *nomi* 'our (excl.)' vs. *no̥mi* 'hear (tr.)', *ruta* 'swamp taro' vs. *ɾ̥uta* 'untangle', etc. Palmer (1999; 2009) presents a range of arguments for these voiceless sonorants as single segments as opposed to clusters. The comparative data in (6) allows us to understand this as in instance of (4a). Voiceless sonorants in Kokota are a consequence of a sequence of sound changes: first, syncope of a vowel between a sonorant and /h/; then, merger of the Rh sequence, as in *namaha > namha > *nḁma* 'love'.

(6) *RH > R̥H > R̥ in Kokota

	Zabana	Kokota	
*namaha	*namaha*	*nḁma*	'love'
*komuhu	*komuhu*	*ko̥mu*	'season, year'
*naroho	*naroho*	*nḁro*	'rope'

The historical pathway that takes *RH or *HR to a voiceless sonorant explains several phonetic and phonological properties of voiceless sonorants observed by earlier researchers. As observed robustly by Gordon and Ladefoged (2001),

5. I am grateful to an anonymous reviewer for clarifying details of the Tibetan developments and providing the Chone form.

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voiceless sonorant consonants often have longer durations than their voiced sonorant counterparts. A simple explanation for this fact is that the when an RH sequence is coarticulated, the duration of the sequence is maintained. A second aspect of some voiceless sonorant consonants is that they show contours from voiceless-to-voiced or from voiced-to-voiceless. Voiceless-to-voiced contours are described for some Tibeto-Burman languages, reflecting the original temporal HR sequence in clusters like the one illustrated in (5). The opposite contour of voiced-to-voiceless is described for Kokota, reflecting the historical RH clusters from which the single segments in (6) originated. A final property that is explained by the general development in (4a) concerns distributional restrictions on voiceless sonorants. In many Tibeto-Burman languages, voiceless sonorants are limited to syllable-initial position, reflecting their origins in syllable-initial HR clusters. In Kashaya, a Pomoan language of California, voiceless sonorants are limited to syllable-final position, reflecting historical origins in syllable-final HR clusters.

The same evolutionary pathway is observable for vowels, but, consistent with the facts seen thus far, clear instances of phonologization are difficult to identify. One of the best studied cases is that of Comanche (Central Numic). As detailed by Armagost and Miller (2000), Comanche shows two clear cases of devoicing in its synchronic phonology. In the first case, referred to as "organic" devoicing, illustrated in (7), a short unstressed non-stem-initial vowel obligatorily assimilates to a following /h/ or /s/, becoming voiceless, with apparent loss of /h/, but maintenance of /s/.

(7) V̥H> V̥H > V̥ in Comanche: Organic devoicing

	Word-initial		Non-word-initial
a.	*kohno* 'cradle'	c.	*haβi-kọ̥no* 'night cradle'
b.	*tosa* 'white'	d.	*to-tọ̥sa* 'white' (reduplication)

If word-initial syllables are associated with some kind of prominence, we can view the sound change in (7) as occurring when the historical VH sequence is unstressed or relatively short. However, given the maintenance of initial VH and Vs sequences in word-initial position, there has been no clear reanalysis of voiceless vowels as contrastive sounds in these contexts, and they remain predictable allophones of their voiced counterparts.

However, an independent development could be leading to an incipient contrast between voiceless vowels and Vh sequences in non-initial syllables. As detailed by Armagost and Miller (2000), if a vowel is in a context where it should be devoiced before /h/ and it is preceded by a voiced consonant, the vowel is lost, and there is Dh > hD metathesis (D a voiced consonant). Some examples are provided in (8).

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(8) A new source of Comanche Vh sequences: VDVhV> VDV̥hV > VhDV

a. /na-juhu/	[nahju]	'oil'
b. /wa-waha/	[wahwa]	'twins' < 'two-RED'
c. /ku(h)-tsa(h)-wihi/	[kuhtsahwi]	'to throw in the fire'
	not [kuhtsV̥wi]	

From a synchronic perspective, forms like (8c) suggest that organic devoicing precedes metathesis, since the bolded vowel is in a context for organic devoicing but does not devoice. From a historical perspective, we suggest that the sound change in (7) was regular, and was followed by the metathesis process illustrated in (8). As a consequence, in words like (8c) organic devoicing has become opaque.

The debate over whether or not Comanche has contrastive voiceless vowels centers on the extent to which organic voiceless vowels like those in (7) can all be attributed to underlying /h/, which often does not surface. However, whether or not one analyzes Comanche as having this contrast, the example is extremely useful in illustrating the complex type of system that needs to arise for voiceless vowels to be potentially phonologized. First, there must be a process like (6), whereby voiceless allophones arise in coarticulatory contexts, with loss or absorption of the trigger: either V̥H > V̥ or HV̥ > V̥. In addition, there must be a *new* source for VH or HV clusters *in the same phonological contexts*. If a new source does not arise, there is nothing to force voiceless vowels to be reinterpreted as phonemic, and, given the existence of /h/, they will continue to be interpreted as phonological VH or HV clusters.

3.2 Voiceless sonorants via phrase-final devoicing

The second pathway giving rise to voiceless sonorants originates with phrase-final devoicing, as schematized in (9).

(9) Source II: Phrase-final devoicing[6]

Phrase-final	Word-final	Lexicalization
a. R > R̥ / __//	R > R̥ / __#	R̥ #
b. V > V̥ / __//	V > V̥ / __#	V̥ #

6. The phrase/word-initial context is not illustrated, as there are no clear cases of sonorant devoicing in this position. Ancient Greek initial <rh>, a voiceless or aspirated rhotic, reflects word-initial *sr or *wr. In the first case, the spread-glottal gesture may be attributed to *s; in the second, the development may be analogical, or due to fortition associated with the *wr cluster (cf. sounds like Czech <ř>, as described in footnote 2).

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In some languages, phrase-final position may be associated with a laryngeal spreading gesture, while in others it may be associated with a laryngeal closing gesture (Blevins 2006; 2008b).[7] In languages where there is a laryngeal spreading gesture, one finds phrase-final devoicing of both obstruents and sonorants, though cases of obstruents are much more widely studied. As suggested by Blevins (2006), reanalysis in the course of language acquisition, may result in final-devoicing patterns shifting from phrase-based to word-based generalizations. (See also Myers and Padgett 2014.) If there are words that are canonically phrase-final, and others that are canonically phrase-medial, a contrast between word-final voiced vs. voiceless sonorants may evolve via lexicalization.

One well known case of final sonorant devoicing like that in (9a) is that found in Angas (aka Ngas), a West Chadic language of Nigeria.[8] As described by Burquest (1998: 68–70), Angas has utterance-final devoicing, which results in voiceless liquids and nasals. Utterance-final words from this language include those shown in (10), with their non-final counterparts. While allophonic alternations of this kind are not uncommon, it is difficult to identify cases where this kind of phrase-final devoicing has resulted in contrastive voiceless sonorants. I return to this issue below.

(10) Phrase-final devoicing in Angas: *R > R̥ / __//

Phrase-final	Non-final	
[siɾ̥]	*sir*	'to forgive'
[kʷal̥]	*kʷal*	'joint'
[fʷan̥]	*fʷan*	'to rain'
[ntaŋzum̥]	*ntaŋzum*	'wasp'

Parallel processes for vowels are widespread in the world's languages (Myers 2005; Myers & Hansen 2007). For example, in Woleaian (Micronesian) and Oromo (Cushitic) an underlying contrast between long and short vowels is realized as a contrast between voiced and voiceless vowels in word final position. In both languages we can posit the sound changes shown in (11). Though (11i) and (11ii)

7. Devoicing before pause has also been attributed to coarticulation: if the vocal folds are wide apart during pause or relaxed breathing, this position can be anticipated, resulting in phrase-final devoicing (Myers 2005; Myers & Hansen 2007). It is difficult to understand how this coarticulatory explanation can be extended to languages that show vocal fold constriction at phrase boundaries (Blevins 2008b).

8. The data is well known since it appears in a problem set in Halle and Clements (1983). Since the words are presented out of context, the "solution" for the problem is that sonorants are devoiced word-finally. However, the original source, Burquest (1998: 68–70), makes it clear that Angas has phrase-final, not word-final, devoicing.

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are formulated as distinct historical processes, they clearly reflect one and the same process of final devoicing. The domain of final devoicing is essentially the last timing unit, which results in devoicing/loss of a short vowel, and devoicing/shortening of a long vowel.

(11) Phrase-final to word-final vowel devoicing
  i. Historical long Vs *VV > V̥V̥ > V
  ii. Historical short Vs *V > V̥

Recent work by Gick et al. (2012) looks at the acoustic and perceptual properties of devoiced or whispered vowels in two languages that have undergone a similar process: Oneida and Blackfoot. In both languages, while there was clear evidence from the articulatory record that the vowels are pronounced, the vowels are acoustically and perceptually silent. Given this, it should not be a great surprise that many languages with final vowel devoicing show a subsequent stage of development where final voiceless (short) vowels are lost. For example, in comparing Woleaian to Trukese, a closely related language, we find that final short voiceless vowels that are present in Woleaian are absent in Trukese, as illustrated in (12i) (data from Blust and Trussel, 2014). Where final vowels were long (12ii), they have also undergone devoicing and loss, but the consequence is a synchronic short vowel. Recall that though (12i) and (12ii) are formulated as distinct processes, they reflect one and the same historical process of final devoicing.

(12) Micronesian final vowel devoicing and loss
  i. *V > V̥ > ø /__#

Proto-form	Woleaian	Trukese	gloss
*pitu	*fitɨ̥*	*fúús*	‘seven’
*kuRiCa	*giusḁ*	*kúús*	‘octopus’
*laNiC	*laŋi̥*	*nááŋ*	‘sky’

  ii. *VV > VV̥ > V/__#

Proto-form	Woleaian	Trukese	gloss
*panapa > *panaa	*pana*	*fela*	‘needlefish’
*taRaqan > *taraa	*sera*	*sara*	‘kind of fish’

While it might appear that Woleaian has evolved a set of phonologically contrastive voiceless vowels in word-final position, this analysis is difficult to maintain, since final voiceless vowels alternate with voiced medial vowels as in, e.g. *mejḁ* ‘feel’, transitive *meja-fi*, *fire̥* ‘weave’, transitive *fire-xi*, etc.

While phrase-final devoicing could, in principle, give rise to contrastive voiceless sonorants, this rarely occurs. In the case of sonorant consonants, this appears to be due to the fact that contextual conditioning would need to become lexicalized, and opaque. What is needed is a language like Angas, where all words are produced with final devoiced sonorants, and where, subsequently, words like /kʷal̥/

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enter into compounds where they are non-final, maintaining their devoiced final Cs, and contrast in those contexts with historically non-final voiced sonorants.

In contrast, phrase-final devoicing may give rise to contrastive, or weakly contrastive, voiceless vowels, as in languages like the Teso-Turkana group discussed above. The paucity of languages with phonologized word-final voiceless vowels is not due to the rarity of sound changes producing phonetically voiceless vowels. Rather, it is due to two distinct sets of factors, one phonetic and one structural. The phonetic factors have already been mentioned, but can now be reviewed in comparison with phonetic properties of voiceless sonorant consonants. Voiceless vowels are imperceptible or nearly imperceptible in word-final position (Gick et al. 2012). Therefore, all else being equal, it is expected that they will be lost over time (Blevins 2004: 199). This distinguishes voiceless vowels from voiceless sonorants. Though voiceless sonorants are relatively weak sounds, in word-initial position, as they have evolved, for example, in Sino-Tibetan (5), or initial and medial position in a language like Kokota (6), they are audible, with intrinsic cues similar to /h/, and contrast (in their near-silence) with the adjacent vowel(s). In sum, word-final voiceless vowels have the weakest cues of perhaps any segment type, and are expected to disappear as language is transmitted from one generation to the next. In this way, they contrast with pre-vocalic or post-vocalic voiceless sonorants, which are more perceptually salient. Within the Evolutionary model, what needs to be explained are the cases where final voiceless vowels are maintained for more than a few generations. In Section 4 this is related to the same factors that may inhibit phonologization.

The analysis proposed here is distinct from those based on synchronic markedness constraints. Consider the concrete proposal of Gordon (1998b: 93) regarding the typological rarity of contrastively voiceless vowels. He suggests that "non-modal vowels are perceptually less robust than modal vowels and are therefore eschewed by many languages." While this much is agreed on, the question is whether the extreme phonetics of these nearly-imperceptible segments is enough, or more is needed. Gordon proposes a universal constraint *NON-MOD V that can be ranked above or below constraints demanding vowel devoicing on the basis of articulatory/aerodynamic ease. But the cross-linguistic data we have examined to this point is clear: very few languages prohibit phonetically voiceless vowels. Therefore *NON-MOD V is typically violable and ranked below constraints valuing articulatory/aerodynamic ease. Despite this synchronic ranking where *NON-MOD V is violable, synchronic grammars with the same rankings and contrastive non-modal vowels are extremely rare. It remains to be seen, then, what the constraint *NON-MOD V explains. It does not explain anything in particular about the 55 languages in (3) that have phonetically voiceless allophones of modal vowels, since it is essentially inert in these grammars. And it does not allow us to explain why over

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99% of the world's languages lack contrastively voiceless vowels, because the synchronic constraint has precisely the same status as other constraints like *VOICED or *CODA: the constraint may or may not be highly ranked within a given language. Though it appears to encode a notion of markedness in a particular grammar, and serves a definite function in determining surface forms, there is no direct or indirect relationship between markedness constraints and sound pattern frequency of the world's languages. Most importantly however, synchronic accounts of this kind fail to identify differentials between expected phoneme types, and attested types. If voiceless vowels are fine as predictable allophones of voiced vowels in so many languages, why are they not potential phonemes themselves? What kinds of factors might be at work in the many languages where voiceless vowels are maintained as persistent allophones of their voiced counterparts, without phonologization, and without loss?

Before addressing this question, we summarize the general results of this typological survey. In (13) the common life cycles of voiceless sonorants are outlined.

(13) The life cycles of contrastively voiceless sonorants

	Birth	Life[9]	Death/Reincarnation
Consonants	RH, HR > R̥	R̥V, VR̥	(Revoicing/Loss in CC)
Vowels	VH, HV > V̥	CV̥, V̥C	???
	V > V̥ / __#	V̥#	V̥# > ø

Known cases of contrastively voiceless sonorant consonants arise from RH or HR clusters. Voiceless sonorants with these origins are relatively stable, though in languages like Tamang (5), they may undergo revoicing. In all languages, instability may arise in consonant clusters. I have yet to find a case where contrastive voiceless sonorants have arisen from a final-devoicing process.[10] In contrast, voiceless vowels, as rare as they are, may arise either from coarticulatory effects, as in Comanche, or be a consequence of historical final devoicing, as in Teso-Turkana. There is no data bearing on the potential "next" phase of medial voiceless vowels in Comanche, as it is the only known language with potentially contrastive voiceless vowels in non-final position. The phonetic silence associated with word-final vowels usually leads to their loss, as in Trukic. However, the persistence of final voiceless vowels, whether contrastive or not, is notable in many unrelated languages. We now turn to potential factors underlying this persistence.

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9. Voiceless sonorants, whether vowels or consonants, may subsequently undergo fortition to fricatives (Pellard 2009) or aspirated fricatives (Jacques 2011), or subsequent weakening to /h/ (Jacques & Michaud 2011).

10. This issue requires further study. It could be that the same factors that inhibit the evolution of contrastive voiceless vowels in final position play a role for final consonants as well.

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4. Structural factors in the maintenance of voiceless vowels

Let us return to the original observation inspiring this study. Phonological contrasts between voiceless sonorant consonants and their voiced counterparts may be five to ten times more common than those between voiceless vowels and their voiced counterparts. Further, the areal distribution of voiceless sonorant consonants suggests that these sounds are relatively robust, and can spread via contact. In contrast, the rarity of contrastively voiceless vowels is notable, but cannot be attributed to the rarity of phonetically voiceless vowels. Phonetically voiceless allophones of voiced vowels are cross-linguistically common. The failure to perceive final voiceless vowels predicts their eventual loss in word-final position. Therefore, what is remarkable in the life cycle of voiceless vowels is their maintenance: they are maintained as allophones of voiced vowels, when one might expect them to split into separate phonemes; and they are maintained as ghost-like articulations at the ends of words in many languages, where, due to imperceptibility, their loss is expected.

4.1 The role of analogy

In their concluding remarks Gick et al. (2012: 53) summarize their findings:

> The experiments described in this study confirm the presence of systematically "soundless" vowels in two native languages of North America: Oneida and Blackfoot.The vowels are articulatorily distinct despite being inaudible, showing that it is possible for articulations to be phonologically stable in a natural language even in environments where their production consistently lacks acoustic consequences.

They continue, with comments on how such inaudible sounds might be learned:

> The existence of speech sequences where acoustic input is systematically absent suggests that, rather than relying solely on direct acoustics-based evidence, learners must make use of other mechanisms such as multimodal integration and analogy… given that these soundless sequences occur only in utterance-final position, it seems likely that learners rely on analogy based on audible versions of the same words as they appear in non-final contexts.

Quite generally, it does not seem unreasonable that, within an exemplar-based model of phonological learning, non-final vowelful tokens of words will dominate over final vowelless ones, resulting in the kind of analogical learning suggested above. In short, the voiced allophones in non-final position support the continuation of voiceless allophones in utterance-final position. Word-to-word pattern matching both allows soundless sounds to be maintained, and inhibits the evolution of distinct phonemes.

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4.2 The role of /h/

The Comanche data reviewed above showed only a few contexts with non-predictable voiceless vowels. Most voiceless vowels in Comanche are either a consequence of word-final devoicing, or can be analyzed as /Vh/. It appears, very generally that, if a language has /h/, a phonetically voiceless vowel will be analyzed as an /hV/ or /Vh/ sequence. As a consequence, phonologization of voiceless vowels is inhibited. In contrast, where voiceless sonorant consonants derive from Rh or hR clusters, one catalyst for the reanalysis of historical clusters as single segments may be the pre-existing distribution of voiced sonorant consonants in the language.

4.3 Phonotactics and morphotactics

In some languages, all words must end in vowels. A phonotactic of this kind may contribute to the preservation of final voiceless vowels against phonetic odds. A language of this type is Purépecha (aka Tarascan) (Camacho 2013, field recordings; Maldonado 2012; Friedrich 1975; Foster 1969). In Purépecha, all words end in vowels, but word-final vowels are generally devoiced and often completely deleted, resulting in phonetic consonant clusters in phrase-final position, and across word boundaries.

Purépecha is considered an isolate, and one might think, on the basis of descriptions in the 20th and 21st centuries that final voiceless vowels are unstable, and on the path to eventual loss. However, the two earliest descriptions of the language written by Friar Maturino Gilberti, Order of San Francisco, are *Arte de la lengua tarasca de michoacán* (Gilberti 1558) and *Vocabulario en la lengua de mechuacán* (Gilberti 1559). Both works show the same kind of vowel loss in sandhi that is found today, suggesting that the final voiceless allophones of modally voiced vowels have been stable for hundreds of years.

As with the Oneida and Blackfoot examples, the fact that each final morpheme that is produced without a vowel often shows a full vowel when it is non-final, allows the learner to analogize from full forms to vowelless forms. However, several other factors may play a role as well. First, abstracting away from word-final vowel devoicing, all words end in vowels. In a Purépecha word like /terhu-ngarhi-ta-phe-yara-ni/ (cross-face-ACT-PL.IND-MOV-INF) 'to put something in front of others upon arrival' (Maldonado 2012: 9), pronounced with all but the final voiceless vowel intact, there is clear evidence that all but the final morpheme (here the infinitive), are vowel-final. As strange as it may sound, the fact that all phonological words end in vowels in Purépecha appears to be the primary factor that allows for final vowel devoicing and loss in the phonetics. In this instance, even when a vowel is not pronounced, it may be present in the mind of the listener. Experimental evidence supports phonotactically motivated

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perceptual epenthesis in the absence of acoustic vowel cues (Dupoux et al. 1999; Dupoux et al. 2011). If word-final voiceless vowels are found voiced non-finally, and a general phonotactic shows all (non-final) words to be vowel-final, voiceless vowels may be "heard" in final position by Purépecha speakers as a consequence of perceptual illusions, and therefore maintained for long time periods.

4.4 Lexical competition

The distribution of rare features in phonological systems is not uniform. As suggested in Blevins (2004), and detailed further in Blevins and Wedel (2009), there is a strong association between perceptually difficult contrasts and their role as sole exponents of morpho-syntactic contrasts. The model of lexical competition embedded within Evolutionary Phonology invokes "Lexical Character Displacement". Lexical character displacement occurs when contextual overlap between similar words leads to higher error rates for more ambiguous exemplars of these words. This, in turn, leads to accentuation or retention of phonetic differences between similar words.

How does lexical competition play a role in voiceless vowel maintenance? Consider the silent vowels of Blackfoot investigated by Gick et al. (2012). As described by Frantz (1991), all short vowels in Blackfoot are devoiced in utterance-final position, and are typically inaudible. In the Siksiká dialect of Blackfoot, as in other varieties, word-final suffixes *-(w)a*, a proximate suffix, and *-(y)i*, an obviative suffix, are obligatory noun markers used in tracking reference within discourse. When these suffixes are added to consonant-final stems, the glide is lost and all that remains is the final vowel, which is devoiced in utterance final position (Gick et al. 2012: 49). Lexical character displacement will occur with proximate/obviative pairs since these elements are in contextual overlap. Higher error rates for more ambiguous exemplars of these suffixes means that the phonetic differences between the suffixes will be accentuated or retained. In this way, loss of final voiceless vowels is inhibited by the fact that these particular suffixes contrast paradigmatically.[11]

5. Concluding remarks

A simple view of the distribution of spread glottal gestures in speech sounds might invoke a markedness hierarchy whereby this gesture is most preferred as an

11. In Purépecha as well, Maldonado (2012: 8) remarks that final vowels carry "vital morphological information." This may be another contributing factor to vowel maintenance in Purépecha.

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independent segment (/h/), next most preferred with voiceless obstruents (aspirated stops, /s/), much less preferred with sonorant consonants, and strongly dispreferred with vowels. If universal markedness hierarchies of this kind are part of phonological grammars, as argued, for example, in the work of de Lacy (2006), languages with more marked segment types are predicted to have less marked segments. However, sound patterns of the world's languages suggest complexities within these distributions that cannot be handled by a simple hierarchy of this kind. To take just two examples where phonetic studies have been undertaken, Blackfoot has been argued to have pre-aspirated stops and voiceless vowels, but no segmental /h/ (Reis-Silva 2006; Derrick 2006), while Kokota, mentioned earlier, has voiceless sonorants and /h/, but lacks aspiration in the /p, t, k/ series (Palmer 2009: 8). Further, though voiceless sonorant consonants are not common, they are well attested in the historic record, with areal properties suggesting spread via contact. This spread is unexpected if voiceless sonorants constitute ill-formed segment types within grammars of languages lacking them. A phonological markedness hierarchy also says nothing of recurrent phonetic properties of voiceless sonorants. Recall that they are often significantly longer than their voiced counterparts, with laryngeal contours. Under the evolutionary alternative offered here, frequencies of aspirates and voiceless sonorants are related, in part, to necessary conditions for their evolution. Since most voiceless sonorant consonants arise from RH or HR clusters, the existence of these clusters is a precondition to their evolution, and it is the rarity of these clusters that becomes the object of study. This same evolutionary pathway explains both the longer duration of voiceless sonorants in languages as divergent as Tibetan and Kokota, as well as observed laryngeal contours. The evolutionary account also raises questions that do not arise for proponents of a markedness hierarchy. Given the high frequency of phonetically voiceless vowels in the world's languages, how can we explain the rarity of phonological contrasts between modal and voiceless vowels? Under a markedness hierarchy, voiceless vowels are banned, and allophonic rules should not give rise to them. In contrast, the persistence of allophonic voiceless vowels in languages over long time periods suggests that structural features support perception and production of these vowels, even when acoustic cues are absent.

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CHAPTER 2

The Obligatory Coding Principle in diachronic perspective

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The *Obligatory Coding Principle* accounts for the inventories of possible coding frames in languages that, according to the current terminology, can be characterized as consistently accusative or consistently ergative in their system of argument coding. In coding frame inventories fully consistent with the Obligatory Coding principle, every coding frame includes a given type of coding, either A (in *obligatory A coding languages*) or P (in *obligatory P coding languages*). However, languages with coding frame inventories violating this principle are not exceptional. This chapter examines the types of evolutions that may result either in global shifts affecting the Obligatory Coding Principle, in systematic violations of the Obligatory Coding Principle, or in the gradual spreading of non-canonical coding frames. The idea underlying this study is that, before discussing the theoretical status of this kind of generalization, it is crucial to clarify its involvement in diachronic processes.

1. Introduction

This chapter is about the possible consequences of some diachronic processes (TAM grammaticalization, conventionalization of argument ellipsis, univerbation of light verb compounds, etc.) for the structure of argument coding systems, i.e. for aspects of the organization of languages commonly dealt with in terms of morphological *accusativity* vs. *ergativity*.[1]

The discussion is structured around the Obligatory Coding Principle, according to which all verbal predicative constructions in a given language must include a nominal term showing a particular type of coding that can be viewed as the

1. Some of the questions dealt with here were already discussed in a slightly different perspective in Creissels (2008).

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default type of argument coding in the language in question. This definition is intended to capture the tendency toward consistency in morphological alignment between transitive and intransitive predications.

The possible links between the diachronic processes affecting argument coding systems analyzed here and so-called 'deep/syntactic ergativity' are not discussed in this chapter, although a plausible connection is mentioned in Section 4.2.[2]

The chapter is organized as follows. After putting forward some terminological clarifications (Section 2) and introducing the Obligatory Coding Principle (Section 3), I discuss markedness reversals between the basic transitive construction and one of its variants (either passive or antipassive) leading to global shifts from obligatory A coding to obligatory P coding and vice-versa (Section 4). In Section 5, I discuss TAM grammaticalization processes that may result in systematic violations of the Obligatory Coding Principle. The following two sections are devoted to changes that may be responsible for gradual shifts: emergence of isolated exceptions to the Obligatory Coding Principle in languages that initially keep strictly to this principle, or increase in the proportion of verbs with non-canonical coding frames. Section 6 deals with the conventionalization of argument ellipsis, and Section 7 with the univerbation of light verb constructions. Section 8 summarizes the conclusions.

2. Some terminological clarifications

2.1 Transitivity

Verbs encoding events involving one, two, or three essential participants are designated here as *monovalent*, *bivalent*, and *trivalent*. *Transitive* and *intransitive* do not refer to the number of essential participants in the events denoted by verbs, but to the relationship between the coding frame they select and that selected by verbs encoding a particular type of event. The delimitation of the set of transitive verbs is language-specific and relies on formal criteria, but the sets of transitive verbs of the individual languages are universally defined as including a particular semantic class of verbs, the *core transitive verbs*, whose definition can be formulated as follows: a core transitive verb is a bivalent verb that has the ability to refer to two-participant events involving two well-individuated participants, a typical agent (i.e. a human participant consciously and willingly controlling an activity oriented

2. A detailed discussion of this question for the types of changes dealt with in Section 4 can be found in Queixalós (2013).

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towards the other participant), and a typical patient (i.e. a participant undergoing a change of state or position triggered by the activity of an agent).

Break is a good example of a core transitive verb, since the lexical meaning of *break* is compatible with the highest possible degree of semantic transitivity. By contrast, *hit* or *eat* cannot be analyzed as core transitive verbs: the affected (or non-agentive) participant in a hitting event does not undergo a change of state or position, and consequently is not a typical patient; as regards eating events, the point is that the primary motivation of the action performed by the active participant in an eating event is not to change the state of the other participant or control its position, but rather to satisfy a physiological need, and consequently, the active participant in an eating event is not a typical agent.

I assume that, in the languages of the world, the set of the verbs recognizable as core transitive verbs according to this restrictive semantic definition shows a high degree of formal homogeneity, in the sense that, in each individual language, all core transitive verbs, or almost all, assign the same coding characteristics to their agents and patients. By contrast, cross-linguistically, as discussed among others by Tsunoda (1985) and Lazard (1994) and confirmed by Hartmann et al. (2013), no other class of verbs defined in terms of semantic role assignment shows a comparable propensity to group together into the same valency class. This suggests a cognitive prominence of this semantic class of verbs, and justifies giving it a privileged status in a typology of argument coding.

The coding of agents and patients in uses of core transitive verbs involving a maximum degree of semantic transitivity is designated as *transitive type of argument coding*, abbreviated as *transitive coding*. Like the notion of core transitive verb, this notion is a comparative concept in the sense of Haspelmath (2010).

All languages extend transitive coding well beyond the limits of the set of core transitive verbs. The term *transitive verb* without further specification refers to verbs whose construction includes two terms coded like the two arguments of core transitive verbs, whatever their semantic roles. For example, English *see* is not a core transitive verb, but the coding it assigns to its arguments identifies it as transitive. Basque *ikusi* 'see' is also a transitive verb, since its coding frame <ERG, Ø>[3] is the same as that of *puskatu* 'break' (Example (1)). By contrast, Akhvakh *harigurula* 'see' is not transitive, since its coding frame <DAT, Ø> is different from the coding frame <ERG, Ø> selected in Akhvakh by *biq'ōrula* 'break' (Example (2)).

3. On the notion of *zero case* (abbreviated as Ø in the schematization of case frames), see Section 2.5.

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(1) Basque[4]

a. *Haurr-ek ispilu-a puskatu dute.*
child-PL.ERG mirror-SG break.CPL PRS.3SG.3PL
'The children have broken the mirror.'

b. *Haurr-ek ispilu-a ikusi dute.*
child-PL.ERG mirror-SG see.CPL PRS.3SG.3PL
'The children have seen the mirror.'

(2) Akhvakh[5]

a. *Mik'i-de istaka biqʷāri.*
child-ERG glass break.CPL
'The child broke the glass.'

b. *Mik'i-ʟa istaka harigʷari.*
child-DAT glass see.CPL
'The child saw the glass.'

There is cross-linguistic variation in the size of the set of bivalent verbs whose arguments are treated differently from the agent and patient of core transitive verbs, but transitive coding is universally the default type of coding for bivalent verbs – see for example Creissels & Bassène (2013) for a detailed comparison of two languages, Say (2014) on bivalent verbs in the languages of Europe, and Haspelmath (2015) on 'transitivity prominence' in a worldwide sample of 36 languages.

In this chapter, A and P refer to arguments that, in a given language, have the same coding characteristics as agents and patients of core transitive verbs, irrespective of their semantic roles.[6] The verbs selecting coding frames that do not include two terms coded like the agent and the patient of core transitive verbs are designated as intransitive, regardless of the number of their (semantic) arguments.[7]

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4. Unless otherwise stated, the Basque examples quoted in this chapter have been checked by Céline Mounole.

5. Unless otherwise stated, the Akhvakh examples quoted in this chapter come from the author's field notes and have been checked with the help of Indira Abdulaeva.

6. Not all authors use the terms of agent and patient and the corresponding abbreviations consistently, as rightly observed by Alice Harris in her review of Dixon's *Ergativity* (Harris 1997). In this chapter, the terms agent and patient without further specification, and the abbreviations A and P, consistently refer to arguments that, irrespective of their semantic role, are coded exactly like typical agents and patients of core transitive verbs – and not for example to the most agent-like and most patient-like participants in the argument structure of bivalent verbs, a notion which is crucial in the framework developed in Bickel (2011) and Witzlack-Makarevich (2011), but plays no direct role here.

7. Note however that polysemous verbs should not be characterized as transitive or intransitive in absolute terms, but rather separately for each of their possible meanings.

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2.2 Variation in the construction of transitive verbs and basic transitive coding

In many languages, variation can be observed in the coding of the arguments of core transitive verbs, and this variation may lend itself to various types of analysis.

It may happen that the variation in the coding of the arguments is conditioned by the TAM or polarity value of the clause, commonly (but not necessarily) expressed through verb morphology. This phenomenon, to which I will refer as *conditioned transitive coding*, can be illustrated by the debitive construction of Latvian analyzed by Seržant and Taperte (2016), which imposes to transitive verbs a case frame <DAT, Ø/ACC>[8] different from the case frame <Ø, ACC> found with other TAM values (Example (3)).

(3) Standard Latvian (Seržant & Taperte 2016: 200–201)

a. *Kāpēc es šo filmu redzu?!*
why 1SG DEM.ACC.SG film.ACC.SG see.PRS.1SG
'Why do I watch this film?!'

b. *Kāpēc man ši filma ir jā-redz?!*
why 1SG.DAT DEM.SG.F film.SG be.PRS.1SG DEB-see
'Why do I have to watch this film?!'

c. *Kāpēc man tevi ir jā-redz?!*
why 1SG.DAT 2SG.ACC be.PRS.1SG DEB-see
'Why do I have to see you?!'

Another well-known phenomenon is the differential coding of agents or patients, i.e. variation in the coding characteristics of A or P exclusively conditioned by features inherent to the argument in question, or by its function in information structure. The differential flagging of patients (more commonly designated as 'differential object marking') conditioned by animacy or definiteness is particularly common. However, Iemmolo (2011) and Dalrymple and Nikolaeva (2011) argue that topicality is the crucial factor in the emergence of differential patient coding.[9]

It may also happen that the variation in the coding of the arguments of core transitive verbs is best analyzed as bound to an alternation between a construction that qualifies as basic transitive coding and one or more constructions involving detransitivization. This is particularly obvious in the case of

8. In Standard Latvian, P in the debitive construction is in the Zero case with all types of NPs except for 1st and 2nd person pronouns and the reflexive pronoun, which are marked by the Accusative case.

9. On differential agent coding, see in particular Fauconnier & Verstraete (2014).

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constructions (irrespective of whether they involve morphological coding on the verb or not) that semantically imply that the agent is removed from the event structure: anticausative constructions, P-oriented resultatives. There are also less obvious cases in which the event structure is not affected, but the status of one of the alternative constructions as the basic transitive construction can nevertheless be established on the basis of the following two criteria: the basic transitive construction is less marked than the other(s) in terms of discursive or semantic conditioning (and consequently much more frequent in texts), and the morpho-syntactic properties of the alternative construction(s) of core transitive verbs provide evidence of demotion of either the agent (passivization) of the patient (antipassivization).[10]

There are, however, problematic situations in which no obvious candidate for the status of basic transitive construction emerges. I will refer to them as *multiple transitive coding*.

The case of the languages with the Philippine-type of voice system has been widely discussed in the literature. Example (4) illustrates three verbal voice forms in Tagalog. Each clause has a *privileged argument* marked by the preposition *ang*,[11] and this privileged argument is the only one having access to some operations (for example, questioning). The preposition *ang* provides no indication about the semantic role of the privileged argument, but this information is given by the voice form of the verb. The other nominal terms of the clause are marked by prepositions whose choice reflects the argument structure of the verb and the semantic roles of adjuncts: *ng* (glossed CORE, used to mark adnominal possessors, but also agents and patients when they are not promoted to privileged argument), *sa* (Dative), etc. The functions of these voice alternations are quite similar to those of the alternations described in terms of passive or antipassive voices in other languages, but there is no clear asymmetry that could justify analyzing (a) as basic and (b) as passive, or (b) as basic and (a) as antipassive.

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10. Note that languages with both a passive and an antipassive variant of the basic transitive construction are not uncommon, contrary to the widespread opinion (originating in early work on ergativity) according to which passives are reserved to obligatory A coding languages, and antipassives to obligatory P coding languages. Janic (2013) provides a survey of antipassive constructions in obligatory A coding languages.

11. This preposition is commonly designated as 'nominative preposition', but this term is potentially misleading, since the Tagalog system is basically different both from those for the description of which the term 'nominative' is traditionally used (Latin, Greek, etc.), and from those to the description of which the use of the term 'nominative' has been extended in more recent times (for example, Japanese, or the 'marked-nominative' languages of East Africa).

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(4) Tagalog (Latrouite 2011: 123–4)

a. *Nagbigay ang babae ng liham sa kapit-babay.*
VOICE.give PRVL woman CORE letter DAT neighbour
'The woman gave a letter to the neighbour.'

b. *Ibinigay ng babae ang liham sa kapit-babay.*
VOICE.give CORE woman PRVL letter DAT neighbour
'The woman gave a letter to the neighbour.'

c. *Binigyan ng babae ng liham ang kapit-babay.*
VOICE.give CORE woman CORE letter PRVL neighbour
'The woman gave a letter to the neighbour.'

A similar problem arises with other languages that have alternative constructions of transitive verbs expressing alternative perspectivizations of the event comparable to those expressed by passive or antipassive derivations, without however clear evidence that one of the alternative constructions should be considered as basic, and the other as a detransitivized variant. As discussed by Haude & Zúñiga (2016), this concerns in particular the direct/inverse systems that have a direct/inverse alternation for interactions between 3rd persons.

2.3 Core arguments vs. obliques

Monovalent verbs are very diverse as regards the degree of agentivity implied by the semantic role they assign to their unique argument, but in the languages of the world, the overwhelming majority of monovalent verbs divide into a small number of classes as regards the coding of their unique argument. Most of the time, there is just one major class of monovalent verbs to which almost all monovalent verbs belong, regardless of the semantic role of their unique argument. Some languages have two major classes of monovalent verbs, but languages with three or more classes of monovalent verbs including more than a handful of members each are exceptional.

Moreover, as a rule, intransitive predications (in the sense defined in Section 2.1) involving non-monovalent verbs include an argument encoded like the unique argument of (a major class of) monovalent verbs.

On this basis, a notion of core argument transcending the distinction between transitive and intransitive predication can be defined as follows:

- in transitive predication, the core arguments are A (the argument encoded like the agent of core transitive verbs) and P (the argument encoded like the patient of core transitive verbs);
- in intransitive predications, the core argument is the argument whose coding coincides with that of the unique argument of (a major class of) monovalent verbs.

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All the terms of verbal predicative constructions that are not core arguments will be designated as *obliques*, regardless of their status according to the *argument* vs. *adjunct* distinction. Terms that are analyzable semantically as arguments, but do not show the type of coding that would justify identifying them as core arguments, will be designated as *oblique arguments*.

Note that, according to this definition of core argument, (a) a language may have statistically marginal types of intransitive predication including no core argument, and (b) in a given language, the coding of the core argument in intransitive predications is not necessarily uniform, since quite a few languages have two major classes of monovalent verbs differing in the coding of their argument.

2.4 Alignment

The usual definition of 'ergative alignment' (A = S ≠ P) and 'accusative alignment' (P = S ≠ A) refers to properties shared by S (commonly defined as the sole argument of monovalent verbs) and one of the core terms of the basic transitive construction. This implies a more general notion of alignment whose definition can be formulated as follows:

> A term T_1 of a construction C_1 and a term T_2 of a construction C_2 are aligned with respect to a given feature if they share the same value of the feature in question.

A first problem I would like to evoke here is that some uses of 'alignment' in the typological literature are not consistent with this definition, which results in confusion between logically independent notions. In particular, in the term of 'hierarchical alignment' as introduced by Nichols (1992), 'alignment' does not refer to properties shared by terms belonging to different constructions, but to the mapping from the semantic roles of agent and patient to morpho-syntactic slots.

For example, Guarani (Example (5)) has two sets of person markers for verbs. One of them indexes the A argument of transitive verbs and the core argument of a subclass of intransitive verbs that assign a relatively agentive role to their core argument, the other one indexes the P argument of transitive verbs and the core argument of another subclass of intransitive verbs, characterizable as assigning a relatively patientive role to their core argument. However, transitive verbs cannot have more than one person agreement prefix, and the choice of the agreement prefix of transitive verbs is determined as follows:

– in all combinations of 1st/2nd person and 3rd person, the agreement prefix indexes the 1st/2nd person argument, whatever its semantic role (Example (5a–b));

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– in 2>1 combinations (2nd person A + 1st person P), the agreement prefix indexes the 1st person P, resulting in ambiguity with 3>1 combinations (Example (c));
– in 1>2 combinations (1st person A + 2nd person P), special portmanteau prefixes are used (Example (d));[12]

if both A and P are 3rd person, the verb bears the 3rd person prefix of the agentive series.

(5) Guarani (Tonhauser 2006: 132–3)
a. *A-hecha Juan.*
A.1SG-see Juan
'I see Juan.'
b. *Che-hecha Juan.*
P.1SG-see Juan
'Juan sees me.'
c. *Che-su'u-ta.*
P.1SG-bite-FUT
'You will bite me.'
or 'He/she/it/they will bite me.'
d. *Roi-su'u-ta.*
1>2SG -bite- FUT
'I will bite you.'

As can be seen from this example, the misnamed 'hierarchical alignment' is basically a *type of transitive coding* in which the coding characteristics of A and P are determined by their relative ranking with respect to an indexability hierarchy. It is true that this type of transitive coding raises specific problems for alignment typology, since it may be difficult to compare the coding of S to that of A or P in languages in which it is impossible to define types of coding assigned to A and P independently from each other. This, however, is not a reason for considering this situation as a particular type of 'alignment'. In the particular case of Guarani, in spite of the hierarchical nature of indexation in the basic transitive construction, there is no difficulty in analyzing transitive-intransitive alignment as 'accusative' for one of the two classes of intransitive verbs, and 'ergative' for the other.

A second point that must be discussed before going further is the notion of S and its status in alignment typology. As observed in particular by Haspelmath (2011), S as commonly defined in alignment typology is problematic in two

12. Interestingly, the portmanteau prefix *ro*(*i*)- '1>2SG' has the same form as the 1EXCL prefix of the agentive series.

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respects: first, the usual definition of S presupposes a uniformity in the coding of the sole argument of monovalent verbs which is not found in all languages; second, definitions of alignment types combining two primitives referring to semantic prototypes (A and P) and a third primitive (S) whose definition does not rely on a semantic prototype is problematic in terms of logical consistency.

The solution proposed by Haspelmath (2011) is to replace S by S_U defined as the sole argument of uncontrolled change of state verbs (or 'typical unaccusative verbs') such as 'die', 'rust', 'get lost', 'rot', or 'grow'. This is unquestionably an interesting solution which makes it possible to develop a typology of transitive-intransitive alignment both logically consistent and more insightful than that based on the usual definition of S.

Another possible solution relies on the observation that, from a strictly logical point of view, S is not necessary as a primitive in the definition of alignment relationships between transitive and intransitive predication. The point is that the alignment of S (either as usually defined, or as re-defined by Haslpelmath) with A or P can be viewed as a particular case of *generalized transitive-intransitive alignment* defined as follows:

> For every (coding or behavioral) property that may characterize arguments in predicative constructions, an intransitive construction is A-aligned if it includes an argument coinciding with A for the property in question, and P-aligned if it includes an argument coinciding with P.

This notion of generalized transitive-intransitive alignment must not be conceived as being in contradiction with the notion of restricted transitive-intransitive alignment following from Haspelmath's replacement of S by S_U. Each of these two notions captures important aspects of alignment relationships between transitive and intransitive constructions, and combining them makes it possible to put forward interesting generalizations. For example, I am aware of no exception to the following generalization: if S_U is aligned with A in its coding properties, then intransitive constructions that do not include a term showing A-like coding are inexistent or exceptional; by contrast, languages in which S_U is aligned with P in its coding properties may have an important class of intransitive verbs assigning A-like coding to their core argument (a situation illustrated in particular by Basque). To put it somewhat differently: in split-intransitive languages (i.e. in the languages that have two non-marginal subclasses of intransitive verbs differing in their alignment properties), the monovalent change-of-state verbs may be included in a subclass of P-aligned intransitive verbs (as in Basque), or in a subclass of intransitive verbs whose core argument does not show a straightforward alignment relationship either with A or P (as in Georgian), but they cannot be included in a subclass of A-aligned intransitive verbs.

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2.5 Zero case

In languages in which nouns are inflected for case, I designate as *zero case* (represented as Ø in the schematization of coding frames) the case form of nouns that coincides with the form used in isolation for quotation and labeling, whatever the distribution of this form in syntactic contexts. The notion of labeling encompasses nouns accompanying a picture representing a possible referent, nouns written on signal boards, nouns describing the content of a box on which they are written, shops signs, etc.

In most languages, the zero case is characterized by the absence of an overt case marker, but there are exceptions, and the absence of an overt marker is not essential in the notion of zero case. What is essential is the ability to be used, not only as the quotation form of nouns in elicitation contexts, but also as a pure label in the absence of any syntactic context.[13]

The term zero case can be understood as a cover term for the case forms currently labeled nominative or absolutive. There are two main reasons for preferring it.[14] On the one hand, the distinction between nominative and absolutive is not really useful, since a nominative case in an unproblematic 'accusative' language is simply a zero case contrasting with an accusative case, and an absolutive case in an unproblematic 'ergative' language is simply a zero case contrasting with an ergative case. On the other hand (and this is crucial), the usual definition of nominative and absolutive can only lead to inconsistencies in the description of languages with less common patterns of alignment and/or case marking, for example, in 'split-ergative' languages like Georgian or Kurmanji Kurdish, in which the same morphological form of nouns meets the definition of 'absolutive' or 'nominative' depending on the tense value expressed by the verb heading the clause – for an illustration, see Example (8) in Section 5.1.

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13. For example, the Zero case of Latin (traditionally called Nominative) has a zero ending with some nouns (*puer* 'child'), but an overt ending with some others (*domin-us* 'master'). In Russian, nouns like *devušk-a* 'girl' have an ending -a in the Zero case in the singular, but a zero ending in the Genitive plural. Similarly, in Icelandic, *hatt-ur* 'hat' has an overt ending *-ur* in the Zero case in the singular, but a zero ending in the Accusative singular (*hatt*). With such nouns, flagging may involve deletion of morphological material present in the syntactically unmarked form of nouns.

14. See Creissels (2009) for a more detailed discussion of the shortcomings of current case terminology. Note however that in my 2009 paper, I expressed hesitation about the choice of a term for case forms of nouns that have the ability to be used in a function of pure designation, and 'zero case' was not among the possibilities I considered.

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2.6 Ergative case, ergative alignment, ergative languages

DeLancey (2004) argued that the use of the term 'ergativity' has evolved so as to encompass a heterogeneous set of phenomena whose interrelations are much less simple and direct than commonly assumed, and are sometimes even inexistent. Although space limitations do not allow me to discuss these two points in detail here, I would like to emphasize first that the correlation between ergative alignment in argument coding as usually defined and the type of transitive coding (commonly considered 'typically ergative') in which unflagged P contrasts with overtly flagged A is not as strong as commonly assumed, since it does not account for the following configurations in argument coding:

a. the 'marked-nominative' type of argument flagging, with the same overt flagging for A and S contrasting with the absence of flagging for P (a type relatively rare at world level, but including the majority of the languages spoken on the African continent that have a case contrast between core arguments),
b. transitive constructions in which both A and P may be overtly flagged (a configuration found among others in Japanese, Tongan, Kanuri, and in some Basque varieties),
c. the kind of split-intransitivity found in languages like Basque (in which the same overt flagging is assigned not only to A in basic transitive coding, but also to the core argument of an important subclass of intransitive verbs),
d. strict ergative alignment in argument indexation combined with the absence of any flagging of core arguments at all, as in K'ichee' and other Mayan languages,
e. disharmony between core argument flagging and core argument indexation (for example, ergative alignment in flagging combined with accusative alignment in indexation).

As regards disharmony between flagging and indexation, given the diachronic orientation of the present chapter, it is interesting to mention Harris and Campbell's (1995: 257) observation that, in the changes in alignment they analyze in the Iranian languages of Pamir and in Kartvelian languages, "the pull towards consistency between subsystems [i.e. the tendency to have the same coding of core arguments across the TAM paradigm] is stronger than that between rules [i.e. the tendency to have the same type of alignment in flagging and indexation]."

The second point I would like to emphasize in this section is that no significant correlation has been found so far between the various syntactic mechanisms that

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have been claimed to function on an ergative basis in some languages. Detailed studies of individual languages such as Creissels (forthcoming) show that the situation may be much more complex than commonly assumed even in apparently unproblematic 'accusative' languages,[15] and the most striking thing in the literature on 'syntactic ergativity' is the lack of consensus between different authors analyzing the same languages (see for example Forker's (forthcoming) criticism of Nichols' analysis of Ingush as a syntactically ergative language).

My position is that no further progress in our understanding of the phenomena for the analysis of which the terms 'ergative' and 'accusative' have been used can be expected in so far as the terminological question is not clarified. The solution I propose is to restrict the use of 'ergative' and 'accusative' to case terminology, and to coin transparent and non-ambiguous terms for the other meanings with which these terms are used.

As regards case terminology, my proposal is to regulate the use of 'accusative' and 'ergative' as follows: if a form of nouns different from the quotation / labeling form is used to encode P (and possibly S_U) but not A, it can be labeled *accusative case*, and if a form of nouns different from the quotation / labeling form is used to encode A but neither P nor S_U, it can be labeled *ergative case*.[16] Note that this definition allows using the label 'ergative case', not only for case forms assigned exclusively to A in the transitive construction, but also to case forms shared by A and the core argument of a substantial subclass of intransitive verbs, in split-intransitive languages such as Basque or Georgian.[17]

By contrast, I will avoid using 'accusative' and 'ergative' as labels for types of alignment. For example, in languages like Basque, the ergative case marks the core argument of a class of 'unergative' intransitive verbs that the terminology currently

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15. To take just an example, French and Mandinka are equally unproblematic 'accusative' languages in core argument coding and in most of the syntactic mechanisms in which A and P behave differently, but in nominalization, Mandinka uniformly aligns A with S, whereas in French, when both A and P are expressed, P aligns with S, and A is coded differently.

16. *Oblique case* is a possible label for marked case forms involved in the coding of both A and P, depending on factors such as verb inflection. Such case forms can be found in some languages with TAM-driven alternations in transitive coding, for example Kurmanji Kurdish – see Section 5.1, Example (8).

17. As regards the so-called 'marked-nominative' languages, in which the same marked case form is assigned to A and to the core argument of all intransitive verbs (including S_U), contrary to the view expressed in Creissels (2009), I think now that no adaptation of any traditional term provides a satisfactory solution. The transparent term of 'A/S case' is a possible label for such case forms.

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used by typologists leads to characterize as 'aligned accusatively'. Such a terminological mess can only result in misunderstandings and analytical errors.

This is the reason why I propose the unambiguous terms of *A alignment* and *P alignment* (defined in Section 2.4 above) for the types of alignment between transitive and intransitive predications currently designated in the typological literature as accusative alignment and ergative alignment, respectively.

As already mentioned at the beginning of this section, the complexity of the relationship between types of transitive coding and types of transitive-intransitive alignment makes problematic the use of 'accusative' and 'ergative' as possible labels for a global characterization of argument coding systems. According to the definitions found in the recent literature, a morphologically ergative language should be identified as such with reference to its alignment properties only. However, in current practice, it is clear that for many linguists, 'ergative *vs*. accusative language' refers to a bundle of features that tend to co-occur cross-linguistically, but are nevertheless logically independent, and are dissociated in some languages, which leads to inconsistencies in the characterization of languages in which such a dissociation occurs.

For example, in recent publications on Basque, this language is often characterized as an 'ergative language of the active type'. This formulation is nothing else than a pure and simple *contradictio in terminis*, if 'ergative' and 'active' are taken with their current definitions. A satisfactory characterization of the Basque system of core argument coding requires dissociation of the typological characteristics of the basic transitive construction (in which A in the Ergative case invariably contrasts with P in the Zero case) and those of the alignment relationship between transitive and intransitive constructions (with S_U consistently aligned with P, but also a substantial class of intransitive verbs whose core argument is aligned with A).

This is why I propose the term of *P-unmarked systems of argument coding* for systems of argument coding showing the following characteristics, commonly associated to the notion or morphological ergativity:

a. FLAGGED AGENTS, i.e. the coding of the agents of core transitive verbs by means of either an adposition or a case form (commonly termed *ergative case*) distinct from the zero case used in isolation for quotation or labeling;
b. UNFLAGGED PATIENTS;
c. EITHER NO INDEXATION AT ALL, OR INDEXATION OF PATIENTS ONLY;
d. OBLIGATORY P CODING, i.e. the selection of P coding as the default type of argument coding that must be included in the coding frame of all verbs (and is consequently the only possible coding of sole arguments of monovalent verbs).

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Symmetrically, *A-unmarked systems of argument coding* can be defined as showing the following characteristics:

a. UNFLAGGED AGENTS;
b. FLAGGED PATIENTS;
c. EITHER NO INDEXATION AT ALL, OR INDEXATION OF AGENTS ONLY;
d. OBLIGATORY A CODING, i.e. the selection of A coding as the default type of argument coding that must be included in the coding frame of all verbs (and is consequently the only possible coding of sole arguments of monovalent verbs).

The notions of A-unmarked and P-unmarked systems of argument coding must be conceived as referring to prototypes conflating features that tend to co-occur cross-linguistically, but can nevertheless be dissociated in individual languages. In particular, ergative cases are typically found in P-unmarked systems of argument coding, but the presence of an ergative case in a language does not necessarily imply the presence of the other features of P-unmarkedness, and vice-versa.

3. The Obligatory Coding Principle

The Obligatory Coding Principle is a constraint according to which all verbal predicative constructions in a given language must include a nominal term showing a particular type of coding. Morphological accusativity / ergativity as usually defined is a particular case of this constraint, which accounts for a cross-linguistically common type of limitation on coding frame inventories.

In coding frame inventories fully consistent with this principle, every coding frame includes a nominal term showing a given type of coding. Given the definition of A and P, this leaves two logical possibilities: in *obligatory A coding languages* (traditionally characterized as 'morphologically accusative'), every coding frame includes a nominal term with coding properties identical to those of A in transitive coding, whereas in *obligatory P coding languages* (traditionally characterized as 'morphologically ergative'), every coding frame includes a nominal term with coding properties identical to those of P in transitive coding.

However, many languages have inventories of possible coding frames hardly compatible with the Obligatory Coding Principle. For example, Basque has two subsets of monovalent verbs, some of them assigning A coding to their sole argument (Example (6b)), and the others assigning P coding (Example (6c)).

(6) Basque
a. *Haurr-ak* *ur-a* *ekarri* *du.*
child-SG.ERG water-SG bring.CPL PRS.3SG.3SG
'The child brought the water.'

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b. *Ur-ak* *irakin* *du*.
water-SG.ERG boil.CPL PRS.3SG.3SG[18]
'The water boiled.'

c. *Haurr-a* *etorri* *da*.
child-SG come.CPL PRS.3SG
'The child came.'

A formal elaboration of the Obligatory Coding Principle is found in the generative literature under the name of Obligatory Case Parameter (Bobaljik 1993; Laka 1993; 2000; Rezac 2008a; 2008b). A question that has been particularly discussed, mainly with reference to Basque, is how to deal with the violations of the Obligatory Case Parameter in a formal syntactic framework. I will not discuss this issue further, since this chapter is not devoted to an elaboration of the formal aspects of the question, but to an examination of diachronic processes likely to affect the status of a language with respect to the Obligatory Coding Principle.

Another important issue that I will not try to discuss here is the sense the Obligatory Coding Principle may have for two particular types of argument coding systems: those in which the coding of A and P depends on the choice of the co-argument, and in which it is consequently not possible to fully identify the coding of arguments of intransitive verbs to that of A or P (as illustrated above by Guarani, cf. Example (5) in Section 2.4), and those with multiple transitive coding (illustrated above by Tagalog, cf. Example (4) in Section 2.2).

4. Markedness reversals between the transitive construction and its variants

4.1 Introductory remarks

As already commented in Section 2.2, the basic transitive construction may coexist with one or more alternative constructions of transitive verbs implying no change in the event structure. In the simple cases, in the alternative constructions, one of arguments is straightforwardly encoded like the core argument of intransitive verbs, whereas the other is either absent or encoded as an oblique. The

18. In Basque, the intransitive verbs that assign the Ergative case to their core argument are conjugated with the so-called transitive auxiliary, which in the basic transitive construction expresses agreement with A and P; when the transitive auxiliary combines with an intransitive verb assigning the Ergative case to its core argument, the A index expresses agreement with the unique core argument of the intransitive verb, whereas the P index takes the default value '3SG'.

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construction is identified as passive if the participant encoded like the core argument of an intransitive verb corresponds to the P term of the transitive construction, as antipassive if it corresponds to the A term of the transitive construction.

In this section, I discuss possible evolutions by which a construction that was initially a marked variant of the basic transitive construction tends to become less marked and more frequent, the outcome of such an evolution being the decay of the construction that was initially the basic transitive construction in the language in question, and its replacement by a construction whose initial status was that of a derived intransitive construction of the passive or antipassive type.

4.2 Shift from obligatory A coding to obligatory P coding resulting from the reanalysis of a passive construction as the basic transitive construction

For a proper understanding of the questions discussed in this section, the distinction between passive constructions (which encode an event structure identical to that encoded by the basic transitive construction) and anticausative or resultative constructions (which encode an event structure including no agent) is crucial.[19] The difficulty is that the distinction is not always easy to draw, since diachronically, resultatives (and anticausatives) are a common source of passives, and many languages have constructions that are synchronically ambiguous between resultative and passive (or anticausative and passive) readings. Moreover, resultative constructions from transitive verbs are a common source not only of passives, but also of transitive perfects. This explains why much of the discussion on alignment changes has been flawed by a widespread confusion between the notions of passive and resultative which has its roots in the traditional grammar of European languages.

It has long been observed that obligatory P coding (with the core argument of intransitive verbs encoded like the P argument of transitive verbs) is typically found in languages in which A is flagged and P unflagged. In other words, obligatory P coding is typically found in languages in which the basic transitive construction resembles the pattern typically found in the passive variant of the transitive construction in languages that have obligatory A coding and unflagged A's.

It is therefore tempting to imagine that, in obligatory P coding languages, the transitive construction might be the reflex of a former passive variant of the transitive construction reanalyzed as the basic transitive construction. This reanalysis can be conceived as the result of an evolution by which the former passive construction gradually loses its marked character and becomes more and more

19. On resultative constructions, see Nedjalkov (ed., 1988).

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frequent, so far as to eliminate the former transitive construction, or to relegate it to the level of a mere variant whose use is bound to more or less restrictive conditions.

This is undoubtedly a plausible scenario, since among obligatory A coding languages that have a passive variant of the transitive construction, there are important differences in the frequency of passive constructions in texts, and there may even be conditions in which the basic transitive construction cannot be used, and the passive construction is obligatory. Queixalós (2013) provides a well-informed discussion, with some new elements, of the factors that may motivate the systematization of agent backgrounding, resulting in the obsolescence of the former basic transitive construction and the reanalysis of the former passive construction as the basic transitive construction.

The problem is, however, that no absolutely uncontroversial case of a global shift from obligatory A coding to obligatory P coding resulting from the reanalysis of a passive construction has been proposed so far. For example, no concrete evidence supports the widely accepted assumption of the passive origin of Basque ergativity. Passive or passive-like constructions are often mentioned in the literature as a plausible source of TAM driven alignment variations, but this is another question, which is addressed in Section 5.

4.3 Shift from obligatory P coding to obligatory A coding resulting from the reanalysis of an antipassive construction as the basic transitive construction

Antipassive constructions in obligatory P coding languages typically involve unflagged agents and flagged patients (since the agent in an antipassive construction is encoded as the core argument of an intransitive verb, and the patient as an oblique), and consequently resemble the pattern typically found in the basic transitive construction of obligatory A coding languages. Consequently, it is not unreasonable to think that the basic transitive construction of at least some obligatory A coding languages might result from the reanalysis of an antipassive construction in an obligatory P coding system as the basic transitive construction.

Interestingly, contrary to the reanalysis of a passive construction as the basic transitive construction discussed in Section 4.2, this is not only a speculation supported by more or less convincing indirect evidence. As already discussed by several authors (for detailed references, see Carrier 2012), the markedness reversal leading to the reanalysis of a former antipassive construction as the basic transitive construction is indeed documented in the Inuktitut dialect of Inuit.

In the Eskimo languages (Yupik and Inuit), core transitive verbs have three possible constructions. In the construction considered basic, the patient is in the

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Zero case, whereas the agent is in a syncretic case form used not only to flag agents in the basic transitive construction, but also in genitive function, traditionally called 'Relative case' (Example (7a), in which the Relative case is glossed ERG according to its function in predicative constructions). In the basic transitive construction, the verb agrees with both the agent and the patient, whereas in the passive and antipassive constructions, it agrees with one argument only, which provides clear evidence of detransitivization. In the passive construction, the patient is in the Zero case, as in the basic transitive construction, but the agent is in a case form (the Ablative) distinct from that found in the basic transitive construction, and the verb agrees with the patient only (Example (7b)). In the antipassive construction, the term in the Zero case is the agent; the patient is in the so-called Modal case, and the verb agrees with the agent only (Example (7c)). The passive and antipassive alternations are morphologically coded on some verbs only.

(7) Baffin Island Inuktitut (Spreng 2005: 2–3)

a. *Anguti-up arnaq kunik-taa.*
man-ERG.SG woman kiss-3SG.3SG
'The man kissed the woman.'

b. *Arnaq kunik-tau-juq anguti-mut*
woman kiss-PASS-3SG man-ABL.SG
'The woman was kissed by the man.'

c. *Anguti kunik-si-vuq arna-mik.*
man kiss-ANTIP-3SG woman-MOD.SG
'The man is kissing a woman.'

However, it has been observed that some varieties of the Inuktitut dialect of Inuit (the dialect spoken in the North Eastern part of Canada) tend to reanalyze the former antipassive variant of the transitive construction as the basic transitive construction: the conditions that limit its use in Yupik and in more conservative Inuit varieties are not active anymore, whereas severe restrictions have been introduced in the use of the former basic transitive construction. The former basic transitive construction, illustrated in (7a) above, tends to be used only with agents that are not represented by noun phrases and are expressed through indexation only, which may lead to the disappearance of agent flagging, and in some Inuktitut varieties, the former antipassive construction has become much more frequent than the other two variants of the transitive construction. For example, an Itivimiut narrative text analyzed by Carrier (2012: 75–76) includes only 12 occurrences of the former basic transitive construction, all with agents expressed through indexation only, against 18 occurrences of the passive construction and 117 occurrences of the construction traditionally designated as antipassive.

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5. The grammaticalization of TAM and the Obligatory Coding Principle

5.1 Introductory remarks

Grammaticalization processes resulting in the emergence of new TAM forms in the inflectional paradigm of verbs are very common in the history of languages, and depending on the coding of core arguments in the source construction, they may induce TAM governed alternations in core argument coding, and sometimes also in the alignment relationship between transitive and intransitive predications.

In the grammaticalization of TAM, the source construction may be a TAM periphrasis involving nominalization of the verb and transposition of core arguments into genitival modifiers. Gildea (1992; 1998) showed that the evolution of such periphrases is a major source of TAM-driven alignment alternations in Cariban languages, and Coon (2008) argues that, in Chol (Mayan), an apparent TAM-driven alignment alternation with P-alignment in the perfective and A-alignment in the imperfective is due to the fact that the imperfective construction is a periphrasis involving a nominalized form of the verb, literally '[A's V-ing P] happens' in the transitive, and '[S's V-ing] happens' in the intransitive.

TAM periphrases analyzable as 'raising' constructions in which a semantic argument of the lower verb (the lexical verb) is treated syntactically as a term in the construction of the higher verb (the TAM auxiliary) are also very common cross-linguistically. For example, 'A is engaged in V-ing P / S is engaged in V-ing' is a common type of progressive periphrasis. Depending on the coding assigned by the higher verb to the 'raised' argument, the grammaticalization of such periphrases may also result in TAM-driven alternations in core argument coding, and sometimes also in TAM-driven alignment alternations.

Still another possibility is that the grammaticalization process resulting in the emergence of a new TAM form involves the reanalysis of an adjunct as a core argument.

The possible involvement of passive constructions as the source construction in evolutions leading to TAM-driven alignment alternations has often been evoked in the literature. This assumption is questionable if 'passive' is restricted to constructions involving no modification of the event structure and displaying the same TAM paradigm as the basic transitive construction. The 'passive' constructions mentioned for example by Harris and Campbell (1995: 244–5) are arguably passive-like constructions whose connection with perfectivity follows from the resultative semantics of the source construction. It is therefore debatable whether reference to passive is really necessary for a proper understanding

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of the evolutions in question, or perhaps the really relevant notion is rather resultativity.[20]

The changes examined in this section, like those examined in Section 4, are global changes that affect at the same time the construction of all transitive verbs and modify the status of the argument coding system with respect to the Obligatory Coding Principle. The difference is that the types of changes examined in Section 4 convert obligatory A coding systems into obligatory P coding systems and vice-versa, whereas those examined in this section explain the emergence of systems in which a TAM-driven alternation in the coding properties of A and P has no equivalent in intransitive predications, which results in TAM-driven alignment alternation. In such systems, the types of argument coding available for intransitive verbs cannot coincide globally with the coding of either A or P, hence a systematic violation of the Obligatory Coding Principle.

5.2 Reanalysis of a resultative construction as a perfect and split-alignment

There is a consensus on the fact that the grammaticalization of new forms of perfects is a major source of TAM-driven alignment variations. Iranian languages provide a classical illustration of this type of change. At some stage in their history, the grammaticalization of a new form of perfect (which will be examined in more detail in Section 5.3) resulted in the emergence of a TAM-driven alternation in the coding of A and P still found in some Iranian languages, for example Standard Kurmanji Kurdish (Example (8)). Since no such alternation developed in the coding of the core argument of intransitive verbs (as illustrated in Example (8) by the intransitive verb *hatin* 'come'), the coding of both A and P in Standard Kurmaji Kurdish is characterized by a TAM-driven alternation between a coding identical to that of the core argument of intransitive verbs (Zero case + indexation on the verb form) and an oblique-like coding: in (8a–b), A is in the Zero case and

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20. For example, Gildea (1997) analyzes six Cariban languages in which a participle with stative-resultative semantics has variously evolved to give an inverse voice, "some sort of pragmatically-marked active ergative construction", and a split-ergative pattern with P alignment in the past tense. He argues that, in all cases, the participle has evolved "through an eventive passive stage", but at the same time he clearly recognizes that this eventive passive stage is "unattested in any synchronic Cariban language", and that two steps in the evolution he postulates, agentless passive and agentive passive, "must be inferred from the further evolution of the construction". In other words, the only reason why he posits the development of a passive in the evolution leading from the Proto-Cariban participle to the split-ergative pattern of Tiriyó and Wayana is the common (but erroneous) belief that an intermediate passive stage is obligatory in the process converting resultative forms of transitive verbs into plain transitive forms P-aligned with the corresponding intransitive forms.

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is indexed on the verb form, like the core argument in intransitive predication, whereas P is in the Oblique case and is not indexed; in (8e–f), the term coded like the core argument in intransitive predication is P, and A shows the same oblique-like coding as P in (8a–b).

In other words, in Standard Kurmanji Kurdish, the alignment relationship between transitive and intransitive constructions is A = S ≠ P in the tenses that trigger the coding of A and P illustrated in (8a–b), P = S ≠ A in those that trigger the coding of A and P illustrated in (8e–f), and this alternation in alignment originates in the grammaticalization of a new form of perfect in the history of Iranian languages.

(8) Kurmanji (Blau & Barak 1999)

a. *Ez Sînem-ê dibîn-im.*
1SG Sinem-OBL see.ICPL-1SG
'I see Sinem.'

b. *Sînem min dibîn-e.*
Sinem 1SG.OBL see.ICPL-3SG
'Sinem sees me.'

c. *Ez tê-m.*
1SG come.ICPL-1SG
'I am coming.'

d. *Sînem tê-Ø.*
Sinem come.ICPL-3SG
'Sinem is coming.'

e. *Min Sînem dît-Ø.*
1SG.OBL Sinem see.CPL-3SG
'I saw Sinem.'

f. *Sînem-ê ez dît-im.*
Sinem-OBL 1SG see.CPL-1SG
'Sinem saw me.'

g. *Ez hat-im.*
1SG come.CPL-1SG
'I came.'

h. *Sînem hat-Ø.*
Sinem come.CPL-3SG
'Sinem came.'

In such a system, the coding of the core argument of intransitive verbs cannot be identified globally with that of either A or P, which constitutes a radical violation of the Obligatory Coding Principle.

Two remarks are in order at this point.

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First, it must be emphasized that the grammaticalization of TAM periphrases into new TAM forms does not necessarily trigger changes in the alignment relationship between transitive and intransitive constructions, even if they affect the coding characteristics of A and P in the basic transitive construction. For example, in Latvian, the grammaticalization of the debitive construction briefly presented in Section 2.2 resulted in an alternation between <Ø, ACC> and <DAT, Ø/ACC> in transitive coding, but this change did not affect the status of Latvian as an obligatory A coding language, since transitive A's and core arguments of intransitive verbs are treated in the same way in the debitive construction.

Another important observation is that many languages in which the grammaticalization of a new TAM form resulted in a violation of the Obligatory Coding Principle similar to that illustrated by Kurmanji Kurdish have undergone a subsequent evolution that can be characterized as regularization under the pressure of analogy, and this regularization may occur in two different ways. In some cases, the particular coding of agents and patients found in a (group of) tense(s) as the result of changes in TAM inflexion aligns with the coding found in the other tenses, whereas in others, a coding alternation that initially developed in the transitive construction was subsequently extended to intransitive coding.

The first variant of this regularization process (suppression of the coding alternation that had developed in the transitive construction) occurred in many Iranian languages (for example, Persian) which at some point in their history had an argument coding system similar to that of Kurmanji Kurdish (Example (8)), but subsequently aligned the coding of A and P in all tenses with the type of coding found in the present, which re-established a situation characterizable in terms of obligatory A coding.

As regards the second possible variant of the regularization process (by which a coding alternation that initially developed in the transitive construction extends to the coding of the core argument of intransitive verbs), Seržant (2012) shows that such a process occurred in the history of the North Russian Perfect: after the creation of a transitive perfect construction with adessive marking of the agent and no indexation of either A or P (Example (9a)), North Russian has extended the adessive marking to core arguments of intransitive verbs in the Perfect (Example (9b)).

(9) North Russian (Seržant 2012: 371–372)

a. *U menja ruka poraneno.*
at 1SG.GEN hand.SG injure.PRF
'I have injured my hand.'

b. *U cvetov sovsem zasoxnuto.*
at flower.PL.GEN totally dry_up.PRF
'The flowers are totally dried up.'

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This change re-established A alignment across the whole TAM paradigm, with just an alternation between the type of argument coding commonly associated with A alignment and a less common variety of A-aligned argument coding, in which the zero case is reserved for P, and the same overt flagging is used for A and for the core argument of intransitive verbs.

Among the languages with TAM-driven alternations between A alignment and P alignment, the configuration found in Iranian languages and illustrated above by Kurmanji Kurdish, with P alignment in past tense or perfective aspect, is particularly widespread cross-linguistically, and at least in many cases, there is evidence that it arose with the emergence of a perfect that may subsequently have evolved toward a perfective aspect or past tense.

5.3 Split-alignment resulting from the grammaticalization of a new perfect form: Problems in reconstructing the scenario

Perfects with a coding of A and P distinct from that found with other TAM forms have long been considered as having a 'passive' origin, but if the notion of passive is restricted to alternative constructions of transitive verbs with the same event structure and TAM semantics as their active counterpart, the passive theory is difficult to maintain, and if the notion of passive is broadened to include various types of passive-like constructions, then the question is: what is the exact nature of the passive-like constructions whose reanalysis may lead to the emergence of new perfect forms, and what are the possible scenarios. This is a tricky question, since for the languages in which this change is historically attested (the Indo-Iranian languages), the interpretation of the historical data is far from obvious, hence the long-standing controversy about the emergence of split-alignment patters in the languages in question.

Benveniste (1952) argued that the evolution responsible for the emergence of perfects assigning oblique-like coding to A and S-like coding to P in Indo-Iranian languages was not the reanalysis of passive constructions, as had been traditionally assumed, but the creation of a perfect tense according to a an scenario basically identical to the formation of Romance or Germanic *have*-perfects. The first stage in this evolution is the development of a possessive-resultative periphrasis, i.e. a complex construction in which a resultative clause is embedded in a possessive clause. Originally, the term coded like the possessor in plain possessive clauses is interpreted in this periphrasis as a person concerned by the result of an event, as was the case in Late Latin when the periphrasis that subsequently became the Romance Perfect started developing (Example (10)).

(10) Late Latin
  a. *Littera scripta est.*
     letter written be.PRES.3SG
     'The letter is written.'

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b. *Habeo* *pecuniam*.
have.PRES.1SG money.ACC
'I have money.'

c. *Habeo* [*litteram* *scriptam*]. (lit. 'I have (that) a letter (is) written.')
have.PRES.1SG letter.ACC written.ACC
'I am concerned by the fact that a letter is written.'

Later, the NP encoded like a possessor is reinterpreted as representing the A argument of the transitive verb, and the possessive-resultative periphrasis becomes the expression of perfect with transitive verbs.

Starting from that, it is tempting to think that, in languages with an oblique-like coding of possessors in predicative possession, the same scenario may lead to a split alignment pattern with P alignment in the perfect, since in such languages, a possessive-resultative periphrasis would assign oblique-like coding to the possessor subsequently reanalyzed as the agent of a transitive perfect. This was precisely the explanation put forward by Benveniste for the development of Indo-Iranian perfects.

After the publication of Benveniste's article, some authors like Cardona (1970) argued the case for the traditional theory of the passive origin of Indo-Iranian perfects. Crucially, the agent in the construction of the Old Indic Perfect was in the Instrumental case (and not in the Genitive or the Dative), which casts a serious doubt on Benveniste's theory, according to which the agent should be marked by a case typically used for possessors in predicative possession. However, this observation does not constitute a decisive proof in favor of the passive scenario, and more recently, on the basis of a careful examination of Old Indic data, Peterson (1998) and Bynon (2005) have concluded that the traditional explanation must be rejected, without however accepting all the details of Benveniste's theory.

The point is that the reanalysis of a possessive-resultative periphrasis is not the only alternative to the traditional passive scenario. In languages other than the few European languages that have uncontroversial *have*-perfects, it is much more plausible that the crucial stage in the development of transitive perfects from P-oriented resultatives is not the embedding of a resultative clause in a possessive clause, but simply the emergence and routinization of a construction in which a person concerned by the resultative situation is encoded as an adjunct added to the resultative clause, as in Example (11b). This construction cannot be described as a possessive clause with an embedded resultative clause, since it does not involve the verb *haben* 'have' standardly used to express predicative possession in German, but semantically, the adjunct encoding a person concerned by the resultant state lends itself to the same reanalysis as the possessor in a possessive-resultative periphrasis of the type illustrated in (10c).

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(11) German (Bynon 2005: 46)

a. *Die Kartoffeln sind angebrannt.*
DEF potato.PL be.PRES.3PL PREV.burn.PP
'The potatoes are / have got burnt.'

b. *Mir sind die Kartoffeln angebrannt.*
1SG.DAT be.PRES.3PL DEF potato.PL PREV.burn.PP
(lit. 'To me the potatoes are burnt.')
'I have been and gone and burned the potatoes.'

The plausibility of the reanalysis of a dative-marked adjunct referring to an indirectly affected participant as an agent showing argumental properties is confirmed by the observation of the possible interpretations of the Spanish construction in which anticausative *se* combines with a dative NP. The original meaning of this construction is clearly that the referent of the dative NP is indirectly affected by an event occurring more or less spontaneously, but in (12), the dative NP can only be interpreted as representing an involuntary agent, and the infinitive can only be interpreted as controlled by the dative NP, which points to the reanalysis of a former adjunct as an argument.

(12) Spanish (Rivero 2008: 221)
A Ana se le quemaron las niñas
Ann.DAT 3REFL 3SG.DAT burned.3PL the girls
al bañar-las
at.the bathe.INF-3PL.ACC
'Ann (accidentally) burned the girls when bathing them.'

In his analysis of the history of the North Russian Perfect and other constructions resulting from the evolution of P-oriented resultatives in various Slavic, Baltic and Uralic languages spoken in the same area, Seržant (2012) argues that there is no need to postulate either a passive construction or a possessive-resultative periphrasis as an intermediate stage in the evolution by which North Russian acquired a Perfect construction with a non-canonical argument coding.[21] On the basis of a careful examination of the available historical data, he convincingly shows that, in spite of the possessor-like coding of the agent in the North Russian Perfect, the scenario that best explains the whole of the data is not the development of a

21. As already mentioned above, in North Russian, the violation of the Obligatory Coding Principle that could have resulted from this evolution has been eliminated by the extension of the non-canonical coding of the agent in the Perfect to the core argument of intransitive verbs in the same tense.

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possessive-resultative periphrasis, but rather the addition of an adjunct initially referring to a person concerned in some way or other by the resultant situation, subsequently reanalyzed as referring specifically to the agent.

To summarize, in languages with obligatory A coding, a non-canonical coding of agents and patients leading to a violation of the principle of obligatory A coding in past tense or perfective aspect may develop as an automatic consequence of the evolution of P-oriented resultatives, if a construction of the type illustrated in (11b) is reanalyzed as a transitive construction with a new tense form expressing perfect semantics. If the same resultative construction is available with intransitive verbs (as in English *The man is gone* / *The mirror is broken*), and if the resultative construction of intransitive verbs undergoes the same reanalysis as a perfect without any change in its form, the construction of the perfect form resulting from this reanalysis will be something like (intr.) *The man is gone* / (tr.) *By the child the mirror is broken*, in contradiction with the rule of obligatory A coding.

Another scenario likely to lead to the same result is the reanalysis of periphrases in which a resultative form of the verb is used nominally with a genitival modifier representing the agent, i.e. something like literally 'P is A's V-ed'. Similarities between the coding of agents and that of possessors can be viewed as evidence supporting the reconstruction of this type of scenario. Creissels (1979: 523–529) discusses this hypothesis for Hungarian and K'ichee' (Maya). Such an evolution does not necessarily lead to the emergence of a perfect with alignment properties different from those of the pre-existing TAM, but depending on the details of argument and possessor marking in the language, this is unquestionably a possibility.

5.4 Progressive periphrases and split alignment

Cross-linguistically, progressive aspect is often expressed by complex constructions in which the phrase headed by the auxiliated verb in some non-finite or derived form is treated as a non-verbal predicate, as in English *Mary is* [*buying gifts for the children*] (to be compared with *Mary is* [*in the garden*]), or Spanish *María está* [*comprando regalos para los niños*] (to be compared with *María está* [*en el jardín*]). The tendency of such periphrases to evolve towards a more general meaning of present, as attested by the ongoing evolution of the progressive periphrasis of English, is a well-known phenomenon.

The motivations of this type of periphrasis and its further evolutions have been largely discussed. What I would like to draw attention to is that, in obligatory P coding languages, if no readjustment occurs, the development of such periphrases may lead to a split alignment pattern with A alignment in the present tense, and consequently, to a systematic violation of the Obligatory Coding Principle.

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Non-verbal predications generally involve an argument encoded like the core argument of intransitive verbs. Consequently, in languages in which A alignment is canonical, the A argument of a transitive verb treated as the core argument of an intransitive predication in a progressive periphrasis shows the same coding characteristics as in non-periphrastic constructions, and the grammaticalization of such a periphrasis cannot induce a change in alignment. By contrast, in languages in which P alignment is canonical, the A argument of transitive verbs receives a different treatment in the progressive periphrasis, since it is then treated as the core argument of an intransitive predication.

This can be illustrated by the Basque progressive periphrasis in which the intransitive compound verb *ari izan* 'be engaged in' combines with nominal complements marked typically locative (Example (13a)), or with clausal complements headed by the so-called 'Incompletive Participle', used also to form the non-periphrastic Present of the verbs that do not have synthetic finite forms (Example (13b) and (13d)). The construction with a clausal complement is a raising construction in which the A/S argument of the auxiliated verb is uniformly treated as the core argument of *ari izan*. Since *ari izan* is an intransitive verb showing P alignment, with transitive verbs (and also with the intransitive verbs that assign Ergative coding to their core argument), this results in coding characteristics different from those of the same argument in non-periphrastic constructions (Example (9d–e)).

(13) Basque

a. *Jon lanean ari da.*
Jon work.SG.LOC engaged be.PRS.3SG
'Jon is working.' (lit. 'Jon is engaged in work.')

b. *Jon paseatzen da.*
Jon walk.ICPL PRS.3SG[22]
'Jon is walking.' (non-periphrastic Present)

c. *Jon* [[*paseatzen*] *ari*]] *da.*
Jon walk.ICPL engaged be.PRS.3SG
'Jon is walking.' (progressive periphrasis)

d. *Jonek berriak ikusten ditu.*
Jon.ERG news.PL see.ICPL PRS.3SG.3PL
'Jon is watching the news.' (non-periphrastic Present)

22. The auxiliary in the analytic conjugation of intransitive verbs is identical with the verb 'be', but the combination it forms with the auxiliated verb behaves differently from the combination of 'be' with its complement. Note that *da* as a form of the verb 'be' combining with nouns or adjectives in predicate function is glossed 'be.PRS.3SG', whereas da as the auxiliary of intransitive verbs is glossed 'PRS.3SG'.

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e. *Jon* [[*berriak ikusten*] *ari*] *da.*
Jon news.PL see.ICPL engaged be.PRS.3SG
'Jon is watching the news.' (progressive periphrasis)

It might be tempting to conclude from this that Basque has a split alignment pattern with a Progressive tense triggering A alignment, but this would not be correct, since in the speech of most Basque speakers there is so far no evidence that the *ari izan* construction has been reanalyzed as a single clause (Hualde & Ortiz de Urbina 2003: 284). But if this periphrasis were reanalyzed as a verb form on a par with the other non-periphrastic forms of the Basque verb, in the absence of a readjustment, this evolution would result in a TAM-governed variation in the coding properties of the transitive construction and in alignment, with uniform A alignment in a Present or Progressive tense contrasting with split alignment in other tenses.

A similar process whereby a periphrasis 'be occupied with' has given rise to A alignment in the progressive is discussed by Gildea (1998) (Chapter 12).

As regards the progressive periphrasis of Basque, it is nevertheless interesting to observe that there is some evidence that the grammaticalization of this periphrasis could rather trigger a readjustment by analogy with the coding characteristics of the transitive construction in other tenses. For example, (14a) and (14b) are two possible versions of a Basque sentence meaning 'The companies are preparing the future managers'. The (a) version, with the A argument of the auxiliated verb in the Zero case and the P argument not indexed, is the correct one according to normative grammar, but the (b) version, with A in the Ergative case and the transitive auxiliary indexing both A and P, was found in an official document of the Basque government (Celine Mounole, pers.com.).

(14) Basque

a. *Enpresak etorkizuneko zuzendariak prestatzen*
company.PL future manager.PL prepare.ICPL
ari dira.
engaged be.PRS.3PL
'The companies are preparing the future managers.'

b. *Enpresek etorkizuneko zuzendariak prestatzen*
company.PL.ERG future manager.PL prepare.ICPL
ari dituzte.
engaged be.PRS.3PL.3PL
same meaning as (a)

The tendency to eliminate the alternation in the coding properties of the transitive construction resulting from the grammaticalization of the progressive

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periphrasis may be reinforced by the fact that, originally, the development of this periphrasis was limited to some dialectal varieties of Basque (Joseba Lakarra, pers.com.). It is now considered part of the standard Batua ('unified') variety, which means that it is now used by many speakers that do not have it in their native dialect, and may be particularly prone to aligning it with the canonical transitive pattern.

The so-called 'bi-absolutive construction' of transitive verbs in Nakh-Daghestanian languages is another example of a progressive periphrasis whose grammaticalization may result in a systematic violation of the Obligatory Coding Principle in obligatory P coding languages.

As a rule, Nakh-Daghestanian languages have obligatory P coding and transitive constructions of the kind typically associated with obligatory P coding (A in the Ergative case, P in the Zero case, and gender-number agreement of the verb with P only). The bi-absolutive construction is a periphrasis expressing progressive aspect or present tense in which both A and P are in the Zero case (hence the label 'bi-absolutive'), and the verb shows a complex agreement pattern.

For example, Avar has an analytic Present in which a participial form of the verb combines with the copula in auxiliary function. In intransitive predication (Example (15a)), the core argument is invariably in the Zero case and invariably controls the agreement of both the copula and the auxiliated verb. With transitive verbs, two constructions are possible. A first possibility is that A is in the Ergative case, P is in the Zero case, and the verb agrees with P only, as in the other tenses. In Example (15b), A is masculine and P neuter, and *b-eʟ'ule-b b-ugo* shows neuter agreement in the prefix of the participle, in the suffix of the participle, and in the prefix of the auxiliary. A second possibility is that A and P are in the Zero case, and the verb shows a complex agreement pattern: if the auxiliated verb belongs to the class of verbs that have agreement prefixes, its prefix agrees with P, but the agreement suffix of the auxiliated verb and the auxiliary agree with A. In Example (15c), with the same nouns in A and P roles, *b-eʟ'ule-w w-ugo* shows neuter agreement in the prefix of the participle only, whereas the suffix of the participle and the prefix of the auxiliary show masculine agreement (i.e., agreement with A).

(15) Avar (Alekseev & Ataev 1997)[23]

a. *Emen w-ač'ule-w w-ugo.*
father SG.M-coming-SG.M SG.M-COP
'Father is coming.'

23. Note that the Avar noun for 'father' has two suppletive stems: *emen* in the Zero case, and *insu* in other cases.

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b. *Insu-ca* *χur* *b-eʟ'ule-b* *b-ugo.*
father-ERG field SG.N-plowing-SG.N SG.N-COP
'Father is plowing the field.'

c. *Emen* [*χur* *b-eʟ'ule-w*] *w-ugo.*
father field SG.N-plowing-SG.M SG.M-COP
'Father is plowing the field.'

The construction illustrated by Example (15c) can be analyzed as involving two clauses, a matrix clause headed by the copula and an embedded participial clause:

a. the copula agrees with its sole argument *emen* 'father' in the Zero case;
b. the agreement suffix of the participle reflects its status of head of a phrase that, taken as a whole, behaves as a predicative adjective phrase in a copular construction;
c. the agreement prefix of the participle takes into account the syntactic relations within the phrase [*χur b-eʟ'ule-w*].

A plausible explanation, elaborated by Harris and Campbell (1995: 187–189), is that (15c) maintains the biclausal structure of the original periphrasis, whereas in (15b), the original biclausal construction has been reinterpreted as a single clause, and the case and agreement marks have been readjusted under the pressure of the predominant pattern with A in the Ergative case, P in the Zero case, and agreement of the verb with P only. In other words, the construction illustrated by Example (15b) can be interpreted as resulting from the elimination of the violation of the Obligatory Coding Principle introduced by the grammaticalization of the progressive periphrasis illustrated by Example (15c).

For a detailed presentation of the bi-absolutive construction in Nakh-Daghestanian languages, the cross-linguistic variation in its properties, and a discussion of the problems raised by its analysis, the reader is referred to Forker (2012).

5.5 Uncommon split alignment patterns, and the TAM periphrases of Basque

Dixon (1979: 95) makes the strong claim that "if a split is conditioned by tense or aspect, the ergative marking is ALWAYS found in either past tense or perfect aspect". Counterexamples to the connection between perfective and ergativity assumed by Dixon have been found, in particular among Cariban languages (see in particular Gildea 1992; 1998), but Dixon 1994 discards them as insignificant, because of their "transitional" nature. However, there is nothing extraordinary in the existence of less common TAM-driven split alignment patterns, since it is not difficult to find languages having TAM periphrases whose grammaticalization, in

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the absence of a readjustment under the pressure of analogy, would automatically give rise to alignment variations contradicting the universal posited by Dixon.

For example, in addition to the progressive periphrasis analyzed in Section 5.4, Basque has several TAM periphrases whose grammaticalization could lead to the emergence of various alternations in the coding properties of the transitive construction and in alignment patterns.

A first example is the future periphrasis in which *joan* 'go' combines with the allative form of a verbal noun. Since *joan* is an intransitive verb showing P alignment, in this future periphrasis, the A/S argument of the auxiliated verb encoded as the core argument of *joan* is uniformly in the Zero case; if the auxiliated verb is transitive, P is also in the Zero case, and it is not indexed, since the non-finite verb forms of Basque do not express agreement with any of their arguments (Example (16b)).

(16) Basque

a. *Jonek berriak ikusiko ditu.* (non-periphrastic future)
Jon.ERG news.PL see.FUT PRS.3SG.3PL
'Jon will watch the news.'

b. *Jon* [*berriak ikustera*] *doa.* (periphrastic future)
Jon news.PL see.NMLZ.ALL go.PRS.3SG
'Jon is going to watch the news.'

Consequently, in the absence of a readjustment, the replacement of the non-periphrastic future by a form originating from this periphrasis (which is a very common phenomenon in the evolution of languages) could lead to the emergence of a new future form imposing the same coding (with in particular zero flagging) to A and the core argument of all intransitive verbs, and consequently uniform A alignment contrasting with the split alignment pattern found with the other TAM forms.

Another case in point is the debitive periphrasis with *behar izan* 'need', lit. 'have need'. This transitive compound verb can take a nominal complement in the Zero case, as in Example (17a), but it is also found in a debitive periphrasis in which it combines with the completive participle of the auxiliated verb (Example (17c) and (17e)).[24] The behavior of this periphrasis is rather intricate – for a detailed

24. Since in English, *need* can be either a verb or a noun, it is important to keep in mind that, in Basque, *behar* is a noun used here in the Zero case as the non-verbal element of a light verb compound whose verbal element is *izan* 'have'. Formally speaking, *behar* can be viewed as fulfilling the P role in the construction of *izan*. However, in the construction illustrated by Example (17a), *Jonek* and *kotxe berri bat* behave exactly like the A and P NPs in

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discussion, see Hualde and Ortiz de Urbina (eds) (2003: 301–308), but what is important in the perspective of this chapter is that, in conformity with the etymology, the person that has to do something can always be encoded as A in a transitive construction, even if the auxiliated verb is an intransitive verb assigning Zero case to its core argument, as in Example (17c).

(17) Basque

a. *Jonek kotxe berri bat behar du.*
Jon.ERG car new one need have.PRS.3SG.3SG
'Jon needs a new car.'

b. *Jon etxera doa.*
Jon car new
'Jon is going home.'

c. *Jonek [etxe-ra joan] behar du.*
Jon.ERG house.SG.ALL go.CPL need have.PRS.3SG.3SG
'Jon must go home.'

d. *Jonek ogia erosten du.*
Jon.ERG bread.SG buy.ICPL PRS.3SG.3SG
'Jon is buying bread.'

e. *Jonek [ogia erosi] behar du.*
Jon.ERG bread.SG buy.CPL need have.PRS.3SG.3SG
'Jon must go home.'

Cross-linguistically, debitive constructions are a common source of future tenses. In Basque, in the absence of a readjustment, the grammaticalization of this periphrasis as the usual expression of future might lead again to the emergence of a tense form imposing uniform A alignment, but with the atypical variety of flagging in which the same marked case form is assigned to the A argument of transitive verbs and to the core argument of all intransitive verbs.

Interestingly, the grammaticalization of the *behar izan* periphrasis with a future meaning is not attested in present-day Basque, but two or three centuries ago, the Lapurdian dialect initiated such an evolution (Mounole 2011: 191), and this semantic shift was accompanied by a possible regularization of the construction quite similar to that mentioned above for the progressive periphrasis. For example, '(he) will come' occurs in the same text as *jin behar du* in an independent clause (18a), and as *jin behar den* in a relative clause (18b).

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the construction of a simplex transitive verb. Note that *du* as a form of the verb 'have' with the coding frame <ERG, Ø> is glossed 'have.PRS.3SG.3SG', whereas *du* as an auxiliary is glossed 'PRS.3SG.3SG'.

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(18) Old Lapurdian (Mounole 2011: 191)

a. *Jin* *behar* *du*.
come.CPL need have.PRS.3SG.3SG
'He will come.'

b. *jin* *behar* *den*
come.CPL need be.PRS.3SG.REL
'who will come' (relative clause)

In (18a), in conformity with the etymology of this periphrasis, the auxiliary *du* is a form of the transitive auxiliary 'have', in spite of the intransitive nature of the auxiliated verb, whereas in (18b), the auxiliary *den* is a dependent form of the intransitive auxiliary 'be',[25] which points to a possible readjustment in the coding properties of this periphrasis when the auxiliated verb was intransitive.

We now turn to a resultative periphrasis of Basque in which the verb *izan* 'be'[26] combines with the completive participle in the definite form treated as an adjectival predicate.[27]

Contrary to Indo-European 'past participles', this non-finite form of the Basque verb (glossed CPL) is not particularly patient-oriented, and with transitive verbs it can combine with an ergative-marked agent, like the finite forms of transitive verbs. Consequently, when transitive verbs occur in the resultative periphrasis, the raised argument can indifferently be A or P, and the non-raised argument is treated exactly as in an independent clause, which gives rise to constructions that are often designated as passive (if the raised term is P, as in (19b)) and antipassive (if the raised term is A, as in (19c)).

(19) Basque

a. *Jon-ek* *eskutitz* *bat* *idatzi* *du*.
Jon-ERG letter one write.CPL PRS.3SG.3SG
'Jon wrote a letter.' (non-periphrastic completive)

b. *Eskutitz* *hau* [*Jon-ek* *idatzi-a*] *da*.
letter DEM.SG Jon-ERG write.CPL-SG be.PRS.3SG
'This letter has been written by Jon.'
(lit. 'This letter is [Jon (having) written (it)].')

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25. The corresponding independent form would be *da*; in the same context, the transitive auxiliary would occur as *duen*.

26. The participial form conventionally used as the quotation form of Basque verbs is the same for *izan* 'be' and *izan* 'have', but the finite forms of these two verbs are distinct.

27. In most dialects of Basque, nouns and adjectives in predicate function are in the definite form.

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c. *Jon* [*eskutitz asko idatzi-a*] *da*.
Jon letter many write.CPL-SG be.PRS.3SG
'Jon has written many letters.'
(lit. 'Jon is [(having) written many letters].')

In the 'passive' variant (19b), there is no change in case assignment in comparison with the non-periphrastic construction of a transitive verb, since the core argument of *izan* 'be' has the same coding characteristics as the P argument of transitive verbs. Consequently, its grammaticalization would induce no modification in the alignment patterns of Basque, and the loss of verb agreement with A would even reinforce the consistency of P alignment. By contrast, the grammaticalization of the 'antipassive' variant (19c) could lead to a TAM-driven alignment alternation with uniform A alignment in the perfect. In other words, Basque attests a resultative periphrasis whose grammaticalization, in the absence of a readjustment, would automatically lead to the emergence of an alternation in alignment in clear contradiction with Dixon's universal.

5.6 Concluding remarks

The data examined in this section show that the grammaticalization of TAM constitutes a potential source of a wide variety of alternations in the coding characteristics of the transitive construction, which may mechanically induce violations of the Obligatory Coding Principle, depending on the treatment of intransitive verbs in the source construction. But we also have seen that this automatic result of the grammaticalization of some TAM periphrases tends to be canceled by subsequent evolutions that do not necessarily align the coding frame imposed by the new TAM form with that of the pre-existing TAM forms, but at least modify it in such a way as to eliminate the alignment variation.

Consequently, there is no need to look for direct semantic / functional explanations of the fact that just a few TAM-driven alignment variations are well-attested cross-linguistically, while others are marginal or not attested at all. The fact that a particular TAM grammaticalization process at some point in the history of a given language has a side effect on alignment or not depends entirely on the coding of core arguments in the source construction, and cross-linguistically, verb forms expressing the same type of TAM value can emerge from the grammaticalization of a variety of source constructions with various types of configurations in terms of core argument coding. Given the strong tendency to eliminate the violations of the Obligatory Coding Principle resulting from the grammaticalization of TAM, the only TAM-driven alignment variations that have a relatively good chance to surface again and again in different languages are those likely to result from particularly common grammaticalization paths. The

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explanation of the relative frequency of some particular TAM-driven alignment variations must therefore not be sought in the semantics of TAM forms. The real question is why some types of evolutions leading to the emergence of new TAM forms are more common than others, and this question has no direct link with alignment typology.

6. Conventionalization of argument ellipsis and the Obligatory Coding Principle

6.1 Introductory remarks

Depending on the individual languages, A and P may behave as terms of the transitive construction that must obligatorily be expressed (either by means of NPs, or through indexation), but the mere absence of any morphological material referring to a core term can also be used to signal that the missing argument must be, either anaphorically identified with a salient referent, or interpreted as indeterminate. For example, in English, the absence of P in *He is eating* implies an indeterminate interpretation of the patient; in other languages, a formally identical construction would be interpreted as 'He is eating it', or would be ambiguous between an indeterminate and an anaphoric reading.

The use of A or P ellipsis with an indeterminate interpretation is not limited to languages in which a particular type of alignment predominates. For example, P ellipsis with an indeterminate interpretation is perhaps particularly common among obligatory A coding languages, but some obligatory A coding languages do not have this possibility (for example, Nahuatl systematically uses 'indeterminate object prefixes' (Launey 1994: 155–159), and P ellipsis with an indeterminate interpretation is widespread among languages with other alignment patterns too (for example, in Basque, depending on the context, *ikusten dute*, with A agreement of 3rd person plural and P agreement of 3rd person singular, can equally express 'they see it / him / her' or 'they can see').

Historically, transitive constructions in which the absence of a core argument expresses indeterminacy may undergo evolutions converting them into intransitive constructions. More or less complicated scenarios can be imagined, depending on the particularities of the individual languages, but the most obvious one is that the verb in question simply loses the ability to be used in a full transitive construction, and consequently undergoes a reduction of the number of its arguments.

In obligatory A coding languages, the reanalysis of a transitive construction from which P is missing as an intransitive construction has no consequence on

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alignment, since a term showing A-like coding is still present. But in obligatory P coding languages, the result is the emergence of a non-canonical coding frame involving no term having the coding characteristics of P.

Symmetrically, in obligatory P coding languages, the reanalysis of a transitive construction from which A is missing as an intransitive construction has no consequence on alignment, since a term showing P-like coding is still present. But in obligatory A coding languages, the result is the emergence of a non-canonical coding frame involving no term having the coding characteristics of A.

6.2 Conventionalization of P ellipsis in obligatory P coding languages: An illustration from Akhvakh

In Akhvakh, as in most languages belonging to the Avar-Andic branch of the Nakh-Daghestanian family, exceptions to the rule of obligatory P coding are marginal: in the transitive construction, A in the Ergative case contrasts with P in the Zero case and the verb agrees in gender and number with P, and with few exceptions, the coding frames of intransitive verbs include a term in the Zero case governing verb agreement in gender and number like P in the transitive construction (Example (19)).

(20) Akhvakh

a. *Ek'wa w-oq'-iʟo.*
man SG.M-come-CPL.NEG.SG.M
'The man did not come.'

b. *Jaše j-eq'-iʟe.*
girl SG.F-come-CPL.NEG.SG.F
'The girl did not come.'

c. *Ek'waš^{w}-e jaše j-ič-iʟe.*
man-ERG girl SG.F-push-CPL.NEG.SG.F
'The man did not push the girl.'

Depending on a complex combination of grammatical and lexical factors, verb agreement in gender and number is not always apparent.[28] As regards P ellipsis,

28. In Akhvakh, gender-number agreement of verbs involves prefixes and suffixes. The presence of agreement prefixes is lexically determined (verbs divide into two morphological classes, those that have agreement prefixes in all their forms, and those devoid of agreement prefixes), whereas agreement suffixes occur in certain tenses only, irrespective of the presence or absence of lexically determined agreement prefixes. The verbs of Example (19) (*b-eq'uruʟa* '*come*' and *b-ičuruʟa* 'push', conventionally quoted in isolation with the singular neuter prefix) belong to the class of verbs with obligatory agreement prefixes, whereas the verbs of the following examples all belong to the class of verbs devoid of agreement prefixes.

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depending on the context, in the absence of an NP in P role, transitive verb forms showing neuter singular agreement or devoid of any apparent agreement mark may equally have an anaphoric or indeterminate interpretation.

In addition to the canonical valency patterns characterized by the presence of a term in the Zero case governing the agreement of the verb in gender and number, Akhvakh has a limited class of verbs with non-canonical valency patterns involving an argument in the Ergative case and an argument in a spatial case, but no argument that could be represented by an NP in the Zero case. With respect to agreement, the verbs in question show neuter singular default agreement (Example (20)).

(21) Akhvakh

a. *Ek'waš^{w}-e jašo-ga eq̄-ere godi.*
man-ERG girl-ALL look_at-PROG COP.SG.N
'The man is looking at the girl.'

b. *χwe-de jašo-ge q̄'eleč'-ari.*
dog-ERG girl-LOC bite-CPL
'The dog bit the girl.'

c. *Mik'i-de di-ge q̄'it'-ari.*
child-ERG 1SG-LOC pinch-CPL
'The child pinched me.'

There is no direct evidence that a P argument was ever present in the construction of these verbs, and several types of explanations of such exceptional valency patterns can be considered. In some cases, the most plausible explanation is the univerbation of former light verb compounds (see Section 7), but in some others, a plausible explanation is the conventionalization of P ellipsis in constructions that, originally, were perfectly canonical transitive constructions.

For example, the verb *ƛ̄'^{w}aruruƛa* is commonly encountered with the meaning 'hit' in a construction superficially similar to those illustrated by Example (21), with an argument in the Ergative case and an argument in the Locative case (Example (22)).

(22) Akhvakh

Ek'waš^{w}-e jašo-ge ƛ̄'^{w}ar-ari.
man-ERG girl-LOC hit-CPL
'The man hit the girl.'

At first sight, *ƛ̄'^{w}aruruƛa* might appear as a bivalent verb with an exceptional valency pattern, but in fact, it is a trivalent verb, and (22) is the elliptical variant

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of a perfectly canonical coding frame with an oblique argument in addition to A and P.

The point is that the same verb with the same meaning 'hit' (or closely related meanings) is also found in a construction in which a term in the Zero case governing the agreement of the verb in gender and number represents the instrument used by the hitter to perform his/her action (Example (23)).

(23) Akhvakh

a. *Ek'waš^{w}-e jašo-ge reL'a L̄'^{w}ar-ari.*
man-ERG girl-LOC hand hit-CPL
'The man hit the girl with his hand.' (lit. 'applied the hand to the girl')

b. *Ek'waš^{w}-e jašo-ge č'uli L̄'^{w}ar-ari.*
man-ERG girl-LOC stick hit-CPL
'The man hit the girl with a stick.' (lit. 'applied a stick to the girl')

Consequently, the basic meaning of *L̄'^{w}aruruLa* is 'someone applies something to a surface rapidly/violently'. In Akhvakh, as in other Caucasian languages, the hittee is not conceptualized as the patient of a two participant action, but as the target at which an agent is aiming a missile, and (22) is still recognizable as a transitive construction from which P is missing: 'The man applied [an unspecified object] to the girl', or 'The man aimed [an unspecified object] at the girl'. Starting from that, one can easily imagine that at least some of the bivalent verbs of Akhvakh that have non-canonical coding frames occurred initially in a construction including a P term whose elision was subsequently conventionalized.

6.3 Conventionalization of A ellipsis in obligatory A coding languages: Illustrations from Amharic and Russian

As discussed in three of the papers included in Donohue and Wichmann (2008), in languages in which A alignment predominates, the reanalysis of P in elliptical transitive constructions (or 'transimpersonal'[29] constructions) as the unique core argument of intransitive constructions can be a source of systems in which, in violation of the Obligatory Coding Principle, intransitive verbs divide into two subsets differing in the alignment of their core argument. Holton (2008) and Mithun (2008) discuss comparative evidence supporting the hypothesis that, in various languages from the Americas and Papua New Guinea, such systems developed from the reanalysis of transimpersonal constructions as intransitive constructions with P coding of the core argument. Malchukov (2008) proposes

29. According to Malchukov (2008), this term was coined by Mary Haas (1941).

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a wider discussion of the evolutions of transimpersonal constructions, rightly pointing out that their reanalysis as intransitive constructions has no consequence on alignment patterns in obligatory P coding languages (for example, in the Iwaidjan languages discussed by Evans 2004), whereas the same reanalysis may trigger the development of non-canonical coding frames when it occurs in obligatory A coding languages.

In this section, I illustrate this point by the comparison of Amharic and Russian impersonal constructions that can be viewed as representing two different stages in the evolution of transimpersonal constructions towards plain intransitive constructions with a non-canonical alignment pattern.

Amharic is a language with obligatory A coding in which A is obligatorily indexed by person markers which, in the absence of a co-referent NP, normally trigger an anaphoric interpretation. Amharic also has constructions, traditionally identified as 'impersonal', that can be analyzed as elliptical transitive constructions in which the absence of an NP in A role exceptionally triggers an indeterminate rather than anaphoric interpretation.

For example, the state of being hungry, without any hint about a possible external cause, is rendered in Amharic by a verb showing a non-referential A index of 3rd person singular masculine, and a P index representing the person or animal being hungry (Example (24a)). But the same verb also occurs in a canonical transitive construction in which A and P are respectively assigned the roles of stimulus and experiencer (Example (24b)).

(24) Amharic (Leslau 2005: 43)

a. *Rabä-ñ.*
hunger.CPL.3SG.M-1SG
'I am hungry.' (lit. 'It hungered me.')

b. *Ïnjära* *rabä-ñ.*
bread hunger.CPL.3SG.M-1SG
'I am hungry for bread.' (lit. 'Bread hungered me.')

Starting from situations of this type, one can easily imagine how the loss of the construction illustrated by Example (24b) may result in the emergence of monovalent verbs whose exceptional construction cannot be explained as an elliptical transitive construction anymore, and must be viewed as an instance of P alignment in a language in which A alignment is canonical.

The impersonal construction of the Russian verb *trjasti* 'shake' results from an evolution of this type. This verb occurs in a canonical transitive construction (Example (25a)), but also in an impersonal construction that, synchronically, cannot be analyzed as an elliptical variant of the transitive construction, since the par-

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ticipant expressed as the A term of the transitive construction can be encoded as an oblique introduced by the preposition *ot* 'from'. In Example (25b), the only core term is an experiencer in the accusative case; it would be ungrammatical to add an NP in the Zero case, and an external cause can only be mentioned by means of a preposition phrase in oblique role.

(25) Russian

a. *Ja trjasu kovër.*
1SG shake.PRS.1SG carpet.ACC
'I am shaking the carpet.'

b. *Menja trjasët (ot lixoradki).*
1SG.ACC shake.PRS.3SG (from fever.GEN)
'I am shaking (with fever).' (lit. 'It shakes me (from fever).')

It seems however reasonable to assume that the impersonal construction illustrated by (25b) developed as an elliptical variant of the transitive construction: '[An unspecified cause] shakes me'. But the fact that the cause is now encoded as an oblique introduced by the ablative preposition *ot* proves that, in the present state of Russian, this construction is no longer an elliptical variant of the transitive construction, and has been reanalyzed as a construction of its own.

7. Univerbation of light verb compounds and the Obligatory Coding Principle

Some languages have a particularly high proportion of predicates expressed by means of light verb compounds in which the light verb is a transitive verb, most often a verb with the meaning 'do, make', as in Example (26), and the non-verbal element is a noun encoded like the P argument of transitive verbs (Samvelian 2012: 16).

(26) Basque

a. *Haurr-ek lo egiten dute.*
child-PL.ERG sleep do.ICPL PRS.3SG.3PL
'The children are sleeping.' (lit. are doing sleep)

b. *Gizon horr-ek ez du euskar-az*
man DEM.SG-ERG NEG PRS.3SG.3SG Basque-SG.INSTR
hitz egiten.
word do.ICPL
'This man does not speak Basque.' (lit. does not do word in Basque)

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The coding frame of such predicates can be schematized as A (X) p V, where V is the verbal element of the light verb compound, (lower-case) p represents the non-verbal element of the compound, coded as if it were the P argument of a transitive verb, A represents an argument to which A coding is assigned, and (X) represents possible additional terms whose presence depends on the argument structure of the predicate, and to which an oblique-like coding is assigned.

In obligatory A coding languages, considering the non-verbal element of the compound as a term in the construction of the light verb or considering the compound p V as a whole as the syntactic equivalent of a simplex verb does not change anything with respect to the Obligatory Coding Principle, since a term of the construction representing a participant is encoded like the A argument of a transitive verb. By contrast, in obligatory P coding languages, the principle is formally satisfied by the nominal element of the compound, insofar as it is considered a term in the construction of the light verb, but the principle is violated if the complex predicate is taken as a whole, and only NPs representing participants are considered terms of the predicative construction.

Diachronically, there is a general tendency toward fusion of the two elements of such compounds. This univerbation process converts formally transitive constructions A (X) p V (where 'p' symbolizes the P coding of a word that does not represent a participant) into A (X) V, i.e. constructions with a term showing A coding but no term showing P coding. In obligatory A coding languages, this results in perfectly canonical constructions, whereas in obligatory P coding languages, the same process results in a violation of the Obligatory Coding Principle. Interestingly, some obligatory P coding languages show a strong tendency toward regularization of the non-canonical coding frames resulting from this process, whereas others tend to maintain them without modification.

As already illustrated by Example (26) above, Basque makes wide use of light verb compounds consisting of a bare noun and the verb *egin* 'do, make'. The argument structure of light verb compounds like *lo egin* 'sleep' or *hitz egin* 'speak' can be represented as <ERG, ø>, where (uppercase) ERG symbolizes the slot for the argument of the light verb compound taken as a whole, and (lowercase) ø symbolizes the slot for the non-verbal element of the compound, whose coding characteristics are similar to those of the P argument of transitive verbs. As observed by Etxepare (2003: 397), such compounds "are not instances of incorporation … the bare nominal and the verb *egin* can be separated by a number of syntactic operations, and the bare nominal can take partitive case." See Oyharçabal (2007) for a more detailed analysis of Basque light verb compounds.

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Many of the light verb compounds of Basque correspond to simplex verbs whose root coincides with the non-verbal element of the compound, like *bultza egin* lit. 'do impulse' / *bultzatu* 'push' (Example (27)).[30]

(27) Basque

a. *Mutil-ak ate-ari bultza egin zion.* <ERG, DAT, Ø>
boy-SG.ERG door-SG.DAT impulse do.CPL PST.3SG.3SG.3SG
'The boy pushed the door.'

b. *Mutil-ak ate-a bultzatu zuen.* <ERG, Ø>
boy-SG.ERG door-SG push.CPL PST.3SG.3SG
same meaning as (a)

In this example, a light verb compound with the coding frame <ERG, DAT, Ø> corresponds to a simplex transitive verb with the coding frame <ERG, Ø>, and the Dative argument of the light verb compound represents the same participant as the argument of the simplex verb in the Zero case. However, in such situations, the prevailing trend in Basque is rather to encode the arguments of the simplex verb in the same way as in the light verb construction. For example, the light verb compound *dirdir egin* 'shine' (lit. 'do shining') and the corresponding simplex verb *dirdiratu* equally assign the Ergative case to their argument (Example (28)). In other words, *dirdiratu* belongs to the class of verbs with no argument in the Zero case and an argument in the Ergative case, which included very few verbs in Old Basque but has grown dramatically in the history of most Basque varieties.

(28) Basque

a. *Eguzki-ak dirdir egiten du.* <ERG, Ø>
sun-SG.ERG shining do.ICPL PRS.3SG.3SG
'The sun is shining.'

b. *Eguzki-ak dirdiratzen du.* <ERG>
sun-SG.ERG shine.ICPL PRS.3SG.3SG
same meaning as (a)

The variation observed in the coding frames of Basque simplex verbs cognate with the non-verbal element of an *egin*-compound can be viewed as the result of the interaction between two conflicting tendencies: a tendency to align the encoding of the arguments of the simplex verbs with the encoding of the same arguments in the light verb construction, as in Example (28), and a tendency to organize the

30. *Bultzatu* is the completive participle, used in Basque grammars and dictionaries as the quotation form of verbs. It can be decomposed as *bultza-* (root) plus -tu (completive aspect marker).

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coding frame of the simplex verb according to the principle of obligatory P coding, as in Example (27).

In Creissels (2015), I argued that the prevalence of the tendency to align the encoding of the arguments of the simplex verbs with the encoding of the same arguments in the light verb construction observed in most Basque varieties can be explained as part of a 'conspiracy' towards extension of Ergative coding (and consequently against obligatory P coding). This phenomenon has its roots in particularities of the argument coding system that already existed in Old Basque, but it was considerably reinforced by a rule according to which, with the only exception of so-called pronominal verbs (i.e. verbs combined with the Romance reflexive clitic *se*), Spanish or French intransitive verbs borrowed into Basque assign Ergative coding to their core argument, irrespective of their valency.

In the same article, I compared the Basque situation with that of Andic languages, a group of closely related Nakh-Daghestanian languages spoken in the western part of Daghestan, which like Basque make a wide use of light verb compounds, but in which, contrary to Basque, there is a strong tendency to eliminate the violations of the Obligatory Coding Principle following from the univerbation of light verb compounds. In spite of the extensive use of light verb compounds consisting of a transitive verb and a noun in the Zero case, Andic languages have very few verbs with coding frames violating the obligatory P coding principle, even among verbs clearly resulting from the univerbation of a light verb compound, and none of the verbs in question is used with a non-canonical coding frame in all Andic languages.

For example, in the case of 'listen', three situations are found among Andic languages:

- Some Andic languages express 'listen' by means of a construction involving the noun 'ear' in addition to the noun phrases encoding the two participants, as in Godoberi *hāt'uk'ja rikki*, literally 'fix the ear (on someone/something)' (Example (29)). Formally, this construction is an instance of the regular coding frame <ERG, Ø, ALL> with *hāt'uk'ja* 'ear' in the Zero case.
- Others have a verb 'hear' with the exceptional coding frame <ERG, ALL>: Tindi *anix̄^{j}iɬ^{j}a* (Example (30)), Chamalal *wołuk'la*, Bagvalal *aštila*;
- A verb 'hear' with the regular coding frame <Ø, ALL> is found in two Andic languages: Akhvakh *hādax̄uruʟa* (Example (31)), Karata *ādukaɬa*.

(29) Godoberi (Saidova 2006)

Wašu-di	*imu-qi*	*hāt'uk'^{j}a*	*rikki*	*rukkida.*
son-ERG	father-LOC/ALL	ear	hold.INF	must.ICPL

'The son must listen to his father.'

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(30) Tindi (Magomedova 2003)
Di-qa *anix^{j}ā* *hik'^{j}i* *oš^{w}-ī*
1SG-LOC/ALL listen.ICPL NEG DEM.M-ERG
'He does not listen to me.'

(31) Akhvakh
Waša *imo-ga* *hādaxari.*
boy father-ALL listen.CPL
'The boy listened to his father.'

Interestingly, 'fix the ear on' is the obvious etymology of Akhvakh *hādaxuruLa* (compare with *hāde* 'ear', *bixuruLa* 'fix' – the root of this verb is *-ix-*), in spite of the fact that the NP representing the listener is assigned the Zero case instead of the Ergative case that should be expected from this etymology.

The variation in the expression of 'listen' in Andic languages provides therefore evidence supporting the reconstruction of the following evolution:

– at a first stage, the coalescence of a trivalent verb selecting the regular frame <ERG, Ø, ALL> with a noun in the Zero case creates a bivalent verb with the exceptional coding frame <ERG, ALL>;
– at a second stage, attested by Akhvakh and Karata, the exceptional coding frame resulting from this evolution may be regularized into <Ø, ALL>.

Therefore the question is why, in some of the obligatory P coding languages that make a wide use of light verb constructions in which the non-verbal element of the light verb compound is a noun encoded as if it represented a patient, there is a very strong tendency to eliminate the violations of the Obligatory Coding Principle that arise from the univerbation of light verb compounds, whereas in others, the univerbation of light verb compounds contributes to an increase in the proportion of verbs with coding frames violating the principle of obligatory P coding.

In the aforementioned article I argued that, in the history of Basque, the weakening of the tendency toward regularization of coding frames contradicting the principle of obligatory P coding must be viewed as part of a general trend toward relaxation of the constraints limiting the use of Ergative coding in systems characterized by 'strict' ergative coding, according to a distinction between strict and loose ergative coding introduced by Harris (1985) and applied to Basque by Aldai (2008).[31] And precisely, in this respect, Andic lan-

31. In languages with strict ergative coding, ergative coding tends to be limited to agents of core transitive verbs in contexts implying a high degree of semantic transitivity, whereas in

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guages are strikingly different from Basque, which suggests that, in languages that stand closer to the prototype of strict ergative coding, with consequently an ergative case relatively marked semantically, the coding frames contradicting the obligatory P coding principle that arise as the result of the univerbation of light verb compounds tend rather to be modified in order to conform to the principle of obligatory P coding.

8. Conclusion

In this chapter, I have examined two possible types of diachronic processes that may affect the status of argument coding systems with respect to the Obligatory Coding Principle: global changes affecting at the same time the whole set of transitive verbs and resulting in a modification of the characteristics of transitive coding, and gradual changes resulting in the creation of intransitive verbs with non-canonical alignment.

Two subtypes of global changes must be distinguished. A first possibility is that the transitive construction is replaced by another construction that was already available for transitive verbs, but with the status of a passive or antipassive variant of the basic transitive construction. A second possibility is that the grammaticalization of new TAM forms results in TAM-driven alternations in core argument coding that affect the uniformity of alignment relationships across the TAM paradigm. As regards the possibility of gradual changes resulting in the creation of intransitive verbs with non-canonical alignment, two types have been discussed: the conventionalization of argument ellipsis, and the univerbation of light verb constructions.

The types of changes likely to automatically result in violations of the Obligatory Coding Principle (grammaticalization of new TAM forms, conventionalization of argument ellipsis, and univerbation of light verb compounds) are very common types of diachronic processes, and one may therefore wonder why systems of transitive coding with TAM-driven alternations in alignment, or with two substantial classes of intransitive verbs differing in the coding properties of their core argument, are not more widespread among the languages of the world. The

languages with loose ergative coding, ergative coding is widely used to encode the most agent-like argument of bivalent verbs that are not core transitive verbs, irrespective of the precise semantic roles they assign and of the contexts in which they are used.

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obvious explanation is that the violations of the Obligatory Coding Principle triggered by such processes tend to be canceled by readjustment under the pressure of analogy:

- the alignment alternations triggered by the grammaticalization of new TAM forms with a special coding of A and P tend to be eliminated by the alignment of the construction of newly created TAM forms with the pre-existing ones, or by a change in the coding of the core argument of intransitive verbs restoring the alignment relationship found in the remainder of the TAM paradigm,
- the intransitive verbs with exceptional coding frames resulting from the conventionalization of argument ellipsis or from the univerbation of light verb compounds tend to replace them by more canonical coding frames.

But this leads to the opposite question: if the tendency to eliminate the violations of the Obligatory Coding Principle is so strong, how is it possible that nevertheless, systems of argument coding involving important violations of the Obligatory Coding Principle are not exceptional?

The case of Basque suggests that such situations arise as the result of the interplay of a complex set of factors. But with very few exceptions (mainly Kartvelian and Indo-Iranian languages), for most of the other languages that could improve our understanding of the tension between changes that automatically result in violations of the Obligatory Coding Principle and changes that eliminate such violations, the explanation can only be speculative, for lack of historical data.

As rightly pointed to me by Sonia Cristofaro, this is in fact a general problem in diachronic typology: there are some relatively well-described cases, and plausible scenarios for the development of particular synchronic patterns can be put forward, but we don't have the quantitative evidence about the actual frequency of the relevant processes that would allow the assessment of hypotheses about how frequent these scenarios are cross-linguistically.

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Abbreviations

ABL	ablative
ACC	accusative
ALL	allative
ANTIP	antipassive
COP	copula
CPL	completive aspect
DAT	dative
DEB	debitive
DEF	definite
DEM	demonstrative
ERG	ergative
F	feminine
FUT	future
GEN	genitive
ICPL	incompletive aspect
INF	infinitive
INSTR	instrumental
LOC	locative
MOD	modal
N	neuter
NEG	negation
NMLZ	nominalization
OBL	oblique case
PASS	passive
PL	plural
PP	past participle
PREV	preverb
PRF	perfect
PROG	progressive
PRS	present
PRVL	privileged argument
PST	past
M	masculine
REL	relativizer
SG	singular

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CHAPTER 3

Deconstructing teleology

The place of synchronic usage patterns among processes of diachronic development

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A central issue in typology is the role of implicational hierarchies in shaping individual languages. One view is that the hierarchies guide language change, or at least constrain it: "Since a hierarchy constrains what is a possible language, it is also a constraint on language change, because languages move from one possible state to another" (Corbett 2011). Other approaches take a different perspective: "Hierarchies simply capture the outputs of independent diachronic processes" (Cristofaro & Zúñiga this volume). Here the relationship between typology and diachrony is examined with respect to the most frequently-cited hierarchies, the cluster of Referential/Topicality/Animacy/Empathy hierarchies. While such hierarchies might appear to drive diachronic development in some single-step changes, multi-step developments are a different matter.

1. The hierarchies

The most frequently-cited implicational hierarchies in typological work involve variations on sets of referring expressions like those in (1). The expression types are arranged along a continuum according to their propensity to be selected as topics in speech, their animacy, or the degree to which speakers empathize with their referents, all related notions. Those expression types at the left end of the hierarchy exhibit the strongest propensities, and those on the right the weakest.

(1) Referential/Topicality/Animacy/Empathy Hierarchy
1, 2 pronouns > 3 pronouns > kinterms > proper names
> human nouns > other large animates > small animates
> inanimate count nouns > inanimate masses

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Croft (1990: 127) points out that such hierarchies actually involve at least three features:

a. Noun Phrase type: pronoun > proper name > common noun
b. Animacy: human > animate > inanimate
c. Definiteness: definite > referential > non-referential

For the most part, the three features produce similar values; first and second person pronouns are the strongest on all counts: all are pronominal, human, and definite.

The hierarchy in (1) and variations on it have been cited in work on a number of areas of language structure. Early on, Smith-Stark (1974) invoked it in a cross-linguistic study of number marking. Moravcsik (1974) discussed it in work on pronominal reference and agreement within the verb. Silverstein (1976) cited it in work on splits within languages between nominative/accusative and ergative/absolutive patterning. Since these landmark studies, such hierarchies have become one of the principal tools of linguistic typology. Here the nature of their relationship to patterns which emerge from cross-linguistic comparisons is explored. The three major domains in which they have been invoked are examined in turn: (1) number, (2) reference within the verb, and (3) alignment patterns.

2. Number

Observing that in many languages number is not distinguished on all referring expressions, Smith-Stark (1974) proposed that splits in number marking systems can be described in terms of the hierarchy below.

> 1st person pronouns > 2nd person pronouns > 3rd person pronouns > kin terms > human nouns > animate nouns > inanimate nouns

If plurality is distinguished on members of one category, it will be distinguished on members of all categories to its left on the hierarchy. Many languages show number distinctions only in pronouns, for example. Many distinguish number only on pronouns and other terms referring to human beings (kinship terms, human nouns).

Earlier Greenberg (1963: 94) had proposed another implicational hierarchy pertaining to number distinctions, his Universal 34.

> singular > plural > dual > trial/paucal

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No language has a trial or paucal number unless it also has a dual. No language has a dual unless it has a plural. This observation is borne out in language after language.

Both hierarchies can be observed in the development of number distinctions within individual languages over time, often working together.

2.1 Number developments in Iroquoian

Languages of the Iroquoian family were spoken at the time of first contact with Europeans in eastern North America. The family consists of two main branches: Southern Iroquoian, (represented only by Cherokee) and Northern Iroquoian. Sometime after the separation of these two main groups several thousand years ago, Northern Iroquoian underwent further divisions. The first group to split off developed into modern Tuscarora and Nottoway. The second developed into Wendat (Huron) and Wyandot. The remaining became the Five Nations Iroquois, now represented by Seneca, Cayuga, Onondaga, Oneida, and Mohawk. Relations among the languages for which we have substantial documentation are sketched in Figure 1. (Several other Iroquoian languages are known to have existed, but documentation of them is more limited.)

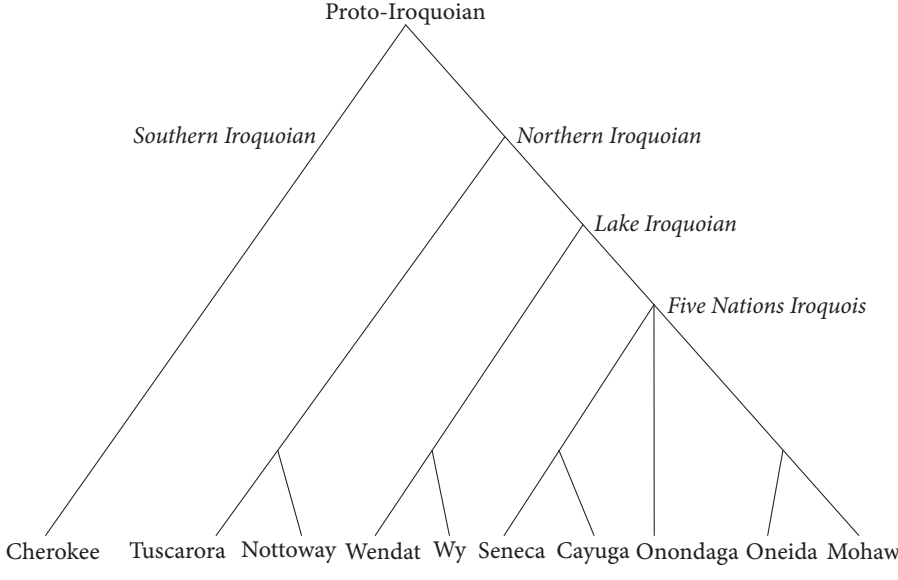

Figure 1. The Iroquoian Languages

All of the modern Iroquoian languages contain pronominal prefixes in their verbs identifying their core arguments: one argument for intransitives and two for transitives. Some examples are in (2).

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(2) Sample Iroquoian pronominal prefixes

Cherokee	***k***-*aaʔi*	'**I** am walking'
Tuscarora	*i:**k**-ye'θ*	'**I** am walking around'
Wyandot	*he-**y**-eh*	'**I** am going away'
Mohawk	*í-**k**-e's*	'**I** am walking around'
Cherokee	***kvv***-*kohwthiha*	'**I** see **you**'
Tuscarora	***kę́***:*kęhs*	'**I** see **you**'
Wyandot	***yǫ***-*mą̀'tihšáih*	'**I** have looked for **you**'
Mohawk	***kón***:*kenhs*	'**I** see **you**.'

(Cherokee forms are from Montgomery-Anderson 2008: 171, 193.) The languages generally contain 50–60 different pronominal prefixes. Many of the transitive prefixes have fused so much that individual components are no longer identifiable, as here. Nouns do not generally distinguish number.

A dual marker *-*ni*-: can be reconstructed within the Proto-Iroquoian pronominal prefix system, but only for first and second persons. This is still the situation in the only modern representative of the Southern branch of the family, Cherokee, and it can be reconstructed for Proto-Northern-Iroquoian. Sometime after the first split in Northern Iroquoian branch, however, both subgroups, Tuscarora-Nottoway and Lake Iroquoian, developed dual distinctions for third person animates, but they did so independently of each other, using different strategies.

In Tuscarora-Nottoway, a prepronominal prefix which was already in place in Proto-Iroquoian was co-opted to distinguish dual number in third persons. This is the duplicative *t-: which serves a range of functions in all Northern Iroquoian languages. It appears in some verbs describing a change of position or change of state, such as 'stand up', though its occurrence is not predictable. It occurs in some verbs with an element of 'two-ness', such as 'be side by side'. It also occurs with a verb root meaning 'be multiple' to form a verb meaning 'be two in number'. While the inherited dual number marker of first and second person pronominal prefixes follows the person marker, the duplicative prefix precedes the third person pronominals.

(3) Tuscarora innovated third person dual number

a. *wa'-ká-:tkaht*
FACTUAL-ZOIC-chase.PFV
'it (an animal) chased it'

b. *wa'-**t**-ká-:tkaht*
FACTUAL-**DUPLICATIVE**-ZOIC-chase.PFV
'they (**two** animals) chased it'

A dual number distinction was also created for third person animates in the other branch of Northern Iroquoian, Lake Iroquoian, but by a different route.

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The inherited dual number marker *-*ni*-: of first and second persons was simply extended to animate third persons. Examples can be seen in Mohawk in (4).

(4) Lake Iroquoian third person dual number: Mohawk

a. Inherited dual *-ni-

k-ká:wehs	'I paddle'
*iake**ni**-ká:wehs*	'we **two** (exclusive) paddle'
*te**ni**-ká:wehs*	'we **two** (inclusive) paddle'
s-ká:wehs	'you paddle'
*se**ni**-ká:wehs*	'you **two** paddle'

b. Extended dual

ka-ká:wehs	'it/she paddles'
*ke**ni**-ká:wehs*	'they **two** (animals, women) paddle'
ra-ká:wehs	'he paddles'
***ni**-ká:wehs*	'they **two** (males) paddle'

Effects of the same strategy can be seen in the other Lake languages: Wendat, Wyandot, Seneca, Cayuga, Onondaga, and Oneida.

Both branches of Northern Iroquoian thus innovated a dual distinction for third person animates, but via different pathways. The innovations parallel the two implicational hierarchies proposed by Greenberg and Smith-Stark exactly.

singular > plural ≥ dual > paucal/trial
1, 2 ≥ animates > inanimates

The converging developments suggest that perhaps implicational hierarchies might indeed shape language change, reflecting a receptivity to the addition of a particular distinction.

2.2 Stimulus

The stimulus for the addition of distinctions can come from various directions. An important one is language contact. The languages indigenous to California show substantial genealogical diversity: 22 distinct families and isolates are represented. The area shows an interesting distribution of dual number distinctions, as can be seen in Figure 2. Dual pronouns are found in Wintun, Yanan, Maidun, Washo, Miwok, Uto-Aztecan, Yokutsan, and Chumashan languages. All of the systems are in keeping with the Greenberg and Smith-Stark hierarchies: inflectional duals appear only where there are also inflectional plurals, and in pronouns but not nouns, or in first and second persons but not third.

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Figure 2. Dual number in California pronouns (based on Heizer, Robert 1978. Handbook of North American Indians 8: California. Washington: Smithsonian)

The distribution of duals crosses family boundaries. It even crosses the deepest superstock hypotheses once proposed for California languages (hypotheses which have not generally been borne out). But it also splits these proposed groupings.

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Among putative "Hokan" languages a dual distinction appears in Yana and Washo, but not in Shasta, Karuk, Chimariko, Palaihnihan, Pomoan, Salinan, or Yuman. Among putative "Penutian" languages it appears in Wintun, Maidun, and Yokuts, as well as Coos and Siuslaw in Oregon, but not in Klamath or Takelma in Oregon. It even splits families. It appears in some languages of the Miwok branch of the Utian family in California, but not in the Costanoan branch. The Uto-Aztecan family covers a wide area extending from Wyoming through California and down into Mexico. Dual number on pronouns appears in the Central Numic branch of the family, as well as the neighboring Tubatulabal and Hopi (not as closely related genealogically), but it is only rudimentary in the more closely related Western and Southern Numic languages: there the distinction appears only in first person pronouns, and the markers are not cognate with those in the Central Numic languages (McLaughlin 2013). Dual pronouns do not appear in other Uto-Aztecan languages outside of the area and are not reconstructed for Proto-Uto-Aztecan (Langacker 1977).

A dual number distinction thus appears in pronouns throughout languages in the geographic center of California (though the forms are not similar), but it is generally absent around the edges. Furthermore, the sources of some of the dual markers are still identifiable in languages at the outer boundaries, for example in Maidun where it apparently comes from 'both' and Tumpisa (Uto-Aztecan) where it comes from 'two' (McLaughlin 2013). The modern systems are in line with the proposed hierarchies, but the addition of the dual distinction was apparently stimulated by contact. The hierarchies may reflect a receptiveness to the addition of a particular distinction at certain stage of development, but more factors are involved. If they were not, all languages with the same initial systems would have developed duals.

3. Head marking

In a cross-linguistic investigation of referent marking in verbal morphology, Moravscik (1974: 54) noticed patterns corresponding to the referential hierarchy: "If the referent of some form on the hierarchy is marked on the verb by pronominal or agreement affixes, so too will all forms to its left on the hierarchy".

> Differential head marking
> 1, 2 > humans > animates > inanimates

This is a familiar phenomenon. Siouan languages generally contain pronominal prefixes for first and second persons but not third.

> 1, 2 ≥ humans > animates > inanimates

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(5) Lakota (Siouan) pronominal prefixes

***wa**-núwe*	'**I** swam, bathed'		
***ya**-núwe*	'**you** swam'		
nuwé	'(he/she/it) swam'		
***wa**-k^{h}úte*	'**I** shot (him/her/it)	***ma**-k^{h}úte*	'(s/he) shot **me**'
***ya**-k^{h}úte*	'**you** shot (him/her/it)	***ni**-k^{h}úte*	'(s/he) shot **you**'
k^{h}uté	'(s/he) shot (him/her/it)	*k^{h}uté*	'(s/he) shot (3)'
*ma-**yá**-k^{h}ute*	'**you** shot me'	***ma**-yá-k^{h}ute*	'you shot **me**'

Northern Iroquoian verbs contain pronominal prefixes referring to core arguments for first, second, third person animates, and third person inanimates of intransitives. If any other argument is present, inanimates are not overtly marked.

1, 2 < HUMANS < ANIMATES < INTR INANIMATES ≤ TR INANIMATES

(6) Mohawk (Iroquoian) pronominal prefixes

***k**-ká:wehs*	'**I** paddle'		
***s**-ká:wehs*	'**you** paddle'	***kón**-kenhs*	'**I** see **you**'
***ie**-ká:wehs*	'**she** paddles'	***khé:**-kenhs*	'**I** see **her**'
***ra**-ká:wehs*	'**he** paddles'	***rí:**-kenhs*	'**I** see **him**'
***ka**-ká:wehs*	'**it** paddles'	***iónk**-kenhs*	'**she** sees **me**'
***teni**-ká:wehs*	'**we two** paddle'	***iesá:**-kenhs*	'**she** sees **you**'
***iakeni**-ká:wehs*	'**we two** paddle'	***konwá:**-kenhs*	'**she** s. **it** (AN)'
	etc.		
But			
í-k-kenhs	'I see **(it)**'	*wák-kenhs*	'**(it)** sees me'

Both the Lakota and the Mohawk systems reflect the hierarchy, but just how would the hierarchy produce these effects? Let us look more closely at the mechanisms involved in their development.

As is now well known, corpora of spontaneous speech reveal general propensities on the part of speakers for topic choice, for the point of departure for their message. These propensities can be captured in a topicality hierarchy like that below.

1st, 2nd person pronouns > 3rd person pronouns
> proper names > human nouns
> larger animate nouns > smaller animate nouns
< countable inanimates < inanimate masses

All else being equal, speech act participants (first and second persons) tend to be preferred as topics cross-linguistically. If neither speaker nor hearer is involved, humans are preferred over animals, etc.

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It is also well known that speakers tend to stick with a particular topic over stretches of speech, rather than switching with every clause. The tendency toward topic continuity results in the fact that topical hierarchies also reflect the likelihood of referents being given, that is, already active within the consciousness of interlocutors. Given referents are typically identified by pronouns rather than nouns or noun phrases. Topical hierarchies thus also reflect the likelihood of pronominal representation.

Frequency of expression can of course shape the development of grammar. Given referents are not only normally identified by unstressed pronouns, they are also most often expressed by pronouns within the nuclear clause rather than in pragmatically-marked positions typical of presentatives, topic shifts, contrastive focus, etc. A high frequency of unstressed pronouns immediately adjacent to the verb can, over time, result in fusion with the verb, ultimately producing pronominal affixes and agreement. Such a series of steps appears to underlie the Mohawk pronominal prefix system. All core arguments are represented in verbs by pronominal prefixes *except* inanimates when another argument is present. These very inanimates are least likely to be topics, so least likely to be given, so least frequently represented pronominally, and so least likely to fuse with the verb and be reduced phonologically to prefixes.

Many languages lack third person pronouns altogether: third persons are represented by full determiner phrases, demonstratives or, when reference is clear one way or another, by nothing at all. Grammaticalization of unstressed pronouns in such situations would produce the Lakota pattern above: first and second person pronominal affixes, but no third.

Can we conclude from this that topicality hierarchies are directly teleological? No. Topic choices do not produce bound markers directly. The markers are the result of series of steps over time, each with its own motivation(s).

4. Alignment splits

Inspired by case-marking patterns in Australian languages, Silverstein (1976) proposed that pattern splits can be captured with a referential hierarchy. If members of a category show nominative/accusative patterning, so will all categories to its left on the hierarchy; if members of a category show ergative/absolutive patterning, so will all categories to its right.

ACCUSATIVE		ERGATIVE
1st person, > 3rd person pronouns	> humans > animates >	inanimates
2nd person pronouns		

But exactly how would such a hierarchy shape grammatical development? In fact accusative/ergative splits can develop through a number of different pathways. Just two will be traced here.

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4.1 Reanalysis of instruments

In a large number of languages with ergative case marking, the form of the ergative case matches that of the instrumental case. This is no accident. Certain languages permit us to see how this situation might come about.

The Coosan languages Hanis and Miluk are indigenous to the Oregon Coast of North American. They are no longer spoken, but thanks to the work of Frachtenberg (1913; 1914; 1922a) and Jacobs (1939; 1940), there is valuable documentation and description of them, especially Hanis. Further analysis is in Mithun 2005. The languages show ergative case marking on lexical nominals.

(7) Hanis Coos ergative case: Frachtenberg (1913: 80.19, 64.13, 80.20)
a. *Emí:hel lə **hu:mɨk-ša***
blind **the old.woman**-endearment
'**The old woman** (ABS) was blind.'
b. *A:yu ɨł sɨsí:nt lə **wɨnqas hú:mɨk.***
indeed they visit **the spider old.woman**
'Indeed, they went to see **Spider Old Woman** (ABS).'
c. *Sqats hə wálwal lə = **x̣** **hu:mɨk-ša.***
seize.TR the knife the = ERG **old.woman**-endearment
'**The old woman** (ERG) seized the knife.'

Pronouns, however, show nominative/accusative patterning. The verbs in (8) show that the proclitics do indeed represent subjects rather than absolutives, ergatives, agents, or patients.

(8) Hanis Coos subject proclitics: Frachtenberg (1913; 1922a)

n *= wɬlat*	'**I** am looking around'
n *= qaína*	'**I** am cold'
n *= qaínts*	'**I** cool it'
n *= tó:hɬts*	'**I** hit (him/her/it)'
eʔ *= tó:hɬts*	'**you** hit (him/her/it)'
tó:hɬts	'(s/he) hit (him/her/it)'

Third persons are not identified overtly by clitics. They may be identified by nouns or larger phrases, but they are not mentioned at all if given.

The language contains an oblique clitic *x̣*, which attaches to lexical nominals.

(9) Hanis Coos oblique x̣ Frachtenberg (1913: 22.16, 1922a: 323)
a. *kʼwɨn-t **x̣** = mɨl:aq = ətš*
shoot-TR **OBL** = arrow = with
'He shot at him **with** an arrow.'

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b. *ẋ = kwɬéƛe:i = tš* *o = dji:*
OBL = sweathouse = in I = came
'I came **from** the sweathouse.'

The precise semantic roles of oblique phrases are typically further specified by enclitics like the instrumental and directional here. The order in which they were grammaticalized is not clear.

It appears that reanalysis of instrumental constructions has resulted in an ergative construction.

(10) Hanis Coos reanalysis: Frachtenberg (1913: 168.20)
Tə = ẋ *mɬlaq = ətš* *tó:h-ɬtš* *lə* *tse:ɬ* *kwí:yo:s.*
that = **OBL** arrow = with hit-TR the little dog
'With that arrow (he) hit the little dog.'
Reanalysis →
Tə = ẋ *mɬlaq = ətš* *tó:h-ɬtš* *lə* *tse:ɬ* *kwí:yo:s.*
that = **ERG** arrow = with hit-TR the little dog
'That arrow hit the little dog.'

The result matches the hierarchy perfectly.

ACCUSATIVE				**ERGATIVE**
PRONOUNS				NOUNS
1st person pronouns, 2nd person pronouns	> 3rd person pronouns	> humans	> animates	> inanimates

But did the hierarchy create, shape, or constrain the system? Let us examine the mechanisms underlying the development more closely. This system is the result of a series of steps.

Reanalysis of zero 3rd person Agent as no argument
Reanalysis of Instrument as Agent
Reanalysis of marked Oblique as marked Ergative

A pathway of development like that seen above, involving multiple steps, each with its own motivation, is not uncommon cross-linguistically. A similar scenario is described by Garrett (1990) for the Gorokan languages of Papua New Guinea, for example. The Gorokan languages constitute one branch of the Eastern Highlands family; the other is the Kainantu branch. All of the languages in the family show nominative/accusative patterning in pronominal affixes on verbs. Only Gorokan languages show ergative case on nouns. The source of the ergative marker can be traced to an instrumental, the only function seen in cognates in both branches of the family. Significantly, Garrett points out that "In general, ergative case-marking is said to be obligatory or nearly obligatory in Gorokan for inanimates, and facultative for animates" (1990: 281).

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The cross-linguistic concentration of ergative marking toward the right of the hierarchy now makes sense in terms of the source of the marker: instruments are typically inanimate, though they may be masses like water or wind. Subsequent extension leftward along the hierarchy may of course be affected by additional factors, such as the status of pronouns as clitics or affixes, but they are not the original motivators.

4.2 Reanalysis of passives

Results of another common pathway of development for accusative/ergative splits can be seen in another language indigenous to the Oregon Coast of North America, Siuslaw. Like the Coosan languages, Siuslaw is no longer spoken, but Frachtenberg has left important documentation and description (1914; 1922b). Like Hanis, Siuslaw shows ergative marking on nouns, with an apparently old ablaut pattern. Compare the absolutive *hi:tš* with the ergative *hyátš* in (11).

(11) Siuslaw ablauted ergatives: Frachtenberg (1914: 15.2–3)
a. *Myák'a* ***hyátš*** *łt'áyu:n.*
bad **person** devoured.him.
'A bad **person** (ERG) was devouring the people.'
b. *Swa:ł łt'áyu:n* ***hi:tš*** *ƛ'á wá:nwɬts.*
Grizzly devoured **person** many long.ago
'Grizzly Bear was devouring the **people** (ABS) long ago.'
c. ***Hi:tš*** *páƛn qatšná, ł s'às ƛ'xmaí:yu:s.*
person to.hunt goes then he would.kill.him
'Whenever **a person** (ABS) would go out to hunt, he'd kill him.'

Pronouns, by contrast, show nominative/accusative patterning. Subject clitics follow the first word of the clause.

(12) Siuslaw subject clitic: Frachtenberg (1914: 23.8)
Yá:xa = ***nxan*** *hu:tšui:*
much = **1 + 3PL.SUBJECT** play-will
'**We** shall play a great deal.'

Object suffixes are attached to the verb.

(13) Siuslaw object suffix: Frachtenberg (1914: 68.8)
Ya'k^{w}s = *łn* *tša:qáqa-**u:n**.*
seal = 1SG.SUBJECT spear.RDP-**3OBJECT**
'I was spearing a seal.'

Again we have a perfect reflection of the hierarchy.

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ACCUSATIVE	ERGATIVE
PRONOUNS	NOUNS

1st person pronouns, > 3rd person pronouns ≥ humans > animates > inanimates
2nd person pronouns

But just how did this pattern come about? Language-internal evidence provides a clue.

Siuslaw connected speech shows extensive use of passivization for the maintenance of topic continuity. The passage in (14) was about tools and equipment. The tools were first introduced in a transitive clause, but then subsequently cast as the only argument of intransitives through the use of passivization.

(14) Siuslaw topic continuity with passivization: Frachtenberg (1914: 78.5–7)
Qi:u:nəmái ƛ̓áai pəkú:ya xa:ƛ̓aí ƛ̓áai. K'i:x̣ təhq
winter.in many shinny.stick make people every what
*x̣a:ƛ̓áy-**ù:nə** ya:áx̣a. Tsí:ƛ̓i: ƛ̓áai uł x̣a:ƛ̓áy-**u:tnə**.*
make-**PASSIVE** much arrow many and make-**PASSIVE**
'In the wintertime people make many shinny sticks. All kinds of things **are made** in great quantities. Many arrows **are made**.'

Siuslaw passives are also used extensively to maintain a particular perspective, such as that of the speaker in (15).

(15) Siuslaw passive for perspective: Frachtenberg (1914: 17.9)
*Tx̣u = **n** ƛ̓o:náy-**u:tnə** səatsítš, k'aháy-**ú:n** = **ɨn**.*
just = **I** tell-**PASSIVE** thus invite-**PASSIVE** = **I**
'**I** was simply told that **I** am invited.'

An earlier tendency to cast speech-act participants (speaker and hearer) as subjects through passivization apparently crystallized into a requirement.

(16) Siuslaw subject choice

'I invited him.'	fine	1/3
'You invited her.'	fine	2/3
'He invited me.'	avoid	*3/1
'She invited you.'	avoid	*3/2

In order to manage the requirements for subject choice, speakers used passives whenever third persons acted on first or second. Given third persons were not mentioned. At a certain point, passives became the only way to express such transitive events, so they were reinterpreted as basic transitive constructions.

(17) Siuslaw reanalysis of passive

*k'aháy-**ù:n** = **ɨn**.*	→	*k'aháy-**ù:nɨn**.*
invite-**PASSIVE-1.SUBJECT**		invite-**me**
'**I** was invited.'		
'(X) invited **me**.'		

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The modern Siuslaw object suffixes consist of an old passive suffix followed by an old subject suffix. Modern transitives are old passives.

We are now in a better position to understand the mechanisms underlying the split system. It was not formed by a single development controlled directly by the hierarchy. It was rather the result of a series of developments, each with its own motivations.

> Discourse propensity for topic selection: 1, 2
> Gradual increase in use of passivization
> Crystallization of passives as the only option for 3 acting on 1 or 2
> Reanalysis of erstwhile passives as transitives
> Reanalysis of oblique agents as ergatives
> Reanalysis of passive + subject pronouns as object pronouns

Developments from passive to ergative constructions have been described for other, unrelated languages as well, among them Indo-Aryan languages discussed in Verbeke and De Cuypere (2009) and Verbeke (2013).

A number of other diachronic pathways to ergative patterning have been described which show that hierarchies do not guide grammatical developments (Gildea 1998; Creissels 2008; McGregor 2006; Cristofaro 2013).

5. Hierarchies as constraints on change?

It could be that even if hierarchies do not drive language change, they constrain it. To pursue this proposal, we return to number marking in Iroquoian languages. As described in Section 2, Smith-Stark (1974) observed that splits in number marking follow an implicational hierarchy:

> 1st person pronouns > 2nd person pronouns > 3rd person pronouns > kin terms > humans > animates > inanimates

In addition to the pronominal prefixes on verbs, Northern Iroquoian languages, like many others, contain independent pronouns for signaling contrastive focus, topic shift, antitopics, and several other things (Mithun 2013). What is interesting about these independent pronouns for our purposes is that they violate the hierarchy. They show no number distinctions in first and second persons, but singular/plural distinctions in third.

(18) Mohawk independent pronouns

i:'i	'I/me/my/we/us/our'	SG/DU/PL
í:se'	'you/your'	SG/DU/PL
raónha	'he'	SG
raonónha	'they' (M)	DU/PL
akaónha	'she'	SG
konónha	'they'(F)	DU/PL

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The hierarchy failed to constrain the development of this system.

When we look more deeply into their history, it makes sense. The first and second person forms are older, as would be expected. The third person forms are more recent additions, reconstructible only to Proto-Lake-Iroquoian. The Tuscarora counterparts are not cognate. Their internal structure is clear: they are inflected forms of a verb 'be alone', containing initial pronominal prefixes, ancient forms which do distinguish number.

An anonymous reviewer points out another case of the failure of the hierarchies to constrain change: the loss of a number distinction in English second persons.

6. Conclusion

The most frequently-cited set of implicational hierarchies in linguistic typology, known variously as Referential, Topicality, Animacy, or Empathy hierarchies, characterize a number of recurring cross-linguistic patterns. Such hierarchies can aid in the organization of complex sets of data, a preliminary step in the search for explanations of the patterns. In most cases, however, they are not an explanation in themselves.

Language change that consists of a single step, like the development of a number category, might be teleological in the sense that it can reflect frequent speaker choices. It is easy to imagine that speakers would specify the number of persons more often than rocks. But changes that involve multiple steps are rarely directly teleological: each step is motivated on its own. The development of ergative patterns in Hanis Coos could not be said to be teleological: speakers were not aiming at an ergative pattern or even a split pattern when they reanalyzed clause structures. The reanalysis of instruments as agents and of unmarked third persons as no argument at all did result in a system in line with the hierarchies.

NOM/ACC		ERG/ABS
1st person > 3rd person >	animates >	inanimates
2nd person		

But the hierarchies did not create the system. The ergative patterning entered the system at the right end of the hierarchy because it was instruments that were reanalyzed as ergatives, and instruments are more often inanimates than animates, humans, or speech act participants. This pathway of development is not uncommon, as evidenced by the frequent homophony of ergative and instrumental case markers cross-linguistically.

Splits can develop from a variety of sources, from a variety of motivations and sequences of steps. The pathway illustrated with Siuslaw shows another of these. It apparently began with an increasing use of passivization to privilege speech-act

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participants. The increasing frequency ultimately led to routinization, so that when third persons acted on first or second, passivization was the only option. The passives were then reanalyzed as basic transitives, and marked oblique agents as marked ergatives. Topicality preferences set the change in motion, but they did not motivate each step in the process. In the case of these Oregon languages, contact may have played a role as well, facilitating reanalysis in one or both. There are many additional routes to accusative/ergative splits in which the hierarchies play no discernible role, such as those with different patterns in independent and dependent clauses, or in different tenses or aspects.

Ultimately, hierarchies can be useful in organizing data as a first step toward understanding the kinds of processes that recur cross-linguistically. They may reflect predispositions for the development of new distinctions. Close examination of individual systems, however, indicates that the hierarchies do not determine the development of grammatical patterns. An exception to the hierarchies was seen here in Mohawk pronouns; others, pertaining to all parts of the hierarchies, are discussed in Filimonova 2005 and elsewhere. Based on a survey of split alignment systems in typological databases, Bickel concludes that though many are in line with the hierarchies, "the total number of relevant cases is so small as to provide only marginal statistical evidence" (2010: 191). Ultimately, the forces behind the development of grammatical patterns are often complex. Multi-step developments are not teleological: each step is motivated on its own, sometimes by multiple factors. With this understanding "exceptions" to typological hierarchies are no longer a problem.

Abbreviations

ABS	absolutive
DU	dual
ERG	ergative
OBL	oblique
PL	plural
PFV	perfective
RDP	reduplication
SG	singular
TR	transitive

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PART III

Hierarchical effects and their origins

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CHAPTER 4

The development of referential hierarchy effects in Sahaptian

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Sahaptin and Nez Perce, the two languages of the Sahaptian family, have both been cited as case studies in the typological literature on hierarchical patterns in main clause grammar. Nez Perce has ergative case marking on only third person singular transitive subjects, plus a minor pattern of indexation of SAP participants via (rarely occurring) second position enclitics. Sahaptin has one of the more complex hierarchical systems ever described, with SAP indexation via enclitics, third person indexation on verbs, differential object marking, an inverse verbal direction prefix, and two distinct ergative suffixes, each restricted to a subset of third person singular transitive subjects (one when objects are SAP, the other when objects are third person). This paper begins by reviewing, evaluating, and occasionally expanding on existing knowledge: we summarize the hierarchical patterns in Sahaptian and characterize each distinct construction. Then we compare relevant Sahaptin morphemes with cognates in Nez Perce, and review their reconstruction to Proto-Sahaptian. The primary contribution of this paper is organizing the morphemes (and their accompanying hierarchical patterns) in both languages into cognate **constructions**, then reconstructing each to its Proto-Sahaptian origins. We conclude by reviewing and evaluating proposals for Pre-Proto-Sahaptian developments claimed to explain the origins of hierarchical patterns that reconstruct to Proto-Sahaptian. The mechanisms we identify as having created the Sahaptian hierarchical effects are diverse, some motivated and others not, some arising from internal sources, others arguably from contact.

1. Introduction: The Sahaptian language family and its hierarchical patterns

Our purpose in writing this paper was originally to understand the sources of the complex hierarchical effects that have been described for main clauses in Sahaptin, also known as Ichishkíin. These hierarchical patterns have been described multiple

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times in the literature, most notably in Rude (1994; 2009); Blackburn-Morrow (2006); Zúñiga (2006); and Jansen (2010), but there has never been either a satisfying synchronic explanation for the grammatical alternations that are supposed to be conditioned by the referential hierarchy, nor has there been any but preliminary speculation about the origins of the different constructions that instantiate the hierarchical patterns. Although our initial questions were Sahaptin-centric, it soon became clear that we could only answer those questions if we broadened our focus to include Nez Perce grammar, so that we could identify and reconstruct the cognate morphology and, even more importantly, the constructions in which that morphology occurs, to Proto-Sahaptian (henceforth Proto-Sah).

Following this introduction, the remainder of the paper goes through the following sequence: § 2 describes the various constructions in Sahaptin that express hierarchical patterns, discusses which hierarchies appear to be expressed via which morphology, then gives a composite representation of these patterns; § 3 seeks cognates in Nez Perce to both morphemes and constructions, then reconstructs the cognate morphology to Proto-Sah; § 4 goes through the modern cognate constructions one by one, reconstructs each to a Proto-Sah source construction, and identifies the constructional innovations specific to each language; finally, § 5 considers proposed Pre-Proto-Sah sources for some of the hierarchical patterns that we reconstruct as already present in Proto-Sah. At the end of this journey, we return to our initial questions and specifically argue against two notions that have characterized previous analyses of Sahaptin (as well as other languages).

First, we argue that the grammatical changes we see in Sahaptian are clearly not driven by a single universal referential hierarchy, whose "invisible hand" motivates the cross-linguistic evolution of hierarchical patterns. Second, as demonstrated by the Sahaptian Family, we see main clause grammar as a composite of distinct individual constructions, each with its own origins, that are synchronically stitched together into a patchwork quilt of main clause grammar. One reason researchers are misled into looking for a single "deep" motivation of "the hierarchy" is because we often conceive of each language as having a single "deep" system, which is the organizing principle behind all the myriad grammatical patterns seen in main clauses. Had we tried to understand main clause grammar in Sahaptian languages as various reflections of a single system, our reconstruction would have been vastly more difficult, and perhaps impossible.

The remainder of this section briefly introduces the Sahaptian family and sketches some typological properties of the two Sahaptian languages. The Sahaptin and Nez Perce languages comprise the Sahaptian family, classified as a member of the Plateau branch of Penutian; additional Plateau Penutian languages are Klamath and Molalla (DeLancey & Golla 1997). Both languages are endangered, as there are now only a handful of fluent elders who spoke them as first languages, all of

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whom also speak English. There are many language learners and active revitalization efforts to return the languages to daily use within the communities. Sahaptin speakers live in the southern plateau region of the Pacific Northwest of the United States, along *Nch'iwána* 'Columbia River' and its tributaries in what is now Oregon and Washington. Rigsby and Rude (1996) describe three groups of dialects, all of which are mutually intelligible: Northeast (NE), Northwest (NW), and Columbia River (CR), which are related as in Figure 1. Nez Perce is spoken along the Snake, Salmon and Clearwater Rivers at the borders of present-day Oregon, Washington, and Idaho. Nez Perce is divided into two mutually intelligible groupings, Upriver and Downriver.

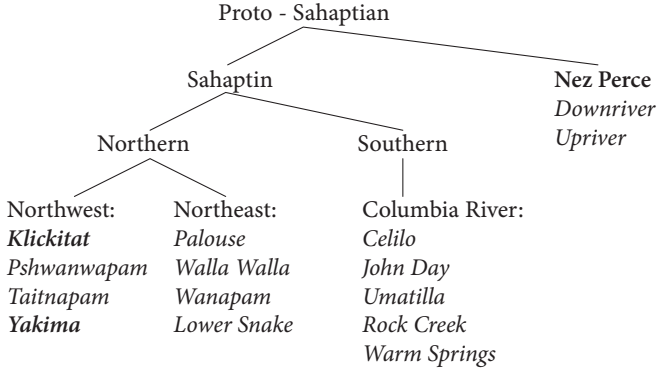

Figure 1. Sahaptian languages and dialects

Data in this paper come from Northwest dialects Klickitat and Yakima,[1] spoken along the Yakima River and its tributaries in what is now south central Washington State. Examples in this paper are from collected texts (marked *tx*) as well as elicitation. All Sahaptin data are presented using the Yakima practical alphabet. Yakima data (marked Sah, Y) is from Jansen's work with elder speakers, primarily Virginia Beavert. Klickitat data (marked Sah, Kl) are taken from the texts collected by Melville Jacobs (1934; 1937). Nez Perce data (marked NzP) are from published texts and grammars of both dialects (Aoki 1970; 1979; Phinney 1934; Rude 1985).

Sahaptin and Nez Perce are synthetic to polysynthetic languages with rich verbal morphology and complex verb stem structure. Verbs stems have inherent transitivity. Word order is flexible. Grammatical relations are marked on both heads

1. The Yakama Nation began to use the spelling Yakama in 1994. We use the spelling Yakima here to refer to the language because that is the preference of our consultant and collaborator, Virginia Beavert.

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and dependents: both languages have tripartite case marking and core argument indexation in both nominative-accusative verbal prefixes and SAP second position enclitics unmarked for role. The Sahaptin language is sensitive to hierarchies based on person, animacy, topicality and number, with three different case marking options used for third person A depending whether the object is a speech act participant (obligatory) or third person (no case marker in the direct; distinct obligatory case marker in the inverse). We now turn to § 2, where we consider these patterns in more detail.

2. Previously described hierarchies in Sahaptin

While hierarchy effects in typology (and in Sahaptin) are often sensitive to phenomena like definiteness, animacy, or number of either the A or O of a transitive clause,[2] the interactions between Speech Act Participants (first and second person, abbreviated SAP) and third person (3) are arguably the domains in which the most pervasive hierarchical effects are attested cross-linguistically (cf. DeLancey 1981; 2001; 2014; Gildea & Zúñiga 2016). These interactions define four quadrants, as illustrated in Figure 2: the LOCAL quadrant is defined as the situation in which a SAP A acts on a SAP O (or SAP.A→SAP.O), the MIXED DIRECT quadrant by SAP.A→3O, the INVERSE quadrant by 3A→SAP.O, and the NONLOCAL quadrant by 3A→3O.

	SAP.O	**3.O**
SAP.A	LOCAL	MIXED DIRECT
3.A	MIXED INVERSE	NONLOCAL

Figure 2. The four quadrants that distinguish hierarchical systems

When a language has multiple main clause constructions that are conditioned by these quadrants, the language in question is often described as having hierarchical alignment (Nichols 1992; Siewierska 2004), or inverse alignment (Gildea 1994).

2. We use Dixon's (1979, 1994) terms, S, A, and O, but without endorsing Dixon's assertions regarding their theoretical status as "semantico-syntactic primes" (cf. Queixalós & Gildea 2010; Haspelmath 2011 for discussion of problems with these labels). For us, they are merely a convenient way to exposit patterns that link transitive subject (A) and/or transitive object (O), with intransitive subject (S).

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These quadrants condition different main clause grammar in Sahaptin, so we make extensive use of them in the description and reconstructions in this paper.

Two hierarchies have been described for Sahaptin. One, originally proposed by Rude (1994: 102) and continued in Fadden (2000: 17) and Blackburn Morrow (2006: 32), ranks 1 > 2 > 3 > 3′, where the ranking of 1 > 2 plays out in the LOCAL quadrant, the ranking of 3 > 3′ (higher- and lower-ranked third persons) plays out in the NONLOCAL quadrant, and the ranking of SAP > 3 plays out in both the MIXED DIRECT (SAP→3) and the MIXED INVERSE (3→SAP) quadrants. We argue here (in § 2.1) for the second, originally observed by Zúñiga (2006: 151) and since argued for independently by Jansen (2010: 348; 2012a: 41), which does not specify an order within the LOCAL quadrant and so has a simpler ranking: SAP > 3 > 3′.

2.1 Hierarchical patterns in Sahaptin

The grammar that reveals these rankings is indexation and case marking of core arguments, plus the occurrence of an inverse direction-marking prefix. We begin by briefly describing how these grammatical elements pattern in intransitive clauses, then in the various constructions found in each of the four direction quadrants. We then discuss the individual hierarchical rankings indicated by each grammatical pattern, before combining them into a larger composite picture (§ 2.2).

2.1.1 *Intransitive clauses*

Intransitive clauses do not have hierarchical patterns *per se*, but because the single core argument, the S, is indexed with the same morphology as core arguments of transitive clauses, we begin our description with intransitive argument structure. The S has no case marking or fixed position in the clause; if it does occur as a pronoun, the pronoun must be in a specific case form, which we call here the S form (Table 1). While a free NP S is not required, person and number of S is indexed, for SAP S via a second position clitic (Table 1, adapted from Jansen 2010: 81)[3] and for third person S via a verbal prefix (Table 2, adapted from Jansen 2010: 75). The plural S/A prefix indexes only animate (including human) S/A arguments. Examples (1)–(3) are from texts, and illustrate the use of a SAP enclitic (1) and

3. Jansen (2010) explains the conditioning for the various clitic allomorphs – for the most part, it is phonologically conditioned, although which form a speaker will use is not always predictable. Jansen also indicates the existence of a rare generalized 1PL clitic, = natk, which we do not treat in this article.

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the verbal prefixes *i-* '3SG.S/A' (2) and *á-* '3.O (OBV)' (3).[4] A very few Klickitat examples also show no verbal prefix indexing a third person subject; we do not include those in the tables or discussion below.

Table 1. SAP second position enclitics and free pronouns

Person/number	SAP enclitics	S pronoun form	A pronoun form	O pronoun form
1SG	*= nash, = ash, = sh*	*ink*	*ink*	*inák*
1PL	*= na* 'INCL' *= (n)(a)tash* 'EXCL'	*namák*[5]	*namák*	*niimanák*
2SG	*= nam, = am*	*imk*	*imk*	*imanák*
2PL	*= pam*	*imák*	*imák*	*imamanák*

Table 2. Third person verbal prefixes and free pronouns

Person/number	Verbal prefix	S pronoun form	A pronoun form	O pronoun form
3SG	*i* – 'S/A'	*pɨnk*	*pɨnímk, piníik*	*piinák*
3PL	*pa* – 'S/A'	*pmák*	*pmak*	*piimanák*
3SG/PL	*á* 'O'			
3SG	*á* – 'S(OBV)'			

(1) *aw nash* *wyáłamayksha* (Y Sah tx)
aw = nash *wyá-łamayk-sha*
now = 1SG while.going-lose-IMPV
'Now I am getting lost.'

(2) *iwáyx̱tya* *áswan* *páchupa* *ɨshchɨ́tpa* (Y Sah tx)
i-wáyx̱ti-ya *áswan* *páchu -pa* *ɨshchɨ́t-pa*
3SG.S/A-run-PST boy half-LOC road-LOC
'The boy ran down the middle of the road.'

4. It appears that the *á-* '3O' prefix may be used instead of the more common *i-* '3SG.S/A' only when the S is of low topicality (Jansen 2010: 299; Rude 2009: 7; Jacobs 1931: 144). Note also that this prefix is used in a very few transitive 3→3 constructions in Klickitat texts; we do not address that use here. For more, see Hymes (1984: 232). Finally, it marks intransitive verbs to indicate third-person possessors (cf. Jansen 2010: 124).

5. 1st person plural enclitics but not pronouns differentiate inclusive from exclusive. The inclusive/exclusive clitic distinction is leveled when the clause is verb-initial. Pronouns have dual and plural forms; we discuss only the plural forms in Tables 1 and 2 and throughout the paper. There is some variability of pronouns across dialect and speaker. For more information on enclitics and pronouns, see Jansen (2010: 202–211).

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(3) *ákwiitana* *Spilyáy* (Y Sah tx)
á-kwíita-na *Spilyáy*
3SG-go.along-PST Coyote
'Coyote was traveling along.'

2.1.2 *Mixed direct quadrant*

As indicated in Tables 1 and 2, these same indexation morphemes also occur in transitive clauses, where they code the same person-number combinations, but sometimes different grammatical roles. In the MIXED DIRECT quadrant, the A is always a SAP and the O is always third person. As seen in Examples (4)–(5), the SAP subject is represented by the same second position enclitic as the SAP intransitive subject (cf. Table 1), whereas the third person direct object is marked, regardless of number, via the third person object prefix *á-* '3O' (cf. Table 2). Regarding nominal case marking, in the direct construction, the SAP A does not generally occur as a free NP, but when it does, it is (like the S) unmarked for case. However, the third person O may occur as a free NP with Differential Object Marking: inanimate and animate objects of low topicality are unmarked (e.g. *wiwnúwaash* 'huckleberry patch' in (5)), whereas one of the object case suffixes *-nan* 'OBJ' (e.g. *ǩ'áx̱nu-**nan*** 'prairie chicken-OBJ' in (4)), *-inan* 'DL.OBJ', or *-maman* 'PL.OBJ' marks nearly all humans and higher topicality animates, plus some inanimates (Jansen 2010: 127). As is common in cases of DOM, pronouns only occur in their object forms (cf. Tables 1 and 2; e.g. *piinák* '3SG.PN.OBJ' in (6)).

(4) *Cháwnash* *ánach'ax̱i* *áwitɬ'yawita* *ǩ'áx̱nunan* (Y Sah tx)
chaw = nash *ánach'ax̱i* *áw-ítɬ'yawi-ta* *ǩ'áx̱nu-nan*
NEG = 1SG again 3O-kill-FUT prairie.chicken-OBJ
'I'll never again kill a prairie chicken.'

(5) *maykw'áaniknam* *áǩ'inusha* *wiwnúwaash* (Y Sah tx)
maykw'áanik = nam *á-ǩ'ínu-sha* *wiwnúwaash*
further = 2SG 3O-see-IMPV huckleberry.patch
'Further along you see a huckleberry patch.'

(6) *kwɨnkínk nash* *anaknúwisha* *piinák* (Y Sah tx)
kwɨnkínk = nash *á-naknúwi-sha* *piinák*
that.INST = 1SG 3O-care.for-IMPV 3SG.PN.OBJ
'And so I am caring for it.'

2.1.3 *Local quadrant*

In the LOCAL quadrant, both A and O are SAPs, so there is no person prefixation on the verb, leaving all indexation to the second position enclitics. The 1→2

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constructions use unique portmanteau enclitics, which indicate both roles: = *mash* '1SG→2SG' and = *matash*, which indicates 1→2 when either or both of A and O is plural.[6] The portmanteau enclitics appear to be a fusion of the second person singular enclitic = *(n)am* preceding the first person enclitics = *(n)ash* '1SG' and = *(n)atash* '1PL.EXCL'.[7] In contrast, when 2→1, only the standard second person clitic occurs: = *nam* '2SG' (7) and = *pam* '2PL', a pattern that appears to place 2 above 1 in the Sahaptin hierarchy. However, uniquely when 2SG→1SG, the verb takes the prefix *pá-* 'INVERSE' (7), a pattern that appears to place 1 above 2 in the Sahaptin hierarchy. The 2SG→1SG construction is unique in the local quadrant in that it is the only scenario that requires a verb prefix. SAP pronouns usually do not occur, but if they do, the A is unmarked (like the S) and the O is obligatorily in the object form (cf. Table 1).

(7) *páḵ'inushaam* *pá-ḵ'ínu-sha = am* (Y Sah)
2SG→1SG INV-see-IMPV = 2SG
'You see me.'

Based on the occurrence of the prefix *pá-* 'INVERSE' when 2→1, several linguists have declared that the basic Sahaptin hierarchy is 1 > 2 (cf. Rude 1994: 102; Fadden 2000: 17; Blackburn Morrow 2006: 32). However, others (Zúñiga 2006: 151; Jansen 2010: 348; 2012a: 41) have argued that there is not a definitive ranking within the LOCAL quadrant, as the inverse prefix is in conflict with the other patterns found there: in the 1→2 scenarios, the clitics show no hierarchy (both participants are indexed); in the 2→1 scenarios, although the prefix *pá-* 'INVERSE' suggests 1 > 2, that the only person clitic is = *(n)am* '2SG' suggests that 2 > 1. As such, we agree with Zúñiga and Jansen that the *language* does not rank first and second person *vis-à-vis* one another. Rather, we recognize three distinct hierarchical patterns (*viz.* 1 = 2, 2 > 1, and 1 > 2), each associated with different morphology, then we seek to identify the origins of each of these patterns.

6. Note that only the first person plural exclusive A can act on a second person O without being semantically reflexive, so there is no inclusive-exclusive distinction in the LOCAL quadrant.

7. Although we believe that these are complex forms (at least historically), created by combining the first and second person clitics together, we do observe that these same forms occur as second position clitics in the possessive predicate construction, indexing only the second person possessor/subject. In that sense, one might argue that the forms = *mash* and = *matash* also index only second person.

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2.1.4 *Mixed inverse quadrant*

In the MIXED INVERSE quadrant, the agent/subject is third person and the patient/object is a SAP. Like in the intransitive clauses, the verbal prefixes reference third person subjects: *i-* '3SG.S/A' or *pa-* '3PL.S/A' (cf. Table 2). In contrast, the SAP objects are encoded via the exact same second position enclitics (cf. Table 1) that encode SAP subjects in intransitive, DIRECT, and the 2→1 LOCAL clause types. As such, the SAP enclitics follow a hierarchical pattern as opposed to a role-marking pattern – that is, they indicate the person of a SAP participant regardless of the role of that participant in the clause. In terms of case marking, the 3PL.A is unmarked (10), but the 3SG.A bears the suffix *-nɨm* 'INVERSE.ERGATIVE' (8)–(9). As shown in Table 2, the 3A pronouns take the same case marking as free NPs: for 3SG.A, there is a unique ergative form *pɨnɨmk* '3SG.INV.ERG', whereas 3PL.A uses the unmarked form *pmák* '3PL.S/A'.

(8) *íkushnash ishapáttawax̱ɨnx̱ana Xax̱íshnɨm* (Y Sah tx)
íkush = nash i-shapá-ttáwax̱-ɨn-x̱a-na Xax̱ísh-nɨm
thus = 1SG 3SG.S/A-CAUS-grow-HAB-PST *Xax̱ísh*-INV.ERG
'In that way, *Xax̱ísh* raised me.'

(9) *tamánwitnɨm nash inápayunta* (Y Sah tx)
tamánwit-nɨm = nash i-nápayun-ta
law-INV.ERG = 1SG 3SG.S/A-defend-FUT
'The law will support me.'

(10) *ku nam pak̲'ínuta tíinma* (Y Sah tx)
ku = nam pa-k̲'ínu-ta tíin-ma
and = 2SG 3PL.S/A-see-FUT person-PL
'and the people will see you.'

2.1.5 *Nonlocal quadrant*

In the NONLOCAL quadrant, most descriptions of Sahaptin present two alternating constructions in which both subject and object are third person. Although Jacobs (1931: 145) referred to the construction alternation as expressing an "obviation distinction" unlike that of Kutenai or Algonquian, more recent studies (e.g. Rude 1994; Blackburn Morrow 2006; Zúñiga 2006; Jansen 2010) do categorize the alternation as belonging to the same typological category as the alternations in Algonquian, and so label the two constructions DIRECT and INVERSE. Since these constructions do not occur in the DIRECT or the INVERSE quadrants, the use of these labels to describe these NONLOCAL constructions invites the (incorrect) assumption that this alternation shares grammar with the constructions found in those quadrants. To avoid confusing the NONLOCAL constructions with the DIRECT

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and INVERSE constructions we have already described, we label the alternating constructions NONLOCAL DIRECT and NONLOCAL INVERSE.

In the NONLOCAL DIRECT construction there is no personal enclitic, the subject NP is unmarked (11)–(12) or absent (13), the object NP may bear the object suffix (11), be unmarked (12) or absent (13), and the verb agrees for person and number with subject, using the same prefixes that indicate 3S in intransitive clauses and 3A in the INVERSE construction, *i-* '3SG.S/A' (11, 13) or *pa* – '3PL.S/A' (12).

(11) *iwáwyaxana* *myánashmaman* *wawyałá* (Y Sah tx)
i-wáwya-x̲a-na *myánash-maman* *wawyałá*
3SG.S/A-whip-HAB-PST child-OBJ.PL whipman
'The whipman used to whip the children.'

(12) *ik̲'ínuta* (Y Sah)
i-k̲'ínu-ta
3SG.S/A-see-FUT
'and s/he (PRX) will see him/her/it (OBV).'

(13) *pak̲'ínusha* *áyatma* *ɨníit* (Y Sah, Jansen 2010: 128)
pa-k̲'ínu-sha *áyatma* *ɨníit*
3PL.S/A-see-IMPV women house
'The women see the house.'

The NONLOCAL DIRECT construction with third person singular subject (e.g., (11), (13)) is more often used when the third person subject is higher than the object on the animacy hierarchy (e.g., (12); cf. Jansen & Beavert 2012b) or in topicality (e.g. (11), (13); cf. Rude 1994), and therefore we consider it to be pragmatically unmarked, the construction that speakers select to encode the expected situation, in which the subject is of higher topicality than the object (cf. Givón 1994; 2001). There is one quirk with the NONLOCAL DIRECT construction: what we have been calling the singular subject prefix *i-* also indexes plural inanimate subjects (as in Example (14)) and can also index collective (as opposed to plural) human or animate subjects, as seen in Example (15), with no plural suffix on the noun *tiin* 'person' and the prefix *i-* '3SG.S/A'. Compare this to Example (10), where the noun *tiin* 'person' is suffixed and the verb bears the prefix *pa-* '3PL.S/A'.

(14) *k'pínɨk* *pípsh* *iwá* *ílkutay* (Kl Sah tx, Jacobs 1937: 33.5.3)
k'pínɨk *pípsh* *i-wá* *ílku-t-ay*
DEM bones 3SG.S/A-be burn-NZR-BEN
'Those bones were for fuel.'

(15) *iwiyánawita* *tíin* (Kl Sah tx, Jacobs 1937: 7.9.1)
i-wiyánawi-ta *tíin*
3SG.S/A-arrive-FUT person
'The people will arrive here.'

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In a complementary fashion, what we have been calling the plural subject prefix *pa-* does not index any inanimate plural subjects, indexes only some animate plural subjects, and is required (instead of *i-*) only for indexing plural human subjects. As such, the selection of the prefix *pa-* over *i-* in the NONLOCAL DIRECT construction already indicates that the plural subject is high in animacy and, for plural animates, also high in topicality, and so it should be no surprise that it would be higher than the object in animacy/topicality. This distribution is schematized in Table 3.

Table 3. Distribution of Sahaptin 3S/A prefixes

	SG	COLL	PL
HUMAN S/A	*i-*	*i-*	*pa-*
ANIMATE TOPIC S/A	*i-*	*i-*	*pa-*
ANIMATE NONTOPIC S/A	*i-*		*i-*
INANIMATE S/A	*i-*		*i-*

The second construction, termed here the NONLOCAL INVERSE, requires a third person singular subject, which need not occur as an explicit NP (18), but which, if it does, takes the case marker *-in* 'OBVIATIVE.ERGATIVE' (16)–(17), or the pronominal form *piník* '3SG.OBV.ERG' (17). The object also need not occur explicitly (16)–(17), (19), but if it does, it always bears the differential object marker *-nan* 'OBJ' (18). Rather than a subject agreement prefix, the verb bears the prefix *pá-*, which has been glossed as 'INVERSE' in previous studies (e.g. Rude 1994; Zúñiga 2006; Jansen 2010). Given the absence of a SAP, it is not surprising that this construction does not utilize any of the second position clitics.

(16) *Chaw pák̲'inuta wisaliɬɬáyin* (Y Sah tx)
Chaw pá-k̲'inu-ta wisaliɬɬá-in
NEG INV-see-FUT hunter-OBV.ERG
'The hunter (OBV) will not see him (PRX).'

(17) *ku kwnak wítx̲uptin páwɨnpa* (Y Sah tx)
ku kwnak wítx̲upt-in pá-wɨ́np-a
and there blizzard-OBV.ERG INV-take-PST
'And there the bitter blizzard (OBV) caught him (PRX).'

(18) *pátamanwya íchinak tiichámnan* (Y Sah tx)
pá-tamanwi-ya íchinak tiichám-nan
INV-create-PST this.OBJ earth-OBJ
'He (OBV) created this earth (PRX).'

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(19) *pá'ichaychaysha piiník* (Y Sah tx)
pá-íchaychay-sha piiník
INV-ruin-IMPV 3SG.PN.OBV.ERG
'He (OBV) is ruining it (PRX).'

The NONLOCAL INVERSE construction is clearly transitive, as seen by the presence of the object marker on the patient argument: this marker only occurs in transitive clauses, where it marks a Primary Object (T & R, plus applied objects) of high topicality. Given that the O argument is a direct object, it is straightforward to identify the agent as the A, and thus the case marker *-in* 'OBV.ERG' as a second ergative marker that occurs uniquely in this construction.[8]

Turning to the distribution of these two constructions, the NONLOCAL INVERSE is somewhat less frequent than the NONLOCAL DIRECT: 43% to 57% in Rude (1994); 33% to 55% in Blackburn Morrow (2006).[9] The NONLOCAL INVERSE is generally used when the agent is lower on the animacy hierarchy than the patient (e.g., (17); Jansen & Beavert 2012b) or when the agent is lower in topicality than the patient (e.g. (16)–(17); Rude 1994; Blackburn Morrow 2006; Jansen 2010). That said, neither tendency is absolute, as seen in (18), where the agent is higher in animacy, a deity versus a creation, and in topicality, given that the creator is introduced in a preceding clause, whereas this is the first mention of the earth.[10]

Given that the NONLOCAL INVERSE construction just described can only occur with a singular third person subject (3SG.A), one would like to identify a second construction that would be used when the object is more topical than a third person plural subject (3PL.A). Such a construction, which we here call NONLOCAL INVERSE$_2$, is found throughout Sahaptin dialects, with the examples discussed here representing two Northwest dialects, Yakima (18), (20) and Klickitat (19), (21)–(22). This construction utilizes a third person plural enclitic *=pat* '3PL', which can only index a human third person plural argument. Jansen (2010: 144)

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8. McGregor (2009: 492) defines Differential Ergative Marking as the situation in which "a language shows two or more distinct ergative case-markers." He distinguishes this from Optional Ergative Case-Marking, where a single ergative case-marker is not always used. It is unfortunate that this terminology conflicts with the standard use of the term "differential" in Differential Object Marking (DOM), which is associated with a single case-marker that is not always used.

9. Blackburn Morrow found that 8 of 64 clauses used the passive construction, a departure from Rude's findings. Some of Blackburn Morrow's speakers were from a younger generation and their use of the inverse differed from that of the elders in form and frequency, with more variation (Blackburn Morrow 2006: 102).

10. The observation about topicality is perhaps less significant given that neither go on to be sustained topics in this story, which is about Coyote creating the first dogs.

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describes Yakima = *pat* '3PL' as fitting imperfectly into the second position enclitic category, as it presents several differences from the others: it is sometimes found clause-initially, it never indexes the subject of an intransitive clause, and it only very infrequently codes the transitive object (more on this in a moment). In the NONLOCAL INVERSE$_2$ construction, the second position enclitic = *pat* '3PL' always indexes the 3PL.A and the (singular or plural) third person object is indexed via the verbal prefix *á-* '3O'.[11] If the subject occurs as a free NP, it is unmarked (21), and if the object occurs as a free NP, it bears the object marker (20).

(20) *kupat* *ánatma* *awkú* *tł'áax̣w-maman* (Y Sah tx)
ku = pat *á-nát-m-a* *awkú* *tł'áax̣w-maman*
and = 3PL 3O-bring-CSL-PST then all-OBJ.PL
'They brought them all out.'

(21) *kupat* *kwnak* *áwyaanakwa* *myúma* (Kl Sah tx, Jacobs 1937: 10.6.2)
ku = pat *kwnak* *á-wyáanakw-a* *myú-ma*
and = 3PL that.LOC 3O-abandon-PST wife's.brother-PL
'And his brothers-in-law deserted him there.'

This construction is used in texts with human agents and human or animate objects. Although the grammar is identical to that of the MIXED DIRECT construction (A unmarked for case and indexed via the enclitic, O bearing the differential object marker and indexed via the verbal prefix), it has been previously analyzed (Rude 1994; Rigsby & Rude 1996) as instantiating the pragmatic inverse when the A is third person plural, because it is used when the O is more topical than the 3PL.A. Interestingly, this is true despite the fact that this construction requires the 3PL.A to be human, whereas inverse constructions are typically characterized by A arguments that are low in animacy, those that are more easily outranked by a high animacy O. As such, objects will very rarely outrank explicitly plural subjects in animacy. In a study of around 5,800 Klickitat clauses from the Melville Jacobs texts (Jansen & Beavert 2012b), just 135 transitive clauses have a grammatically coded third person plural A. They are divided almost equally between the two constructions, 70 using the NONLOCAL DIRECT construction (with *pa-* '3PL.S/A') and 65 the NONLOCAL INVERSE$_2$ construction (with = *pat* '3PL'). In the 70 NONLOCAL DIRECT clauses, the A is typically human and 39% also had a human O. In the NONLOCAL INVERSE$_2$ construction, the A is always human and the O always animate and usually human (in all but two examples in Yakima and two in Klickitat). Since both

11. The clitic plus prefix seen in Northwest Sahaptin dialects have combined to become *patá-* in Columbia River dialects, and prefix *paʔá* in Northeast dialects. Both *patá-* and = *pat á-* are used by present-day speakers on the Yakama Nation.

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A and O are usually human in both constructions, animacy is not a major factor distinguishing the two. Instead, the difference is that the objects in the NONLOCAL INVERSE$_2$ construction, along with being human, are high in episodic or global topicality. For this reason, Rude (1994) equates it with the NONLOCAL INVERSE construction, which is used to code situations in which a 3SG.A acts on a highly topical O.

In addition to the three constructions described so far, there is one very low frequency construction involving the enclitic = *pat* '3PL', identical to the MIXED INVERSE construction. Here, the subject must be third person singular and the object third person plural. The 3SG.A is indexed via the verbal prefix *i-* '3SG.S/A' (22)–(24), and if an A NP occurs explicitly, it must be marked by the suffix *-nim* 'INV.ERG' (22), (24). In all our examples, the third person plural object is indicated only via the second-position enclitic = *pat* '3PL'. This final construction is quite rare in our corpora, with only five examples in the Klickitat corpus and a single example in our Yakima text corpus. It, also, seems to occur only when the patient is higher than the agent in topicality, which leads us to call it the NONLOCAL INVERSE$_3$ construction.

(22) *kupat* *wawyałánim* (Y Sah tx)
ku = pat *wawyałá-nim*
and = 3PL whipman-INV.ERG
ishapáxatik'alina *chíishyaw*
i-shapá-x̲atik'alii-na *chíish-yaw*
3SG.S/A-CAUS-fall.into.water-PST water-DAT
'and the whipman made them jump into the water.'

(23) *inánax̲anapat* *tkwátatay* (Kl Sah tx, Jacobs 1937: 9.1.4)
i-nána-x̲a-na = pat *tkwáta-t-ay*
3SG.S/A-take.away-HAB-PST = 3PL eat-NZR-BEN
'He would take them off for eating.'

(24) *ishaptayákshapat* *xwísaatnim* (Kl Sah tx, Jacobs 1929: 235)
i-shaptayák-sha = pat *xwísaat-nim*
3SG.S/A-cheat-IMPV = 3PL old.man-INV.ERG
'The old man is deceiving them.'

This concludes our introduction of the various constructions found in the different quadrants of main clause grammar in Sahaptin. In the next section, we give a summary of the systematic interactions between these constructions, emphasizing the elements that have been interpreted as reflecting a referential hierarchy. This then allows us to identify the interactions between individual morphemes and the various constructions in which they occur, a process that sets the stage for the reconstruction that follows.

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2.2 Aligning the morphemes and constructions

We begin with an overview of the hierarchical effects specific to each set of main clause argument structure morphology: indexation of core arguments, case marking of core arguments, and the presence of an INVERSE direction-marking prefix on the verb. We then turn to a discussion of how these elements combine in transitive constructions.

2.2.1 *Coding arguments: Morphology*

Personal indexation draws a mostly clear line between speech act participants and third person singular participants: a SAP core argument is always indicated via a second-position personal enclitic, which is not sensitive to grammatical role. In contrast, a third person core argument is usually indicated via a nominative or accusative verbal prefix, with *i-* '3SG.S/A and *pa-* '3PL.S/A' reserved for subjects and *á-* '3O' used for objects regardless of number.[12] Only a high animacy 3PL.A is indexed via the verbal prefix, but a 3PL human argument (either A or O) can alternatively be indexed via a second position enclitic. The properties of the 3PL clitic do not entirely match those of SAP clitics, but when they occur, the grammar of the rest of the construction is identical to the constructions with a SAP enclitic. As such, the grammar of argument indexation for the most part distinguishes SAP from 3SG, except that 3PL may participate in either the SAP enclitic or the 3SG verb prefix pattern, as discussed above. In one part of the LOCAL quadrant (1A→2O), the second position enclitics appear to be a combination of the two persons; in the other part (2A→1O), only the second person enclitics occur. Setting aside the 1A→2O situation as inconclusive, we could argue that, based on the grammar of indexation, only the highest-ranking argument in a clause may be indexed in a second position enclitic, which would give us the rankings 2 > 1, SAP > 3, and (due to the second-position enclitic = *pat* '3PL') 3PL > 3SG; these could be combined into a unified hierarchy: 2 > 1 > 3PL > 3SG.

The second domain in which hierarchical effects are observed is in **case marking** of core arguments. The three distinct case markers mark three specific scenarios: the two ergative case markers mark 3SG.A in inverse constructions depending on the person/grammar of the transitive object: *-nim* 'INV.ERG' marks 3SG.A when the object is indexed via a second position clitic (i.e. all SAP.O arguments and, in one rare construction, the 3PL.O), whereas *-in* 'OBV.ERG' marks 3SG.A when a third person object is highly topical but is not indexed either on the verb or via a

12. There are also a few examples of *á-* used to index certain third person singular intransitive subjects, as discussed in footnote 4.

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second position enclitic. The ergative case markers thus differentiate 3SG.A from all other A arguments, and they further differentiate SAP objects (plus those few 3PL.O marked via a second position enclitic) from third person objects (all 3SG.O plus those 3PL.O not marked via the second position enclitic). 3PL.A never takes an ergative case marker. Since unmarked subjects are traditionally considered to be higher on the hierarchy than marked subjects, ergative case marking gives us the ranking of SAP > 3PL > 3SG.

In contrast, the accusative suffix marks O arguments based on their inherent topicality regardless of any referential properties of the A argument, following the standard DOM hierarchy (cf. Iemmolo 2012). As such, all O pronouns must bear the accusative case and use of the accusative case with third person O NPs depends on a complex set of semantic and pragmatic features, including animacy, definiteness, specificity, etc. (Jansen & Beavert 2012b). This pattern is less important for our purposes because it does not depend at all on the person or grammatical marking of the A argument, so we do not consider it further until § 4.

The third morphological domain that codes hierarchical patterns is the occurrence of the putative **direction marker** *pá-* 'INVERSE' in place of a personal prefix when a lower-ranking 3SG.A acts on a higher-ranking 3.O (either singular or plural). Along with the case marker *-in* 'OBV.ERG', this prefix defines the NONLOCAL.INVERSE construction. In the nonlocal domain, this morpheme appears to indicate the relative topicality of A versus O, characterized in the hierarchy as 3 > 3′, but there is no inherent semantic property of A or O that is singled out for hierarchical treatment (cf. Blackburn Morrow 2006; Jansen 2010). The inverse prefix also occurs in the LOCAL quadrant uniquely when 2SG.A→1SG.O. Thus, in the LOCAL domain, this prefix seems to indicate that 1 > 2, thereby contradicting the hierarchy 2 > 1 established via indexation in second position enclitics.

2.2.2 *Coding arguments: Constructions*

Having given a more-or-less traditional atomistic treatment of the different morphology that independently signals the hierarchical status of core arguments, we now turn to a more holistic treatment, in which we do not treat morphemes as independent operators, but rather as components in the constructions in which they occur, always in combination with other morphemes. Figure 3 presents the grammar of each quadrant in terms of the combination of these three grammatical elements: second position personal enclitics, verbal prefixes, and obligatory case marking on explicit NP arguments.[13] Each construction that contains a different

13. We note, again, that explicit NP arguments are not obligatory and are, in fact, not all that common; as such, "obligatory case marking" may be relatively infrequent in text data.

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		SAP					3	
SAP		2SG.O	2PL.O	1PL.INCL.O	1SG.O	1PL.EXCL.O	3PL.O	3SG.O
	2SG.A				= *(n)am* *pá-V* A-Ø	= *(n)am* Ø-V A-Ø	= *(n)am* *á-V* A-Ø	
	2PL.A				= *pam* Ø-V A-Ø		= *pam* *á-V* A-Ø	
	1PL.INCL.A						= *na* *á-V* A-Ø	
	1SG.A	= *m-ash* Ø-V A-Ø					= *(n)ash* *á-V* A-Ø	
	1PL.EXCL.A	= *m-atash* Ø-V A-Ø					= *(n)atash* *á-V* A-Ø	
3	3PL.A	= *(n)am* *pa-V* A-Ø	= *pam* *pa-V* A-Ø	= *na* *pa-V* A-Ø	= *(n)ash* *pa-V* A-Ø	= *(n)atash* *pa-V* A-Ø	= *pat* *á-V* A-Ø	
							no clitic *pa-V* A-Ø	
	3SG.A	= *(n)am* *i-V* A-*nim*	= *pam* *i-V* A-*nim*	= *na* *i-V* A-*nim*	= *(n)ash* *i-V* A-*nim*	= *(n)atash* *i-V* A-*nim*	no clitic *i-V* A-Ø	
							= *pat* *i-V* A-*nim*	
							no clitic *pá-V* A-*in*	

Figure 3. The grammar of hierarchical constructions in Sahaptin main clauses

combination of indexing and case marking patterns is shaded a different color; gray-shaded areas represent reflexive, rather than transitive, situations. Figure 3 also provides an illustration of the usefulness of hierarchical ranking to organize such paradigmatic tables: utilizing as our organizing principles the criteria of (i) indexation in second position enclitics (2 > 1 > 3PL > 3SG) and (ii) both bearing and conditioning ergative case marking, we placed the two second persons at the top of the leftmost column (which indicates person of A), followed by the three first persons, then third person plural, and finally third person singular. The same

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sequence goes from left to right across the top of the table to indicate person of O. This order of arguments was derived from the grammar of the constructions in which they occur, and so by using this order to organize the table, the adjacent cells automatically contain more similar grammar, allowing us to visualize a continuous flow of the different grammatical patterns across the paradigm. This flow will become relevant in § 4, when we reconstruct how these patterns came to be found in each cell.

The MIXED DIRECT quadrant (the darker purple box outlined by irregular dashes) is the easiest to characterize, as all the cells contain exactly the same grammatical components: the SAP A is indexed via a second position clitic, the third person O is indexed via the verbal prefix *á-* '3O', and there is no obligatory case marking.

The MIXED INVERSE quadrant (the box outlined by regular dashes, containing two shades of green) has two sub-constructions, one for the 3PL.A and the other for the 3SG.A. In both constructions, the SAP O is indexed via a second position enclitic and the 3A is indexed via a verbal prefix, either *i-* '3SG.S/A' or *pa-* '3PL.S/A'. The distinction between the two constructions comes in case marking of an explicit A argument: in the darker green row, the 3SG.A bears the suffix *-nɨm* 'INVERSE.ERGATIVE', whereas in the lighter green row, the 3PL.A is unmarked for case.

The LOCAL quadrant (the upper left portion of Figure 3, mostly gray to indicate reflexive situations, plus white and light purple cells) is still more heterogeneous, with our three morphological criteria combining to yield three distinct constructions. In the white cells where 1A→2O, the second position enclitic indexes both SAP participants, the verb bears no prefix and an explicit A is unmarked. In the light purple cells where 2A→1O, the second person A is indexed via a second position clitic, the first person O is not indexed, and there is no obligatory case marking. This construction has two of the three patterns found in the MIXED DIRECT construction, a similarity represented by shading them with a different intensity of the same color. However, uniquely in the 2SG.A→1SG.O cell, the verb bears the prefix *pá-* INVERSE' (highlighted in yellow), which combines with the other properties of the purple shaded areas to create a third construction, distinct from that used in the other three 2A→1O situations.

In the NONLOCAL quadrant (the bottom right portion of Figure 3, with cells of dark and light purple, darker green, and red), our three grammatical properties define four distinct constructions, one NONLOCAL DIRECT construction and three separate NONLOCAL INVERSE constructions, one with 3PL.A and two with 3SG.A. The topmost cell is the NONLOCAL INVERSE$_2$ construction: the clitic indexes the 3PL.A, the verbal prefix *á-* indexes the higher topicality 3O, an A NP is unmarked for case. All three grammatical patterns are identical to those in the MIXED DIRECT construction, which leads us to shade it the same dark purple – note the apparent

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incongruence of the grammar (identical with the DIRECT) and the function (coding the NONLOCAL INVERSE situation, in which the O is higher in topicality than the A). The next two cells represent the NONLOCAL DIRECT construction, which occurs with either 3SG.A or 3PL.A and a lower topicality O: there is no clitic to index a participant, the verbal prefix indexes the appropriate 3A (*i-* '3SG.S/A' or *pa-* '3PL.S/A'), and a free A noun phrase is unmarked for case. These cells are shaded light green in recognition that they share two of the three patterns associated with the light green 3PL.A MIXED INVERSE construction – again, note the apparent incongruence of the grammar (very similar to the INVERSE) and the function (coding the NONLOCAL DIRECT situation, in which the A is higher in topicality than the O). At the bottom of the column come the two 3SG.A NONLOCAL INVERSE constructions. The NONLOCAL INVERSE$_3$ construction is barely attested (a total of 6 examples in NW texts) – it occurs only in the situation where 3SG.A→3PL.O, and it is formally identical to the MIXED INVERSE constructions with a 3SG.A: the clitic indexes the 3PL.O, the verbal prefix indexes the 3SG.A, and an explicit A NP must bear the suffix *-nim* 'INV.ERG'. As such, it receives the same dark green shading. Finally we arrive at the more robustly attested NONLOCAL INVERSE construction, at the bottom right of Figure 3: there is no clitic, the verb does not index a participant but rather bears the direction marker *pá-* 'INVERSE' (highlighted in yellow in the table), and if there is an explicit A NP, it bears the case marker *-in* 'OBV.ERG' (also highlighted in yellow in the table). This construction is unique in the entire table: despite having both a 3A and a 3O, the verb bears no person prefix, and the case marker on A is attested nowhere else in the table. As such, it is shaded in a unique color.

At this point, we have compiled our list of morphemes in need of reconstruction and we have characterized the major constructions in which they occur. We have also delineated the ways in which each morpheme – in combination with the other morphemes that characterize each construction – seems to instantiate a hierarchical system of alignment. The stage is now set for us to examine the origins of each morpheme, and well as the origins of the distribution of each of the distinct main clause alignment constructions. The necessary first step of this process is to identify cognate morphemes in Nez Perce, so as to reconstruct their forms to Proto-Sah (§ 3). We will then examine the distribution of these morphemes in constructions, which we will also reconstruct to Proto-Sah (§ 4).

3. Reconstructing hierarchical morphology to Proto-Sahaptian

In order to reconstruct the relevant morphemes, we compare each in turn to their counterparts in Nez Perce, the only other language in the family. Hunn (2000) proposes that Proto-Sahaptian was spoken as recently as 4,000–5,000 years ago,

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with the split between Nez Perce and Sahaptin occurring around 2,000 years ago, a relatively short time depth for changes to occur. As opposed to Sahaptin, in Nez Perce we see somewhat less variation, and almost no robust main clause patterns that suggest hierarchical grammar.

3.1 Enclitics

First, in Nez Perce there are also second position enclitics, but these are relatively rare, found only attached to a limited set of first position particles, including *ke* 'RELATIVE', *mi's* 'NEGATIVE', *weet* 'POLAR Q MARKER', other question markers, some modal adverbials, and the emphatic *'éete* 'surely' (Zúñiga 2006: 156; Aoki 1970: 127; Rude 1985: 134). Given that these second position enclitics are found in fewer constructions, the grammatical difference between third person and speech act participants is correspondingly less obvious in Nez Perce. However, despite their relative difference in frequency and importance to the grammar, the forms of the second position enclitics are clearly cognate between the two languages, as seen in Table 4.

Table 4. Comparison of forms for Sahaptin and Nez Perce second position personal enclitics

Pronominal enclitic	Sah	NzP	Proto Sahaptian
1SG	= *nash* = *ash* = *sh*	= *kex* = *eex* = *x*	*= *ex*
1PL EXCL	= *nat-ash* = *at-ash* = *t-ash*	= *kex* = *eex* = *x*	*= *(et-)ex*
1PL INCL	= *na*	= *kenm* = *nenm* = *eenm* = *nm*	-
2SG	= *nam* = *am* = *m*	= *m*	*= *m*
2PL	= *pam*	= *pem*	*= *pem*
3PL	= *pat*	-	(*= *pet*)
1SG→2SG	= *m-ash*	= *m-ex*	*= *m-ex*
1→2, PL	= *m-atash*	= *pem-ex*	-

In comparing the forms of Table 4, it is clear that there are many common elements that must be reconstructed to Proto-Sah. We follow Rude (n.d.), who

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reconstructs the *a:e* correspondence to *e, the *sh:x* correspondence to *x, and we disregard vowel length in the first person forms. Leaving aside the = *k* element in Nez Perce and the = *n* element in Sahaptin (both of which Rude independently reconstructs to Proto-Plateau-Penutian, **ke-* as a first person pronoun and **ne-* as a SAP formative prefix), we see clearly reconstructible elements in every cell except the 1PL.INCL: *= *ex* '1SG', *= *et* '1EXCL', *= *m* '2SG', and *= *pem* '2PL'. Note that, although there is no reflex in Nez Perce (or any other Plateau Penutian language), we reconstruct *= *pet* '3PL' as the antecedent to the attested Sahaptin 3PL clitic. The modern forms are not cognate for the 1→2, PL forms (the empty lower right hand cell of Table 4); we further address these in Section 4.4.1.

We note, (per Zúñiga 2006: 172) that the 2→1 forms are cognate to Sahaptin in both form and hierarchical ranking: = *m* '2SG' when 2SG.A→1SG.O and = *pem* '2PL' when either or both participants are plural.[14]

We have no strong evidence to indicate the syntactic distribution of these enclitics in Proto-Sah: they could have been limited to a few environments, in which case their modern distribution in Nez Perce would be conservative and their obligatory usage in Sahaptin an innovation. Alternatively, they could have been obligatory in Proto-Sah, in which case their obligatory usage in Sahaptin would be conservative and their restricted usage in Nez Perce the innovation. We will address this question in § 4, where we consider all the pieces of the constructional puzzles together.

3.2 Verbal indexation

Turning now to the Nez Perce verb, the situation is much cleaner than in Sahaptin: as seen in Table 5, four person prefixes are divided between three slots in the verbal template: in initial position are the two third person prefixes *hi-* '3S/A' and *'e-* '3O' (clearly cognate to Sahaptin *i-* '3SG.S/A' and *á-* '3O'), in second position *pe-* 'PL.A' (cognate to Sahaptin *pa-* '3PL.S/A'), and in third position *nées-* 'PL.O' (no Sahaptin cognate).[15] Following the verb stem, when a second person A acts on a first person O, the cislocative suffix *-m* is obligatory.

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14. The sequence *pa* in Sahaptin fulfills a range of functions as a nominal and verbal prefix and nominal suffix. As a noun prefix it is used productively to indicate 'one to another, mutually, reciprocally, both' (Jansen 2010: 293). Rude (n.d.) reconstructs **pe-* as a nominative plural, and it could be an older contributing element to the second person plural clitic. Third person personal pronouns often have a base in *p*, which may be also reflected in the enclitic *= *pet* '3PL'.

15. Nez Perce vowel harmony and lengthening, beyond the scope of this article, affect the morphemes discussed here. For example, *nées-* 'PL.O' is also seen as *náas*.

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Table 5. The Nez Perce verbal person marking template

hi -'3S/A'	*pe* -'PL.S/A'	*nées* -'PL.O	V	*-m* '2→1'
'e -'3O'				

These five morphemes, which we reconstruct below, combine on the verb in a consistent way to produce nearly all of the paradigmatic forms seen in Table 6, which shows the verb form found with each combination of person and number for A and O.[16] Unlike the Sahaptin constructions shown in Figure 3, this table contains almost no recognizable hierarchical patterns, just a series of predictable combinations of the morphemes presented above.[17]

Table 6. Nez Perce verbal person prefixes

	1SG.O	1PL.O	2SG.O	2PL.O	3SG.O	3PL.O	INTR (S)	DETRANS
1SG.A			–	*nées*-V	*'e*-V	*'e-nées*-V	–	
1PL.A			*pe*-V	*pe-nées*-V	*'e-pe*-V	*'e-pe-nées*-V	*pe*-V	
2SG.A	V-*m*	*nées*-V-*m*			*'e*-V	*'e-nées*-V	–	
2PL.A	*pe*-V-*m*	*pe-nées*-V-*m*			*'e-pe*-V	*'e-pe-nées*-V	*pe*-V	
3SG.A	*hi*-V	*hi-nées*- V	*hi*-V	*hi- nées*-V	*pée*-V	*hi-nées*-V	*hi*-V	*hi*-V
3PL.A	*hi-pe*-V	*hi-pe-nées*-V	*hi-pe*-V	*hi-pe-nées*-V	*pée*-V	*hi-nées*-V	*hi-pe*-V	*hi-pe*-V

In Table 6, there are two sets of cells where one might identify a hierarchy: one is in the occurrence of the cislocative morpheme *-m* for all cases of 2A→1O – in fact, Zúñiga (2006: 166, following Rude 1991: 41) explicitly calls this "a LOCAL DIRECTION marker" (cf. also § 2.2 of Gildea & Zúñiga 2016). The second is in the NONLOCAL domain, where the 3A and 3O prefixes are in complementary distribution in a single prefix slot – this means that when both A and O are third person, there is a competition to see which grammatical role (or some other category of information) predicts which core argument "wins" that slot. Unlike the singular

16. Note that the second position enclitics are not a part of this table (as they are not found in most main clauses), and so there is no need for a first person plural inclusive/exclusive distinction.

17. Some tense and aspect suffixes distinguish singular from plural subjects and in this case the prefix *pe* – 'PL.S/A' is not used.

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role prefixes, the plural A and plural O morphemes are in different slots, so we would expect them to combine as they do elsewhere.

However, upon inspection, we see in this quadrant a few anomalous patterns. First, the prefix *pe-* 'PL.A' does not occur in the NONLOCAL domain, thereby collapsing the distinction between situations in which 3PL.A→3O from those in which 3SG.A→3O.[18] This is quite different from Sahaptin, which maintains a consistent grammatical distinction between 3SG.A and 3PL.A (cf. Figure 3). Second, the 3A→3SG.O cell contains the prefix *pée-* '3A3SG.O' (cognate with Sahaptin *pá-* 'INV'), whereas when 3A→3PL.O, the expected prefix combination *hi-nées-* '3A-PL.O' (minus the 3PL.S/A prefix, as noted earlier) is attested. On the one hand, these patterns seem to indicate the weakness of the prefix *'e-* '3O' in initial position, as it never occurs in preference to *hi-* '3S/A'. On the other hand, the number of the third person object remains important, since (i) a 3PL.O conditions the suffix *-nées* 'PL.O' in all 3PL.O cells, including the nonlocal quadrant, and (ii) a 3SG.O with any 3A conditions the occurrence of the unique prefix *pée-*, which is an aberration in the otherwise regular system of Nez Perce prefixation.

The two rightmost columns of Table 6 show verbal prefixation in arguably intransitive constructions. For lexically intransitive verbs (the INTR (S) column), the prefixes are identical to the A prefixes: *hi-* '3S/A' and *pe-* 'PL.S/A'. The DETRANSITIVE construction occurs when a 3A interacts with a nontopical 3O – in the detransitive column, the semantically transitive verb takes the same intransitive prefixes (albeit only for 3A).

The cognate prefix forms are clearly reconstructible, as presented in Table 7.

Table 7. Proto-Sahaptin verbal prefixes

Proto-Sahaptin	Nez Perce	Sahaptin
**hi-*	*hi-*	*i-*
**'e-*	*'e-*	*á-*
**pe-*	*pe-*	*pa-*
**pé-*	**pée*	*pá*

However, their denotations and distributions are sufficiently different that, again, we postpone reconstructing the functions of these forms until § 4, where

18. Note that Deal (2010: 80) does list the possible prefix combination *hi-pe-nées-* '3A-PL.A-PL.O-' for 3PL.A→3PL.O; for the purposes of this paper, the existence or not of this pattern is a minor point, so we do not address it further.

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we examine them as parts of potentially reconstructible cognate constructions. Nez Perce *nées-* 'PL.O' must either be reconstructed to Proto-Sah as **nées-* and then lost in Sahaptin or else it must be a recent innovation, limited to Nez Perce. Against this latter hypothesis, however, we point out that we can identify no obvious source morpheme in either modern language for this prefix. Of course, a Proto-Sah source form could have been reanalyzed as an internal verbal prefix in one language and then lost entirely in both languages, but this is three changes in a fairly short period of time. In contrast, a Pre-Proto-Sah source form could have been reanalyzed as a prefix long ago, and then the source form could have been lost (also potentially quite long ago), leaving us with the need to posit only a single more negligible change since Proto-Sah, its loss in Sahaptin.[19]

3.3 Case marking

The final element to account for in Nez Perce is case marking. In all transitive clauses, if an explicit third person A NP occurs, whether singular or plural, it must bear the ergative suffix *-nim* 'ERG'. Unlike Sahaptin, both 3SG.A and 3PL.A are marked and also unlike Sahaptin, there is no differential ergative marker for any 3→3 construction. This ergative case marker thus reconstructs easily to Proto-Sah as **-(n)im* > *-nim* (NzP)~ *-nim* (Sah). The differential ergative marker in Sahaptin, *-in* 'OBV.ERG', is identical to the ASSOCIATIVE case suffix (and dual marker on nouns) in both Sahaptin and Nez Perce: if it did mark ergative in Proto-Sah, then this function was lost in Nez Perce; if it did not mark ergative in Proto-Sah, then this use is innovative in Sahaptin. The object in Nez Perce transitive clauses (but never in the DETRANSITIVE construction) bears the accusative case suffix *-ne(n)* 'ACC'. It is conditioned by DOM in Sahaptin but required in all transitive clauses in Nez Perce. The accusative case marker reconstructs to Proto-Sah as **ne(n)* > *-ne(n)* (NzP) ~ *-na(n)* (Sah).

Note that, although the DETRANSITIVE construction (rightmost column of Table 5) has both a semantic agent and a semantic patient, the semantic agent cannot take the ergative marker and the semantic patient cannot take the accusative marker. The unacceptability of either ergative or accusative case marking in this construction is the primary reason that Rude (1985: 129–130) argues that it is grammatically intransitive (i.e., an antipassive), with an agent S and an (unmarked) oblique patient.

Having reconstructed the forms of all the morphemes that mark various hierarchical patterns in Sahaptin, in § 4 we consider how these clearly cognate

19. Although note that in § 4.1, we do posit a change in the distribution of this prefix in Nez Perce.

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elements might have become distributed so differently in the various modern constructions of the two languages.

4. Reconstructing the main clause constructions of Proto-Sahaptian

The reconstructions in § 3 should be uncontroversial, in that the methodology by which one reconstructs phonological forms has been well-established in the field for nearly two centuries. In contrast, the reconstruction of grammatical relationships remains controversial, in part because the methodology of grammatical reconstruction is much less established, which is itself largely because of theoretical reservations that lead some linguists to reject the validity of the entire enterprise out of hand.[20] In this section, we will lay out the arguments according to the methodology established in Gildea (1998: 35–44), which lays out the different mechanisms of grammatical change, and Barðdal (2014), which argues that the construction is the primary unit for syntactic reconstruction.

Our conception of CONSTRUCTION is relatively informal compared to Barðdal's, but it is broadly compatible with the conception developed within the Construction Grammar framework (cf. especially Goldberg 1995; 2006; Croft 2001): a construction is (i) a combination of morphemes and more abstract "slots" to be filled by lexical items, in which (ii) the meaning and/or distribution of the entire construction is not necessarily predictable by combining the meanings and/or distributions of the units that occur in the construction, which leads to the conclusion that (iii) a construction often has its own meaning (which conditions its distribution) independently of the combinatory meanings of the elements within it. By this conception, constructions are, like lexical items, partially arbitrary combinations of form and meaning. Similarly, the formal component of each construction contains multiple sub-units (morphemes, constituent relations, order restrictions, etc.) which can serve as internal correspondences for the purpose of confirming the cognate status of constructions belonging to related languages.

Having identified constructions that are cognate across languages, we then face the problem of how to reconstruct these cognates to a proto-construction. In the case that all elements are identical, this is not problematic, allowing us to reconstruct the identical construction to the proto-language, i.e., a case of no change. In the (more typical) case, where one or more formal elements of the cognate constructions are different, or where the meaning and/or distribution of the

20. This is not the venue to explore these theoretical questions, for which we recommend Barðdal & Eythórsson (2012); Barðdal (2014); Barðdal & Gildea (2015).

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cognate constructions are different, we need to determine which elements/meanings/distributions to reconstruct as conservative and which elements/meanings/distributions to claim represent later innovations. Gildea (1998: 39–40) lays out the kinds of patterns in comparative data that can be used to identify two different mechanisms of change: reanalysis and (analogical) extension. Reanalysis of entire reconstructions is a mechanism that is often associated with grammaticalization, and for which a preponderance of attested examples generally offer solid guidance about directionality; this means that reanalyses are more straightforward to reconstruct. In contrast, analogical extension moves individual morphemes from one construction to another, or from one part of a construction to another part of the same construction, a mechanism that shows little inherent directional consistency, making it necessary to find other grounds to argue for directionality. Many of the changes in the Sahaptian family are analogical extensions, which means that sometimes we are forced to argue for directionality on grounds that may not convince a skeptic. Nonetheless, we hope to show that the individual reconstructions we propose combine into a coherent overall story that is more than the sum of its parts – for us, the coherence of this overall picture reinforces our confidence in the individual reconstructions.

In brief, what we have found in our analysis of the many Sahaptin and Nez Perce constructions is that most of them are composed of different combinations of the same set of reconstructible morphemes: second position enclitics, verbal prefixes, and case markers. We have already reconstructed these components (§ 3), and discussed how they combine into the various constructions in both Sahaptin (§ 2.2) and Nez Perce (§ 3). Given the presence of these elements throughout the interactional paradigms of both languages, in a number of cases we can simply reconstruct these elements to their various proto-constructions in their current distributions and with their current meanings. In other cases, we can see that cognate morphemes are found in different locations in otherwise cognate constructions – these must represent cases of analogical extension, and since extension does not have inherent directionality, in these cases we are forced to argue for directionality on external grounds, which can be more tenuous. In two of these cases (two of the three Sahaptin NONLOCAL INVERSE constructions), we can see evidence for construction reanalysis, where the reanalysis has created a mismatch between the formal patterns and the functions that they serve. In these cases, it is more straightforward to argue for directionality of change.

As a final note, because the Sahaptian family does not have great time depth, in some cases, the changes that we reconstruct to Proto-Sah are fairly modest. We postpone until § 5 consideration of further internal reconstructions of the Proto-Sah morphemes and constructions from this section. In the remainder of this section, we turn first to the familiar elements that combine into the various

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MIXED DIRECT, MIXED INVERSE, and LOCAL constructions (§ 4.1), then we turn to reconstructing the more complicated set of constructions found in the NONLOCAL quadrant (§ 4.2).

4.1 Reconstructing the Proto-Sahaptian DIRECT, LOCAL, and INVERSE quadrants

To reconstruct the grammatical patterns of Proto-Sah, we begin with the areas of greatest overlap between the two languages, the INVERSE, LOCAL, and DIRECT quadrants. First, a reminder of the morphological elements that reconstruct to Proto-Sah and that are relevant for our discussion of these quadrants: both languages contain the set of cognate speech act participant second position enclitics reconstructed in Table 4, the verbal prefixes **hi-* '3S/A', **'e-* '3O', and **pe-* either '3PL.S/A' or 'PL.S/A', an ergative case marker **-nim* 'ERG', and an object case marker **-nen* 'ACC'. The only morpheme found in one language without cognates in the other is the prefix *nées-* 'PL.O' in Nez Perce. Although the two languages use very different verbal systems synchronically, from a diachronic perspective, individual grammatical morphemes found in each interactional cell have more similarities than divergences, which makes most of the reconstruction relatively straightforward.

4.1.1 *Enclitics*

We reconstruct forms of all the cognate second position SAP enclitics to Proto-Sah, including the distinct LOCAL patterns of indexing only 2A when 2A→1O and for combining indices of both when 1SG.A→2SG.O (identical in both languages). However, the modern forms are not cognate when one or both arguments of the 1A→2O situation is plural: the Sahaptin form, *= m = atash*, combines a truncated form of 2SG.O with the full 1PL.A form, whereas the Nez Perce form, *= pem = ex*, combines the full 2PL.O form with the full 1SG.A form. In each language, the single form is used for all three combinations involving a plural argument, meaning 1SG.A→2PL.O, 1PL.A→2SG.O, and 1PL.A→2PL.O. It seems simplest to reconstruct both forms as having been in opposition in their respective Proto-Sah cells and then to posit that after the split, the speakers of each language selected a single form to generalize to all three situations involving a plural. If this story is accurate, then even though there is no synchronic evidence for such a form, we should also reconstruct the unattested form **= pem = etex* as the most likely clitic combination employed when 1PL.A→2PL.O.

Turning to the question of distribution, we see that these clitics are obligatory in Sahaptin main clauses, but in Nez Perce they are found in the more limited environment following certain clause-initial particles. We begin with the observation

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that there are many attested cases of free pronouns becoming obligatory enclitics, sometimes to create head-marking constructions and other times to create second-position enclitics (for an example of both involving cognate pronouns in related languages, cf. Guillaume's contribution to this volume). As such, we postulate that at some point prior to Proto-Sah (call it Pre-Proto-Sah), these clitics were most likely a set of free pronouns, which, by the time of Proto-Sah, had become fixed in second position via the same sort of grammaticalization process by which free pronouns become verbal affixes. One plausible reconstruction of their distribution in Proto-Sah is that they initially followed a limited set of particles (i.e., the pattern of Nez Perce) and then expanded the number of elements they could follow until they could occur after essentially any element in first position (i.e., to develop the distribution seen today in Sahaptin).

However, we prefer the alternative, which is that they initially grammaticalized in second position following any element (like Sahaptin) and then (only in Nez Perce) were restricted to occurring in the position following a limited set of first position particles. Our preliminary survey of the typological patterns associated with clitics indicates the existence of grammaticalization pathways that lead to the development of second position clitics following an item placed in the initial (focus) position; crucial to all these scenarios is that the focused item is not restricted as to word class (or even size of constituent, as sometimes an entire clause can occupy this position). We are also aware of several other languages (both within and outside of the Pacific Northwest) that utilize second position clitics in a manner more like Sahaptin, with no grammatical restrictions on what occurs in first position. These two findings encourage us to posit this as the initial state for Proto-Sah.[21] To create a stronger argument, we would like to find evidence for a pathway to create the more limited second position particles, especially attested cases in which such limitations are subsequent to a prior state in which the second position clitic was free to occur following a wider range of elements. Further research could address how common it is cross-linguistically for second position particles to be limited as we suggest they have been in Nez Perce, and also whether there are studies of the means by which they enter into this limited distribution.

4.1.2 *Verbal prefixes*

The prefixation patterns are quite similar in the DIRECT, LOCAL, and 3SG.A portion of the INVERSE quadrants of the paradigm: for all DIRECT situations, a reflex

21. We note that many of the particles they follow in Nez Perce are typically first-position, and therefore these and the second position clitics would have a relatively high collocational frequency, perhaps contributing to the retention of the enclitics in these environments.

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of **ʔe-* '3O' occurs, for all 3SG.A INVERSE situations, a reflex of **hi-* '3S/A' occurs, and for all LOCAL situations there is no third person prefix. When 2SG.A→1SG.O, the prefix *pá-* 'INVERSE' is clearly a later extension from the NONLOCAL INVERSE construction (reconstructed in § 4.2, and more deeply in § 5), and the rest of these combinations reconstruct readily to Proto-Sah.[22] Similarly, the use of the cislocative suffix with all 2A→1O cells in Nez Perce is a recent innovation that does not reconstruct to Proto-Sah.

The remaining differences between the two languages are not so straightforward. The first such difference is the value and templatic position of Proto-Sah **pe-*: Sahaptin *pa-* '3PL.S/A' is in opposition to the '3O' and '3SG.S/A' prefixes in a single personal prefix slot, whereas Nez Perce *pe-* 'PL.S/A' is not limited to third person and also occupies its own prefix slot following (and thus sometimes in combination with) the other two prefixes. The other difference is the Nez Perce prefix *nées-* 'PL.O', which occupies yet a third personal prefix slot before the verb, and thus sometimes co-occurs with prefixes in either or both of the preceding slots. Determining the source paradigm means addressing two interrelated questions: First, does each reconstruct in its own paradigmatic slot, like modern Nez Perce, or do they reconstruct as members of a larger set of alternants in a single prefix slot, like in modern Sahaptin? Second, was their reconstructed meaning merely plural A and O, as it is today in Nez Perce, or was their meaning originally restricted to third person, like the modern Sahaptin *pa-* '3PL.S/A'?

Since either direction of change would equally be a case of extension, and therefore either direction of change is logically possible, we need to look for external clues to guide us. In this particular case, there is a concrete observation that we find relevant: the Nez Perce prefix sets are beautifully regular, with neatly predictable combinations of attested forms in every cell in the DIRECT, LOCAL, and INVERSE quadrants.[23] Such regularity is the expected outcome of a process like analogical leveling, in which a previously less regular system has become fully regular. As such, we suspect that a previously less systematic prefixation pattern has been regularized in Nez Perce, and this regularization has been recent enough that new irregularities have not had time to creep in. The three specific cases where such regularity is not observed are all in the NONLOCAL quadrant, which is part of

22. In some dialects of Sahaptin, a reflex of **ʔe-* '3O' also occurs as an S prefix; it is not central to our purposes here to determine whether it also might have marked some S roles in Proto-Sah, so we sidestep this question.

23. We note again that we have set aside vowel harmony as well as tense and aspect morphology that differentiate singular from plural subjects, so the overall picture is a somewhat less straightforward.

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our motivation for reconstructing that quadrant separately in § 4.2. So although it might also be possible to reconstruct the completely regular patterns of Nez Perce to Proto-Sah and then to treat the irregularities of Sahaptin as being the result of a series of more recent contractions of the plural forms to a third-person meaning, in our reconstructions we give more weight to the less regular patterns of Sahaptin.[24]

Although this reasoning leaves plenty of room for skepticism, it does give us a slight preference for reconstructing Proto-Sah **pe-* with the meaning '3PL.S/A' and to posit that its distribution in Sahaptin is inherited while its distribution in Nez Perce is the result of an analogical extension from marking only third person plural to marking all plural subjects.[25] Note that as **pe-* generalizes to index all plural subjects, the prefix **hi-* '3S/A' generalizes to all third person subjects, so the two now occur as a sequence in Nez Perce: **hi-pe-* '3SG.A-3PL.A' > *hi-pe-* '3A-PL.A'.[26] Given that a modern reflex of **nées* – is attested only in Nez Perce, by analogy to **pe-* '3PL.S/A', we reconstruct **nées-* '3PL.O'. This form would then have been lost entirely in Sahaptin and, following the same pathway as **pe-*, in Nez Perce it would have generalized to index all plural objects. Thus, in our reconstruction, all verbal indexation in Proto-Sah was limited to third person, from which the plural markers expanded in Nez Perce to mark plural A and O of any person (except in the NONLOCAL constructions, which we address separately in § 4.2).

4.1.3 *Case markers*

First, we observe that the Proto-Sah case markers have already been reconstructed by Rude (1997) in much more morphological detail than we can do here. We are completely convinced by Rude's internal reconstruction (p. 116) of Proto-Sah **-ne(n)* as a Pre-Proto-Sah ALLATIVE, which then became a differential object marker via the well-known pathway ALLATIVE > DATIVE > HUMAN.ACCUSATIVE > ACCUSATIVE (cf. Iemmolo 2012 for cross-linguistic parallels). The only real question we would then ask is how far down this pathway the marker had already traveled

24. In contrast, we consider the irregular NONLOCAL patterns in Nez Perce to be quite significant for reconstruction, as they plausibly represent retentions from the system that existed prior to the introduced regularity.

25. It is perhaps not coincidental that the plural prefixes have extended to index SAP core arguments in Nez Perce, where the second position enclitics are much less frequently used.

26. We note here that this reconstruction must address the attestation of the prefix *i-pa-* '3PL.A' in the speech of Sahaptin elders in Umatilla (Rigsby & Rude 1996: 675). Given that Sahaptin and Nez Perce have been in contact in Umatilla for many years, we consider it possible that this combination came about in Sahaptin due to contact.

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before the separation of Nez Perce and Sahaptin. While Nez Perce has arrived at the end of the chain, with every O obligatorily case-marked accusative, Sahaptin remains at the third stage (always mark accusative on pronoun objects, almost always on human objects, but only on especially topical animate and inanimate objects). Given the well-known directionality of this kind of reanalysis, we reconstruct the distribution of the accusative marker in Proto-Sah to the same stage as modern Sahaptin, with the awareness that it could possibly have been less advanced.

The distribution of Proto-Sah *-*nim* 'ERGATIVE' is not so straightforward: given that both languages mark the 3SG.A as ergative in the MIXED INVERSE quadrant, that pattern, at least, is solidly reconstructible to Proto-Sah. However, one could just as easily tell a story that begins with ergative marking on all third person subjects, which then reduces its distribution to third person singular A or (like Rude 1997) one that begins with an ergative marker restricted to third person singular A and that then expands its distribution to include third person plural A. Here, we look for evidence in the morphological behavior of the ergative suffix on singular versus plural nouns. If the ergative were historically found on both singular and plural nouns, then we would expect comparable morphophonological irregularity to be found with both classes in modern Nez Perce. On the other hand, if the ergative only occurred on 3SG.A arguments in Proto-Sah, then we should expect that its relatively recent arrival on plural nouns would correlate with less morphophonological irregularity in the form of the ergative suffix when it marks plural nouns.

Rude (1991) reconstructs the Proto-Sah ergative suffix as *-*im*, with the later addition of a preceding formative syllable -(*n*)/(*ni*). While the modern Sahaptin -*nim* 'INV.ERG' is almost completely consistent and it is the most common allomorph, Rude (1991: 31–4) shows that in Nez Perce, there are several small categories of nouns that take the allomorph -*m* 'ERGATIVE/GENITIVE': certain pronouns; nouns that end in either a short vowel, *l* or *n*; nouns that bear certain suffixes, such as -*me* 'PLURALIZER', -*we* 'HUMAN NUMERAL CLASSIFIER', -*(')áat* 'AGENTIVE', and -*puu* 'GENTILIC'; and a special class of kinship terms that take a -*p* formative before the ergative marker. On this basis, Rude concludes that the Proto-Sah form of the ergative did not contain the formative -*n*, but that its addition came later, in both modern languages. So if the ergative marker had not been present on plural nouns in Proto-Sah, but had been a later innovation exclusively in Nez Perce, we would expect the form of the ergative suffix on plural nouns to be the more recent, regularized form, -*nim* 'ERG'. However, the oldest, most conservative form is what occurs on the pluralizer suffix -*me-m* 'PLURALIZER-ERGATIVE' (Rude 1991: 32). This suggests that plural nouns have taken the ergative suffix for just as long as singular nouns. As such, we find it more plausible to reconstruct the ergative case marker

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-(n)ɨm* 'INV.ERG' on both singular and plural A NPs wherever it occurs in Proto-Sah, and then to say that it was lost on 3PL.A arguments only in modern Sahaptin.

Our reconstructions in the INVERSE, LOCAL, and DIRECT quadrants are summarized in Table 8, where each cell contains only the obligatory elements of each construction.

Table 8. Proto Sahaptian morphology for the direct, local, and inverse quadrants

	2SG.O	2PL.O	1PL.INCL.O	1SG.O	1PL.EXCL.O	3PL.O	3SG.O
2SG.A				*= *em* Ø-V	*= *em* Ø-V	*= *em* *'*e*-V	*= *em* **nées*-V
2PL.A				*= *pem* Ø-V	*= *pem* Ø-V	*= *pem* *'*e*-V	*= *pem* **nées*-V
1PL.INCL.A						*= *??* *'*e*-V	*= *??* **nées*-V
1SG.A	*= *m-ex* Ø-V	*= *pem-ex* Ø-V				= *ex* *'*e*-V	= *ex* **nées*-V
1PL.EXCL.A	*= *m-(et)ex* Ø-V	*= *pem* *(-et)-ex* Ø-V				*= *(et-)ex* *'*e*-V	*= *(et-)ex* **nées*-V
3PL.A	*= *em* **pe*-V *A-*nim*	*= *pem* **pe*-V *A-*nim*	*= *??* **pe*-V *A-*nim*	*= *ex* **pe*-V *A-*nim*	*= *(et-)ex* **pe*-V *A-*nim*		
3SG.A	*= *em* **hi*-V *A-*nim*	*= *pem* **hi*-V *A-*nim*	*= *??* **hi*-V *A-*nim*	*= *ex* **hi*-V *A-*nim*	*= *(et-)ex* **hi*-V *A-*nim*		

From this starting point, the attested Sahaptin patterns require five innovations: (i) loss of the '3PL.O' prefix, (ii) semantic shift of **'e-* '3SG.O' > '3O', (iii) extension of the inverse prefix **pé-* (which we reconstruct in § 4.2) to the situation where 2SG.A→1SG.O, (iv) extension of the clitic combination *= *m = (et)ex* '2SG.O = 1PL.A' to replace the two 1A→2PL.O enclitic combinations, and (v) loss of the ergative suffix on 3PL.A. The attested Nez Perce patterns also require five innovations: (i) restriction of second position clitics to follow only a few particles, (ii) generalization of the 3PL.S/A and 3PL.O prefixes to index also first and second person plural A and O, (iii) generalization of the 3SG.S/A and 3SG.O prefixes to index all third person subjects and objects, respectively, regardless of number, (iv) extension of the clitic combination *= *pem = ex* '= 2PL.O = 1SG.O' to replace the two 1PL.A→2SG.O enclitic combinations, and (v) requirement of the cislocative suffix for all 2A→1O situations. We turn now to the more complex situation in the NONLOCAL quadrant.

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4.2 Reconstructing the Proto-Sahaptian NONLOCAL quadrant

As laid out in Table 9, the nonlocal quadrant in Sahaptin is characterized by four distinct constructions, and in Nez Perce by two distinct constructions. These six nonlocal constructions are arranged in the table in columns to facilitate our reconstruction of four distinct constructions to Proto-Sah.

Table 9. The nonlocal constructions in both Sahaptin and Nez Perce

	Sahaptin NONLOCAL DIRECT	**Nez Perce** DETRANSITIVE	**Sahaptin** NONLOCAL INVERSE_2	**Sahaptin** NONLOCAL INVERSE_3	**Sahaptin** NONLOCAL INVERSE	**Nez Perce** TRANSITIVE
3SG.A→	*i*-V	*hi*-V			*pá*-V	*pée*-V
3SG.O	A-Ø	A-Ø			A-*in*	A-*nim*
	O(-ACC)	O-Ø			O-ACC	O-ACC
3SG.A→	*i*-V	*hi*-V		= *pat*	*pá*-V	*hi-nées*-V
3PL.O	A-Ø	A-Ø		*i*-V	A-*in*	A-*nim*
	O(-ACC)	O-Ø		A-*nim* (O-ACC)	O-ACC	O-ACC
3PL.A→	*pa*-V	*hi-pe*-V	= *pat*			*pée*-V
3SG.O	A-Ø	A-Ø	*á*-V			A-*nim*
	O(-ACC)	O-Ø	A-Ø			O-ACC
			O-ACC			
3PL.A→	*pa*-V	*hi-pe*-V	= *pat*			*hi-nées*-V
3PL.O	A-Ø	A-Ø	*á*-V			A-*nim*
	O(-ACC)	O-Ø	A-Ø			O-ACC
			O-ACC			

4.2.1 *The *NONLOCAL DIRECT construction*

The leftmost two columns of Table 9 are clearly cognate, identical in the lack of a second position clitic, lack of case marking on the 3A, and presence of a reflex of **hi*- '3SG.S/A' on the verb with a singular subject. They differ in the capacity of the O to take an accusative case marker (yes for Sahaptin, no for Nez Perce) and in the same distinct patterns of indexation for the third person plural subject that we saw above in reconstructing the *MIXED INVERSE construction. Using the same logic as in § 4.1, we reconstruct only **pe*- '3PL.NOM', with Sahaptin conserving this pattern in that cell of the paradigm, while Nez Perce adds **hi*- '3SG.S/A' > '3NOM' to the prior **pe*- '3PL.S/A' > 'PL.NOM'. Rude (1985, 1988) convincingly analyzes the modern Nez Perce construction as a DETRANSITIVE construction, which is grammatically intransitive and functionally an antipassive, in opposition to the regular Nez Perce TRANSITIVE construction (the rightmost column). The evidence for grammatical intransitivity is the absence of ergative case on the agent, absence

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of accusative case on the patient, and absence of the verbal prefix *nées-* 'PL.O' to index a plural patient. However, although the construction lacks all morphological evidence of transitivity, it is always semantically transitive in that the agent and patient are clearly identifiable, and when the patient occurs as an explicit NP, it is unmarked (rather than explicitly marked as an oblique), which in all other constructions is a property associated only with core arguments. Functionally, the contrast between the Nez Perce DETRANSITIVE and TRANSITIVE constructions is in the topicality of the patient, with the O of a TRANSITIVE construction being the secondary topic of the clause whereas the patient of the DETRANSITIVE is nontopical.

Unlike in Nez Perce, the cognate construction in Sahaptin is unquestionably transitive, functionally the unmarked voice, the NONLOCAL DIRECT, in opposition to the three NONLOCAL INVERSE constructions. Like Nez Perce, the verb indexes only the subject, but the core status of both A and O is clear from case marking: first, in Sahaptin all unmarked nouns are core and second, the O has the option of bearing the accusative case marker. Functionally, the difference between the Sahaptin NONLOCAL DIRECT and the NONLOCAL INVERSE constructions is the topicality of O relative to A: the Sahaptin NONLOCAL DIRECT is used for unmarked transitive clauses, in which the A is primary topic and the O is either secondary topic or nontopical, i.e., there is no distinct detransitive construction for the antipassive function. As such, while it is not uncommon for the O in this construction to bear the accusative case marker, it is generally unmarked, and when the O is unmarked the grammar is virtually identical to that of the Nez Perce DETRANSITIVE.

The question we face, then, is whether the Proto-Sah construction was a detransitive voice construction like in Nez Perce, which then became reanalyzed as transitive in Sahaptin, or whether it was a regular transitive construction like in Sahaptin, which then became reanalyzed as a detransitive voice construction in Nez Perce. Since either direction of change would be a reanalysis, we can look to the grammar to give us a clue about the most plausible direction of change. All of the evidence supports the reconstruction of a basic transitive clause which was then reanalyzed in Nez Perce as detransitive. First, there is no specific marker of detransitive voice anywhere in the clause, neither in a special voice morpheme nor in distinct person-marking on the verb. Constructions that begin as marked voice and then evolve into ordinary transitive clauses generally carry their etymological voice markers with them into their new main clause status (cf. various examples in Harris & Campbell 1995: 243–254). Second, all of the synchronically detransitive properties in Nez Perce are also present in Sahaptin, both in the cognate construction and throughout the DIRECT and the INVERSE quadrants as well. Since the same grammar is doing consistent functions throughout all these

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other constructions in both languages, it is more economical to reconstruct them in their consistent functions and then to assume that only this one construction has been reanalyzed in Nez Perce. Third, since we have already reconstructed the Proto-Sah prefix **nées-* '3PL.O' as occupying the same prefix slot as the subject markers, the presence of the subject prefixes would preclude the presence of both object prefixes in the source construction – thus, its absence in the modern Nez Perce construction would be conservative. Given that this construction was reanalyzed as the Nez Perce DETRANSITIVE construction, there would have been no reason for the reanalyzed *nées-* 'PL.O' to be extended into it at a later time. Similarly, there is no reason to think that ergative case marking was present in this construction in Proto-Sah and then lost in both modern languages.

So the first construction that we reconstruct to Proto-Sah is the **NONLOCAL DIRECT* (cf. Table 10), in the function of encoding the unmarked direct/active clause. This source makes sense of all the modern facts, in particular the unmarked status of the "oblique" object in the Nez Perce DETRANSITIVE construction. Note that the only structural change between the Proto-Sah DIRECT and the Nez Perce DETRANSITIVE is the complete absence of the accusative case in the latter. In modern Nez Perce, this is the only 3A→3O construction that lacks ergative case on the A, as well as the only one for which a plural patient does not trigger the prefix *nées-* 'PL.O', but both of these properties would actually reconstruct as conservative, with this construction simply not being one of the targets of the extension of these two morphemes as they expanded into their regular distributions in the other modern Nez Perce constructions.

In light of this historical scenario, consider the relevance of obligatory accusative case marking in the Nez Perce TRANSITIVE construction: since the accusative arose as the extension of an allative (> dative) marker to mark high topicality direct objects, in Proto-Sah, the absence of the accusative would have been a property of less topical direct objects. The most topical patients would already have been selected to occur in the Proto-Sah **NONLOCAL INVERSE* construction (which we reconstruct later as the source of the Nez Perce TRANSITIVE construction). After the separation of the two languages, the Proto-Sah **NONLOCAL INVERSE* construction expanded in frequency and was reanalyzed to become the new unmarked active voice in Nez Perce, leading to its current label, the TRANSITIVE construction. Due to its original inverse function (marking that the O is higher in topicality than the A), from the beginning it would have been used with the most topical patients (i.e., those most likely to be objects marked with the accusative case); as it began to expand its function, it would have first begun to occur with all patients that were secondary topics, thereby leaving the former NONLOCAL DIRECT construction with only the least topical patients (those least likely to have been marked by the differential object marker). At this point, the construction would

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have been ripe for reanalysis as the modern DETRANSITIVE construction, serving the antipassive voice function.

We schematize our reconstruction of the Proto-Sah *NONLOCAL DIRECT construction in Table 10.

Table 10. Reconstructing the Proto Sahaptian NONLOCAL DIRECT CONSTRUCTION

	Proto Sahaptian *NONLOCAL DIRECT	**Sahaptin** NONLOCAL DIRECT	**Nez Perce** DETRANSITIVE
3SG.A→3SG.O	**hi*-V	*i*-V	*hi*-V
	*A-Ø	A-Ø	A-Ø
	*O(-ACC)	O(-ACC)	O-Ø
3SG.A→3PL.O	**hi*-V	*i*-V	*hi*-V
	*A-Ø	A-Ø	A-Ø
	*O(-ACC)	O(-ACC)	O-Ø
3PL.A→3SG.O	**pe*-V	*pa*-V	*hi-pe*-V
	A-Ø	A-Ø	A-Ø
	O(-ACC)	O(-ACC)	O-Ø
3PL.A→3PL.O	**pe*-V	*pa*-V	*hi-pe*-V
	A-Ø	A-Ø	A-Ø
	O(-ACC)	O(-ACC)	O-Ø

4.2.2 *The *3PL.A DIRECT and *3PL.O INVERSE constructions*

Turning to the next two columns of Table 9, the Sahaptin NONLOCAL INVERSE$_2$ and NONLOCAL INVERSE$_3$ constructions have no parallels in Nez Perce. However, it is clear from the grammar of these two constructions that they were actually part of two larger constructions that we have already reconstructed in § 4.1: the grammar of the NONLOCAL INVERSE$_2$ is a perfect match with the grammar of the Proto-Sah *MIXED DIRECT construction and the grammar of the NONLOCAL INVERSE$_3$ is a perfect match with the grammar of the Proto-Sah *MIXED INVERSE construction. In both cases, the two nonlocal constructions simply use the second position clitic *= pat* '3PL' in place of the SAP enclitics in the respective direct and inverse constructions – verbal indexation is identical, with *i-* '3SG.S/A' or *á-* '3O' indexing the other third person participant (and its grammatical role), and the ergative case marker *-nim* marks the 3SG.A in the NONLOCAL INVERSE$_3$ construction (the one with the 3PL.O indexed via the second position enclitic). The question is whether the 3PL enclitic is a Sahaptin innovation or reconstructs to Proto-Sah, and by extension, whether these two constructions are innovations in Sahaptin (created by analogy to the two constructions they so closely resemble) or whether they, too, reconstruct to Proto-Sah and have been lost (along with the 3PL enclitic) in Nez Perce.

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Beginning with the enclitic, it is easier to reconstruct the antecedent to Proto-Sah *= *pet* as a part of an entire set of older free pronouns that entered into both constructions at the same time, rather than positing that a distinct third person plural free pronoun became a late addition to the set of enclitics only in Sahaptin and that then the source pronoun was lost in both languages.[27] In contrast, it is relatively easy to imagine the loss of such a form in Nez Perce, where plural core arguments are today indexed by a verbal prefix regardless of whether they are also indexed by a second position enclitic, and where, in most clauses, no second position enclitic occurs at all.

An additional argument for the relative antiquity of these constructions is the mismatch between their source grammar and their modern functions. First, to be consistent with its grammar (or at least with the function associated with the same grammar in the MIXED INVERSE quadrant), the modern NONLOCAL INVERSE$_3$ construction (where = *pat* '3PL' indexes the O) should have been the standard construction to use when a 3PL.O was more topical than a 3A. While we actually consider this construction merely another instantiation of the Proto-Sah *MIXED INVERSE construction (with the 3PL enclitic instead of a SAP enclitic), to remind us of its distinct status in the modern languages, we reconstruct it as the *3PL.O INVERSE. Similarly, the grammar of the Sahaptin NONLOCAL INVERSE$_2$ construction (where = *pat* '3PL' indexes the A) is clearly just one another instantiation of the grammar of the *MIXED DIRECT construction (again, just substituting the 3PL enclitic for a SAP enclitic), and so by the same reasoning, we reconstruct it as the *3PL.A DIRECT. But when we look at the modern functions of these constructions, we see that the *3PL.O INVERSE construction has virtually disappeared in Sahaptin, where it is a weakly-attested, nearly obsolescent option in the 1930s Klickitat texts and it is attested only once in the modern Yakima texts. Even more dramatically, the modern reflex of the *3PL.A DIRECT construction has undergone a complete reanalysis of function in modern Sahaptin, used not when the 3PL.A is the primary topic and the 3O is the secondary topic (i.e., a direct function), but rather it is used **in opposition** to the NONLOCAL DIRECT construction, in those situations where a 3PL.A occurs with a 3.O that is quite high in topicality. This is the definition of the inverse function given in Thompson (1994: 48).

Now consider the time depth necessary for all of these changes to have taken place: if these constructions were innovated in Sahaptin alone, then we must

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27. The modern 3PL.S/A pronoun in Sahaptin is *pmak* (cf. Table 2), whereas Nez Perce uses the same form, *'ime*, for both 2PL.S and 3PL.S, so we see no ready source that could have been pressed into service for a recent innovation.

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believe all of these changes happened in the short time since Sahaptin separated from Nez Perce: (i) the innovation of a 3PL enclitic, (ii) the innovation of Pre-Sahaptin *3PL.A DIRECT and *3PL.O INVERSE constructions (on the model of the *MIXED DIRECT and *MIXED INVERSE constructions), (iii) the shift of function from the *3PL.A DIRECT to an inverse function, (thereby becoming the modern NONLOCAL INVERSE$_2$), putting it into competition with the *3PL.O INVERSE construction, leading to (iv) the loss of the *3PL.O INVERSE > NONLOCAL INVERSE$_3$ construction in most modern dialects. However, if both constructions already existed in Proto-Sah, then only the last two changes need to have happened between Proto-Sah and Sahaptin, and in Nez Perce, we need posit only the loss of the 3PL enclitic, which would have automatically eliminated both constructions in the modern language. While either scenario is certainly possible, the latter scenario seems much more likely, and (as we will see later in § 4.2 and § 5), it also helps in understanding the observed changes in other constructions.

In Table 11, we summarize our reconstructions of the Proto-Sah *3PL.A DIRECT and the *3PL.O INVERSE. Note that one consequence of these reconstructions is that, once again, we are obliged to reconstruct ergative case marking when 3SG.A→3PL.O (the *3PL.O INVERSE construction), but we are also obliged to reconstruct the **absence** of ergative case marking for 3PL.A→3O (the 3PL.A DIRECT construction).

Table 11. Reconstructing the Proto Sahaptian *3PL.A DIRECT and *3PL.O INVERSE

	Proto Sahaptin *3PL.A DIRECT	**Sahaptin NONLOCAL INVERSE$_2$**	**Proto Sahaptian *3PL.O INVERSE**	**Sahaptin NONLOCAL INVERSE$_3$**
3SG.A→3SG.O	–	–	–	–
3SG.A→3PL.O	–	–	*= *pet* **hi*-V *A-*nim* *(O-ACC)	= *pat* *i*-V A-*nim* (O-ACC)
3PL.A→3SG.O	*= *pet* **ʔe*-V *A-Ø *O(-ACC)	= *pat* *á*-V A-Ø O-ACC	–	–
3PL.A→3PL.O	*= *pet* **ʔe*-V *A-Ø *O(-ACC)	= *pat* *á*-V A-Ø O-ACC	–	–

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4.2.3 *The *NONLOCAL INVERSE construction*

This brings us to the final two columns of Table 9, containing the most anomalous of these constructions, the Sahaptin NONLOCAL INVERSE and the Nez Perce TRANSITIVE. Beginning with the Nez Perce TRANSITIVE, we first observe that there is no second position enclitic and case marking of both A and O is obligatory, A with *-nim* 'ERG' and O with *-ne* 'ACC'. However, there is an inconsistency in verbal prefixation, which motivates us to separate the construction into two different columns in Table 12: in the TRANSITIVE_2 column (where 3A→3PL.O), the prefix sequence *hi-nées-* '3A-PL.O' occurs, whereas in the TRANSITIVE_1 column, the verb bears the prefix *pée-* '3A.3SG.O', the only form that has no counterpart elsewhere in the Nez Perce paradigm of personal prefixes. Given the widespread analogical leveling we posited elsewhere in the Nez Perce prefixal paradigm, the two person prefixes in the Nez Perce TRANSITIVE_2 column could readily be seen as two more cases of analogical extension. Since we posit that Nez Perce *hi-* '3S/A' and *nées-* 'PL.O' were introduced into this construction by analogy, they do not serve as input into further reconstruction of the Proto-Sah construction.

The Sahaptin NONLOCAL INVERSE construction is parallel to the Nez Perce TRANSITIVE_1 column in that it has no second position enclitic; instead of a personal prefix, the verb bears a modern reflex of the prefix **pé* - 'INVERSE' and the O is obligatorily suffixed with the expected *-(n)an* 'ACC' case. Unlike in Nez Perce, in Sahaptin the 3SG.A is obligatorily marked with the anomalous case suffix *-in* 'OBV.ERG'. We agree with Rude (1985, 1997) in reconstructing the prefix **pé-* 'INVERSE' to Proto-Sah and we agree with Beavert & Jansen (2013) in reconstructing the case marker **-in* to Proto-Sah in this ergative function (more on this in § 5). In Sahaptin, the grammatical elements of the Proto-Sah construction would have remained unchanged. In becoming the Nez Perce TRANSITIVE construction, **-in* 'OBV.ERG' would have been analogically replaced with the standard ergative suffix *-nim* 'ERG'; then, in both situations where 3A→3PL.O, the prefix **pé-* 'INVERSE' would have been replaced by the analogical spread of *hi-nées-* '3S/A-PL.O-'. One detail that we do not understand in modern Nez Perce is why the *pe-* 'PL.S/A' does not also extend into the situation where 3PL.A→3PL.O. We only observe that (i) **pe-* '3PL.S/A' was not present in this cell in Proto-Sah, so therefore (ii) the analogical spread of **pe-* '3PL.S/A' must have stopped before it reached this cell, leaving the modern Nez Perce TRANSITIVE construction with no distinction between 3SG.A→3PL.O and 3PL.A→3PL.O.

Although the forms reconstruct readily to a Proto-Sah *NONLOCAL INVERSE construction, reconstructing the distribution and function of that construction requires more work: in Sahaptin, the entire construction is only found when

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Table 12. The Proto Sahaptian *NONLOCAL INVERSE CONSTRUCTION

	Proto Sahaptian NONLOCAL INVERSE$_2$	Sahaptin NONLOCAL INVERSE$_3$	Nez Perce TRANSITIVE$_1$	Nez Perce TRANSITIVE$_2$
3SG.A→3SG.O	**pé*-V *A-*in* *O-ACC	*pá*-V A-*in* O-ACC	*pée*-V A-*nim* O-ACC	
3SG.A→3PL.O	**pé*-V *A-*in* *O-ACC	*pá*-V A-*in* O-ACC		*hi-nées*-V A-*nim* O-ACC
3PL.A→3SG.O	**pé*-V *A-*in* *O-ACC		*pée*-V A-*nim* O-ACC	
3PL.A→3PL.O	**pé*-V *A-*in* *O-ACC			*hi-nées*-V A-*nim* O-ACC

3SG.A→3O (either singular or plural); in Nez Perce, the modern reflex of **pé*- 'INVERSE' only occurs when either a singular or a plural 3A→3SG.O. As such, neither language has a clear modern reflex of the source construction when 3PL.A→3PL.O (cf. Table 12, which has an empty cell in the bottom row of both the Sahaptin NONLOCAL INVERSE and the Nez Perce TRANSITIVE$_1$ columns). Given that a modern reflex of Proto-Sah **pé*- 'INVERSE' occurs when 3SG.A→3SG.O (both languages), 3SG.A→3PL.O (Sahaptin), and 3PL.A→3SG.O (Nez Perce), we should reconstruct the entire source construction to all three cells in Proto-Sah. The questions that remain are (i) should we also reconstruct it to the 3PL.A→3PL.O cell, and (ii) how do we explain the gaps in each modern language, where the expected forms do not occur?

Actually, the gaps in Nez Perce are more apparent than real, caused by analogical changes that replaced the inherited morphology with more regular innovative morphology: in all four cells, Proto-Sah **-in* 'OBV.ERG' was replaced with Nez Perce *-nim* 'ERG', and Proto-Sah **pé*- 'INVERSE' was replaced with the agreement prefixes *hi-nées*- '3S/A-PL.O' in the two situations where the O was plural. Note that the same analogical process would have eliminated modern evidence of **pé*- in both of the cells with a 3PL.O, so as far as explaining the modern Nez Perce construction, we would lose nothing by reconstructing the Proto-Sah *NONLOCAL INVERSE construction to the 3PL.A→3PL.O cell as well.

To explain the loss of the Sahaptin NONLOCAL INVERSE construction when 3PL.A→3SG.O, we remind the reader of our prior reconstruction of the Proto-Sah

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*3PL.A DIRECT construction, which we posit shifted from its presumed Proto-Sah function of expressing a direct/active clause with a 3PL.A to become the Sahaptin NONLOCAL INVERSE$_2$ construction. In modern Sahaptin, this has become essentially the only grammatical means to express inverse voice when there is a 3PL.A. Of course, this mechanism would have replaced the NONLOCAL inverse construction equally well when 3PL.A→3SG.O or 3PL.A→3PL.O, so we have an independent mechanism in Sahaptin that would also have eliminated any evidence for a Proto-Sah *NONLOCAL INVERSE construction in the 3PL.A→3PL.O cell.

Having explained the gaps in each modern language, and having seen that the same explanations would also predict the complete loss of evidence for the construction in the one gap shared by both languages (i.e., when 3PL.A→3PL.O), we choose to reconstruct the *NONLOCAL INVERSE construction as having occurred in all four cells in Proto-Sah (cf. the second column of Table 10). In principle, we are not entirely comfortable reconstructing something in the absence of positive evidence, but (i) since we know that all positive evidence would have been destroyed anyway in the modern languages, and (ii) there must have been some base form available to be analogically altered in Nez Perce, we have decided that this is the lesser of evils.

At this point, we return to the incomplete leveling of the morphological paradigm in Nez Perce: it is not difficult to justify reconstructing the Proto-Sah *NONLOCAL INVERSE construction without personal prefixes on the verb, however one might ask what principled explanation we could offer for why **pe-* '3PL.S/A' > *pe-* 'PL.S/A' did not join *hi-* '3S/A' and *nées-* 'PL.O' in extending into the 3PL.A→3PL.O cell in modern Nez Perce, or for that matter, why the same three person prefixes did not extend into the entire TRANSITIVE construction once the inverse function was lost. We must admit that there is some justice to this question, because we cannot tell, just by looking at the paradigms, why some forms have been targeted to change and others have not.

One important property of analogical changes in phonology and morphology is that they seem to begin with the least frequent forms and then spread to increasingly frequent forms, until only the most frequent forms remain unaffected (Bybee 2001: 12). While this distinction was originally observed as a property of high versus low frequency lexical items, it is possible to imagine that, when it became the unmarked nonlocal clause type in Nez Perce, the TRANSITIVE construction became high enough frequency that it resisted the analogical incursion of the person prefixes. It is also the case that in the other constructions, there was no preexisting **pé-* 'INVERSE' prefix to replace, but rather just the addition of the various prefixes to verbs that were either unmarked (i.e., the spread of plural prefixes to verbs in the LOCAL quadrant) or that already had one third person prefix (all the rest of the existing constructions). These are somewhat speculative stories, and

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from our perspective, we care less about explaining why a given morpheme in a given language did not change. Historical linguists greatly value archaisms like the Nez Perce *pée-* '3A.3SG.O' prefix in order to reconstruct prior states, so we are simply grateful at this point that the changes did stop just before replacing the last remaining morpheme in Nez Perce that provides clear evidence for the reconstruction of the Proto-Sah *NONLOCAL INVERSE construction.

4.2.4 *Summary of NONLOCAL constructions*

We have now completed our tour through the reconstruction of the various Proto-Sah nonlocal main clause constructions. To summarize, we reconstruct four NONLOCAL constructions to Proto-Sah: *NONLOCAL DIRECT, *3PL.A DIRECT, *3PL.O INVERSE, and *NONLOCAL INVERSE. In Nez Perce, the *NONLOCAL DIRECT becomes the DETRANSITIVE construction, the *NONLOCAL INVERSE becomes the standard TRANSITIVE construction, and the *3PL.A DIRECT and *3PL.O INVERSE constructions are both lost. In Sahaptin, the *NONLOCAL DIRECT remains the same, the *3PL.A DIRECT becomes the NONLOCAL INVERSE$_2$ used only with a 3PL.A), the *NONLOCAL INVERSE remains the NONLOCAL INVERSE (but is now used only with a 3SG.A, having conceded this function with a 3PL.A to the NONLOCAL INVERSE$_2$ construction), and the *3PL.O INVERSE falls out of use, its function taken over by the combination of the other two inverse constructions.

This set of reconstructions now gives us a better picture of the grammatical alternations available at the time of Proto-Sah, in particular showing us that a number of the hierarchical patterns found today in the grammar of the modern Sahaptian languages were already in place in Proto-Sah. Given that one of the purposes of this volume is to explain the mechanisms by which hierarchical grammar arises in the first place, we need to dig deeper than Proto-Sah. In § 5, we conclude this paper by with a look at some internal reconstructions of Pre-Proto-Sah.

5. Discussion: The sources of hierarchical patterns in the Sahaptian family

We begin with the observation that most of the hierarchical patterns in Proto-Sah arise as a simple consequence of the interactions of the three distinct grammatical elements that are found in all but the *NONLOCAL INVERSE construction: third-person indexation on the verb, second position enclitics indexing SAP (and sometimes 3PL) participants, and restrictions on both ergative and accusative case marking. These are addressed in the following two sections. Then, § 5.3 and § 5.4 present more speculative hypotheses as to the possible sources of hierarchical patterns in Proto-Sahaptian.

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5.1 Pronouns and verbal indexation

The simplest scenario is to posit that the MIXED/3PL.A DIRECT, the MIXED/3PL.O INVERSE, and the LOCAL 1→2 constructions (where both SAP clitics occur in combination) would all arise naturally from the interaction of free pronouns and verbal indexation. Begin with the observation that in Proto-Sah, only third-person A and O are indexed on the verb; these are the only cross-referencing morphemes in the grammar that are specific to grammatical function. This would leave the other participant to be indexed via free pronouns, which would have become the second-position enclitics. In this scenario, without the need of an independent functional motivation, simple reduction in use (Sahaptin) or loss (Nez Perce) of the 3PL enclitic would generate the clean hierarchical pattern predicted by the hierarchy: SAP is indexed in enclitics and third person on the verb.[28] This would be a variant of the mechanism that created the hierarchical indexation system in Reyesano (Guillaume this volume), and the other examples found in Gildea & Zúñiga (2016).

The use of second position enclitics in the 2→1 *LOCAL situation is a bit more interesting, in that we must reconstruct to Proto-Sah the preference for indexing only 2A via the second position clitic when 2A→1O, and this pattern would not be predicted by the general principle "index any SAP participant via an enclitic." Therefore we would consider this pattern to be an innovation, one which looks like it is creating a hierarchy in which 2 > 1. However, any possible role of a universal "hierarchy" in motivating this Pre-Proto-Sah innovation must be weighed against the fact that both modern Sahaptian languages have independently innovated so as to mark (at least some) 2A→1O situations as inverse. In Nez Perce, the suffix *-(i)m* 'CISLOCATIVE' has become obligatory in all four 2A→1O situations, a use which both Rude (1985) and Zúñiga (2006: 166) consider an inverse marker. Similarly, in Sahaptin, the prefix *pá-* 'INVERSE' has extended from the Proto-Sah *NONLOCAL INVERSE construction to mark the verb when 2SG.A→1SG.O. One might think of both these moves as evidence of a later "reversal" of the hierarchical ranking of first and second person, from 2 > 1 in Proto-Sah to 1 > 2 in Nez Perce and 1SG > 2SG in Sahaptin. Alternatively, as pointed out by Heath (1998) and reinforced by DeLancey (this volume), Guillaume (this volume), and Gildea & Zúñiga (2016), interactions between first and second person are clearly driven by competing motivations, and as such, need not be expected to show universal – or in this case, even synchronically consistent – hierarchical patterns.

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28. The non-standard distribution of Nez Perce SAP enclitics and the Sahaptin 3PL enclitic may be illustrating the pattern by which the Nez Perce 3PL clitic was lost.

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In summary, in both modern Sahaptian languages, nearly all hierarchical patterns in personal indexation and verbal morphology appear not to be created in response to sensitivity to some universal hierarchy, but rather to have arisen by ordinary historical changes that just happened to result in patterns that can be interpreted as hierarchical.

5.2 Case marking

Turning to the domain of dependent case marking, the accusative suffix appears to be a prototypical case of an allative > dative suffix extending to differentially mark topical objects, and as such, offers nothing new to diachronic typology. In contrast, the case marker *-*(n)ɨm* 'INV.ERG' that marks 3A in the Proto-Sah *MIXED/3PL.O INVERSE constructions and also *-*in* 'OBV.ERG' that marks 3A in the Proto-Sah *NONLOCAL INVERSE construction would both be quite interesting for diachronic typology if we could identify a source for each hierarchical pattern.

Beginning with *-*(n)ɨm* 'INV.ERG', there are two distinct reconstructions in the literature: Based on the observation that the genitive suffix is identical to the ergative in Nez Perce and quite similar in Sahaptin, Beavert and Jansen (2013) argue that the source of the ergative suffix must have been the genitive, which presumably arrived in its position long ago as part of some reanalysis by which an oblique A became the subject. In this scenario, the ergative suffix on SAP arguments would have been lost via some unknown mechanism prior to Proto-Sah.

In contrast, Rude (1985; 1991, and especially 1997) argues that the ergative suffix originates from the same source as the Proto-Sah verbal cislocative suffix *-*ɨm*, which later collapsed with the Proto-Sah genitive *-*mi* in Nez Perce. Rude additionally argues that the ergative suffix *-*ɨm* comes from the same source as the verbal derivational suffix -*ɨm* 'CISLOCATIVE', which he ultimately links to "an old Penutian verb 'come'" (Rude 1997: 122). The mechanism would be that this ancient verb 'come' would have been serialized with the main verb, from which it could have become a free particle (or perhaps a second position clitic), in which position it followed (and later became bound to) sometimes the agent noun and sometimes the verb itself; in the latter circumstance, it grammaticalized into the cislocative suffix and in the former, it became an ergative marker uniquely when the A was third person and the O a speech act participant.

In favor of this reconstruction, the ergative suffix occurs in Sahaptin almost uniquely when the action flows from a third person agent towards the speech act participants, which is an environment where multiple languages have grammaticalized a venitive serial verb or morphological cislocative into a verbal marker of INVERSE direction (DeLancey 2001; Gildea & Zúñiga 2016). From this starting point, the ergative would have then expanded into the NONLOCAL quadrant

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by the time of Proto-Sah, where we have reconstructed it as occurring in the Proto-Sah *3PL.O INVERSE construction (Table 9, where the 3PL.O is indexed via the enclitic = *pat* '3PL', the prefix *i-* '3SG.S/A' indexes the nominative, and if A occurs as an explicit NP, it must bear *-nim* 'INVERSE.ERGATIVE'). This case marker would have then spread in Nez Perce to replace *-*in* 'OBV.ERG' in the *NONLOCAL INVERSE > TRANSITIVE construction, and with the reanalysis of the *NONLOCAL DIRECT as a DETRANSITIVE construction and the loss of the *3PL.A DIRECT and *3PL.O INVERSE constructions, this resulted in obligatory ergative marking for all 3A arguments in Nez Perce.

Against this reconstruction, we first observe that it would be more consistent with the 'come' > 'INVERSE.ERGATIVE' scenario for the (incipient ergative) direction marker to occur with all A NPs. As explained in DeLancey (2001), the basis of the source construction is to mark that, when the patient of an event is a SAP, the direction of motion – regardless of the identity of the agent – is towards the deictic center of the speech act, and hence it is natural for the venitive/cislocative to occur throughout the LOCAL and INVERSE quadrants. As such, this reconstruction gives no motivation for differential treatment of any A: in Dravidian, Kuki-Chin, and Akatec (Mayan), the old cislocative/venitive marker occurs every time the patient is SAP, including with other SAP agents; in Mollala (Plateau Penutian), the cislocative marks the verb with any first person O, regardless of identity of the A; and in modern Nez Perce, the verbal cislocative suffix appears with any combination of second person A and first person O. By what means did the cislocative become restricted to 3A with a SAP O?

So while plausible in the abstract, this scenario is quite speculative, based on the coincidence of a single phoneme /*m* /in both forms, and lacking support from any case-study we are aware of in the typological/grammaticalization literature where a second-position clitic simultaneously gives rise to a verbal directional marker (such as the CISLOCATIVE) and to a nominal case marker (such as the ERGATIVE). There are plenty of examples of verbs becoming direction affixes, and also of a verbal cislocative affix becoming a verbal INVERSE direction marker, so we do not question this half of the scenario. There are also examples of serial verbs becoming directional adpositions and of directional adpositions becoming case markers. However, Heine and Kuteva (2002: 71–73) list no cases where a simple directional verb COME serves as the source for an adposition. This pathway requires a locative object of that directional verb to become the object of the innovated adposition, e.g. COME FROM > ABLATIVE (p. 71) and COME TO > BENEFACTIVE (p. 73). We have been unable to encounter another case in which a serialized verb 'come', with no syntactic object and without going through a period as a directional adposition, is claimed to become a nominal case marker of a syntactic core argument. Similarly, we are aware of no scenarios where the same verb becomes both a case

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marker and a verbal derivational suffix. While we could imagine the possibility if the source form first becomes an adposition and then later is incorporated into the verb to form an applicative construction (also a well-attested innovation), it seems unlikely that this scenario could be the case in Sahaptian.

In restricting our speculation to scenarios that have support from case studies elsewhere in the typological literature, we could begin by supposing that Pre-Proto-Sah was one of the multiple examples of formerly consistent ergative case marking systems that have lost the ergative case marker in some contexts, becoming split ergative[29] or even losing it altogether.[30] This would allow us to posit that a more general mechanism, like the general reanalysis of an oblique or genitive agent phrase, gave rise to the originally consistent ergative case marking system of Pre-Proto-Sah. Our task then would be to explain the domains in which case marking is lost, first by the time of Proto-Sah, and later in both modern languages. Prior to Proto-Sah, we could observe that the ergative case marker never occurs when the A is indexed by a second position clitic (which is not itself marked for case) – this would remove the ergative from both the direct and local quadrants, as well as from the Proto-Sah 3PL.A direct Construction (Table 11), in which 3PL.A is indexed via the second position clitic. Any other third person A would be case-marked in both the inverse and nonlocal quadrants. Note that this creates the appearance of a hierarchical case marking split so long as one does not look too closely at the constructions that contain the clitic *= *pet* '3PL', which (i) do not have inverse/ergative case on the 3PL.A and (ii) do have the inverse/ergative case on the 3SG.A when *= *pet* references the 3PL.O.

To get from this version of Proto-Sah to the modern languages requires few changes: perhaps motivated by the lack of ergative case on the 3PL.A in the *3PL.A DIRECT > NONLOCAL INVERSE$_2$ construction, speakers of Sahaptin might have been inspired to stop using the ergative case on all 3PL.A arguments, those in both the inverse and nonlocal quadrants, leaving only the 3SG.A marked, and that only in combination with a second position enclitic that indexes O. In contrast, Nez Perce would conserve the ergative in all these environments, replace *-in* 'OBVIATIVE.ERGATIVE' with *-nim*, and then lose the construction with the unmarked 3PL.A when the second position clitic *= *pet* '3PL' is lost.

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29. For an early statement of how ergative case markers are lost, cf. Estival & Myhill (1988: 467–8). For case studies where this has happened, Guillaume (this volume) mentions the example of Tacana (Takanan), and Gildea & Castro Alves (to appear) give the examples of Canela and Suyá (Northern Jê).

30. For a discussion of this phenomenon across several Iranian languages, cf. Haig (2008); for Reyesano (Takanan), cf. Guillaume this volume.

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The only drawback to this otherwise promising scenario is the reconstructible lack of ergative case marking on the 3A of the Proto-Sah *NONLOCAL DIRECT construction (Table 10); if ergative case marking were formerly more general, and this more general distribution is preserved elsewhere in Nez Perce, then how was the ergative case marker lost in this construction by the time of Proto-Sah? Any answer to this question will be, perforce, speculative, but we do have an alternative proposal to offer.

5.3 Passive to inverse

First, we observe that in our reconstruction of Proto-Sah, there is a shared argument structure pattern in the DIRECT and LOCAL quadrants, plus in the *NONLOCAL DIRECT and *3PL.A DIRECT constructions in the NONLOCAL quadrant: A is indexed via either a second position enclitic (SAP and/or 3PL) or is marked on the verb (3SG.S/A, 3PL.S/A), and there is no case marking on an explicit NP A. These constructions could all be reflexes of a Pre-Proto-Sah active clause type. One could contrast the grammar of that (unified) Pre-Proto-Sah active clause type with the grammar seen in the Proto-Sah *MIXED INVERSE and *3PL.O INVERSE constructions: all of these constructions have a second position enclitic that indexes the patient, and the agent must bear a distinct case marker, **(n)ɨm* 'ERG'. It would be unremarkable for this grammar to arise from an older passive construction, in which the (unmarked) second position enclitic was a patient subject and the ertswhile 3A an oblique agent phrase. Such a passive would already have the argument structure found in the Proto-Sah constructions, requiring only three changes to arrive at the reconstructed Proto-Sah constructions: (i) the passive would have to become obligatory in the INVERSE quadrant and not allowed in the DIRECT AND LOCAL quadrants; (ii) whatever morphology originally indicated the passive status of the construction would have to be lost; and (iii) once the erstwhile passive was reanalyzed as a transitive construction, the 3S/A subject prefixes would have to be extended from the NONLOCAL DIRECT construction (an extension reminiscent of the one we posit for the Proto-Sah *3PL.S/A prefixes into the local domain in Nez Perce). As long as we are speculating, if this ancient passive morpheme were a prefix, changes (ii) and (iii) could have been the same change.

Is this speculative scenario plausible in the abstract? Leaving aside the two morphological changes, the first change is found in multiple other languages in North America, which have created the same pattern of a marked 3A only in the INVERSE and NONLOCAL quadrants by reanalyzing a passive voice construction so that it is not allowed in the LOCAL and DIRECT quadrants while becoming the only grammatical construction allowed in the INVERSE quadrant: Mithun (2006; 2012) has documented the spread of the obligatory use of passive in the INVERSE

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quadrant alongside its obligatory absence in the DIRECT quadrant in three unrelated language families in the Pacific Northwest (Wakashan, Chimakuan, and Salishan) and also amongst four unrelated Northern California languages (Chimariko, Yana, Karuk, and Yurok). Although both articles focus on how this pattern spreads through contact (more on this shortly), the original pattern must have arisen independently at least twice. Gildea and Zúñiga (2016) cite the cases mentioned by Mithun, plus the example of Arizona Tewa. Gildea (1994: 224) mentions the case of the *in-* passive in Chamorro (Austronesian; Cooreman 1985), which is not allowed in the DIRECT quadrant and "very strongly preferred" in the INVERSE quadrant (except, for social reasons, when 3A→1SG.O). In addition, Zahir (this volume) shows a parallel development in four Central Salishan languages, where the erstwhile passive cannot be used in the LOCAL and DIRECT quadrants, but it is either obligatory or strongly preferred in the INVERSE quadrant.

The major difference between these scenarios and our speculation about Pre-Proto-Sah is that, in all the well-understood cases (which are diachronically much younger than our proposed Pre-Proto-Sah would be), the erstwhile passive constructions survive in the NONLOCAL quadrant, where they continue to show an inverse-like alternation with former active clause types. In contrast, in Proto-Sah, this putative passive construction would have been lost in all except the (archaic) *3PL.O INVERSE construction. So to make such a scenario more plausible, we would need to seek an explanation for why the putative Pre-Proto-Sah passive would have dropped out of use in the NONLOCAL quadrant. The only plausible explanation for its absence would be if another construction had come along to replace it.

With this in mind, we turn to an exploration of the origins of the Proto-Sah *NONLOCAL INVERSE construction, which, if it were a relatively recent arrival, would be a good candidate for replacing our speculative Pre-Proto-Sah passive in the NONLOCAL quadrant. This construction contains the unique verbal prefix **pé-* 'INVERSE' and the unique case marker *-in* 'OBV.ERG' on an explicit A. The combination of these two anomalous forms in a single construction suggests that we are not seeing two independent cases of analogical extension, but rather that the two arrived together in Proto-Sah as part of a reanalysis that created an innovative construction. The morphological source of **-in* 'OBV.ERG' is obvious: in both modern Sahaptian languages, *-(i)in* is an associative case marker which, like the ergative case marker *-in* in Sahaptin, only occurs on singular nouns.[31] There is no similarly obvious source for the **pé-* 'INVERSE' prefix. We will explore three hypotheses that might bring together antecedents to both in a single construction,

31. For completeness, we also note that there is a homophonous dual marker *-in* on nouns.

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first discussing internal sources **pe-* '3PL.S/A' and **pépe-* 'RECIPROCAL', and then suggesting an external source (§ 5.4).

First, in both modern Sahaptian languages, when the associative argument is a participant with whom a third person subject does some activity, the verb requires a plural agreement prefix (cf. 25 for Nez Perce and 26–27 for Sahaptin).

(25) *kii hipapáayna wewúxye miyáʔciin* (NzP tx, Phinney 1934: 440)
kii hi-pa-páayn-a wewúxye miyáʔc-iin
this 3S/A-PL.S-arrive-PST elk child-ASSOC
'Now Elk arrived with his child.'

(26) *pawíiǩ'ika k'úsiyin* (Y Sah tx)
pa-wíiǩ'ik-a k'úsi-yin
3PL.S/A-be.stuck-PST horse-ASSOC
'He and the horse were hung up there.'

(27) *Patúxshana ǩ'áxnu áyatin.* (Y Sah tx)
pa-túx-sha-na ǩ'áxnu áyat-in
3PL.S/A-return.home-IMPV-PST prairie.chicken woman-ASSOC
'Prairie Chicken came home with his wife.'
or 'Prairie Chicken and his wife came home.'

These examples reconstruct readily to a Proto-Sah *NONLOCAL DIRECT construction: the verb would be required to bear the prefix **pe-* '3PL.S/A' when there is an associative adjunct, which would bear the suffix **-in* 'ASSOC'. However, although the forms **pe-* '3PL.S/A' and **pé-* 'INVERSE' are similar, they are not equivalent prosodically: the inverse prefix carries inherent stress, whereas primary stress in words containing the person prefix is determined by a stress hierarchy (see Hargus and Beavert 2002, 2006 for more information about Yakima Sahaptin stress, and Rude 2012 for a reconstruction of primary stress to Proto-Sah). The mismatch in function is even greater: there is no simple story to motivate the semantic shift of the construction from 'A [with Y-ASSOC] does action (to O)' > 'Y-OBV.ERG does action to O (primary topic).' In particular, this reanalysis would require the loss of a referential A (with whom the associative argument does the action) at the same time that it narrows in scope to those situations in which O is a (primary) topic.

Another possible source of **pé-* 'INVERSE' might be the reciprocal prefix **pépe-* 'RECIPROCAL' (*pápa-* in. Sahaptin and *píi-* in Nez Perce), as speculated by Rude (1985: 150). The reciprocal construction readily occurs with the an associative adjunct, as seen in (28) from Sahaptin.

(28) ***pápa**tkw'anatitwiisha Túulhinch**in***
pápa**-tkw'anáti-twii-sha Túulhinch-**in
RCP-walk-APPL-IMPV túulhinch-**ASSOC**
'He is walking with Tuulhinch.'

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This possible source is intriguing because there are cases in the literature of reanalysis of reciprocal constructions to middle (Janic 2013; Kemmer 1993: 200), and when reflexive/reciprocal morphemes become middles, this is often accompanied by idiosyncratic morphophonological changes (Kemmer 1993; Haspelmath 1990). The prefix **pé-* could have retained primary stress from the reduction of the reciprocal prefix **pépe-* in a reanalyzed construction. There are also cases in which a middle construction is reanalyzed as a passive, and, as mentioned above, passive constructions are uncontroversially one source of inverse constructions.

However, this sort of evolutionary scenario generally takes quite a long time to develop, with a lot of semantic variation in the middle forms (cf. Zahir's contribution to this volume). Also, it generally goes through a stage in which there is no mechanism to express an agent, followed by a stage in which an oblique phrase is conventionalized to indicate a (nontopical) agent, before finally passing through to the stage where the erstwhile oblique agent become the transitive subject (Haspelmath 1990; Givón 1994; 2001; 2009; Heine 2002). In looking at the modern Sahaptian languages, there are no indications that **pé-* has ever served as a middle marker. In addition, we are aware of no well-documented cases where a middle > passive construction has reanalyzed an associative case marker to mark agent of passive – usually the agent phrase is marked as a source, or is extended from some other existing construction where the phrase marks semantic agents (cf. Narrog 2014 for a typological study of this phenomenon). Additionally, as described above, in all the better-known cases of the reanalysis of passive > inverse, the passive becomes obligatory in the INVERSE quadrant rather than NONLOCAL quadrant, whereas the Proto-Sah *NONLOCAL INVERSE is found only in the NONLOCAL quadrant, and never in the INVERSE quadrant. So while the morphology is tantalizingly similar, this scenario, too, is unsatisfying.

5.4 Contact and pattern copying

In the absence of a plausible internal source for the Proto-Sah *NONLOCAL INVERSE construction, and finding nothing comparable in other Plateau Penutian languages, we turn to neighboring languages, in search of an analogous construction that could have been borrowed directly into Proto-Sah, or at least used as a model for "pattern copying", in which a parallel construction might be created using internal morphology. This mechanism of contact-based change is not "borrowing" *per se* (in the sense of Harris & Campbell 1995), in that no morphology is borrowed from a donor language to a recipient language, nor is it "calquing" of a construction, in which native morphology from the recipient language is deployed in the creation of a structural copy of the construction in the donor language. Our inspiration for the notion of "pattern copying" comes from Mithun's (2006;

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2012) examples (mentioned above) of the spread of the pattern in which the passive becomes obligatory in the INVERSE quadrant and disallowed in the DIRECT quadrant; she proposes that these changes are limited to copying patterns of usage. In this kind of change, bilingual speakers would recognize analogous constructions (e.g., a passive) in both languages and then change the pattern of usage in the recipient language so that it more closely resembles the pattern of usage in the donor language. So the recipient languages are not creating new passive constructions on the model of the donor language, but merely taking their pre-existing passive constructions and replicating the pattern of usage of the analogous passive construction in the donor language (cf. Gildea & Zúñiga 2016 for a graphic representation of these changes). Since each language uses its native passive construction in the new function, it is only the hierarchical pattern that spreads by contact, and not the grammatical coding.

With this in mind, our task becomes to see if there is a construction in any neighboring languages that more or less matches the function of the Proto-Sah *NONLOCAL INVERSE construction: it must be used primarily in the NONLOCAL quadrant, in situations where a third person O is highly topical, and ideally more topical than the third-person A. Having found such a construction, we could explore the prospects that a similar pattern-copying phenomenon might have introduced a parallel construction into Proto-Sah, as the source of the *NONLOCAL INVERSE.

Previous literature (especially Hunn & Selam 1990; Kinkade 1995) tell of a history of travel through and across the Cascade mountain range by speakers of Salishan and Sahaptian languages. This is supported by accounts of elders and researchers of extensive intermarriage, trade, and multilingualism. Hunn and Selam suggest that this language contact has been going on for a couple of thousand years, since the expansion of Interior Salish into the region. Northwest dialects of Sahaptin, spoken along the Yakima River and its tributaries, are neighbored on either side by Salishan languages, with Moses-Columbia (Nxaʔamxcín) to the northeast and with Inland Tsamosan languages Upper Chehalis and Cowlitz to the west. Given this long-standing sociolinguistic situation, it is not surprising that there is language-internal evidence for a long history of contact: lexical and grammatical correspondences between Sahaptian and Salishan have long been noted (see e.g. Boas 1940; Aoki 1970; Pharris & Thomason 2005, among others), and we also note that Sahaptin and Nez Perce have many of the features that Kinkade et al. (1998) list as shared by Plateau and Inland Salish languages.

In two highly detailed articles by Dale Kinkade (1989; 1990), he reports on a TOPICAL OBJECT construction found in multiple Salishan languages, including Columbian, Lushootseed, Cowlitz, Upper Chehalis, Quinault and Tillamook. In these Salishan languages, where usually only one participant per clause is expressed

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as an explicit NP, the TOPICAL OBJECT construction allows for clear referent tracking by keeping the role of the (usually unmentioned anaphoric) topic clear, which allows the other participant to be expressed as an unmarked free NP or pronominal without creating ambiguity as to its semantic role. Later in the same articles, Kinkade asserts that this construction has been borrowed into Sahaptin. "Here [in Sahaptin] there is a prefix *pá-* which appears to have functions identical to the Salishan topical object suffixes. It even has the hierarchical function of allowing a second person to be subject of a first-person object.[32] An additional similarity is that in both Salishan and Sahaptin the topical object affix is related to the reciprocal affix. Since the cognate of this prefix in Nez Perce is used differently, it seems reasonable to assume that Sahaptin borrowed the functions from neighboring Salish" (1990: 356). Of course, we have just proposed a different explanation for the change in function of the *pée-* prefix in Nez Perce, which would push the borrowing back to Pre-Proto-Sah, but Kinkade also anticipated this possibility in the more cautious claim he made in Kinkade (1989: 32): "it would not be difficult to conceive of a change in function in either direction."

To Kinkade's list of similar properties we add that, like the Sahaptin NONLOCAL INVERSE construction, the TOPICAL OBJECT construction is found only in transitive clauses, it can be used with animate or inanimate objects, it allows a nonhuman subject to be used with a human object (at least in Upper Chehalis and Cowlitz, cf. Kinkade 1990: 343), and for stylistic purposes it can sometimes be interchangeable with a passive (Kinkade 1990: 359). In addition, Kinkade (1989) reports that the Salishan topical object construction is fairly frequent in texts, seen in 35% of transitive clauses in Upper Chehalis. Functionally, the distinguishing feature of both constructions is that the patient is highly topical, and the list of quirks described by Kinkade (1989) suggests that the Salishan TOPICAL OBJECT construction is also a way of encoding hierarchical relations between participants.

To briefly illustrate the grammar of the TOPICAL OBJECT construction, we give two examples from Upper Chehalis (29)–(30). In (29a–b), the primary topic is the agent of the first clause but the patient of the second clause. To mark the situation where the primary topic is the patient, the verb in (29b) bears the suffix *-wali* 'TO (TOPICAL OBJECT)'. The same suffix marks the verb in (30a), where the primary topic is the patient, but not the verb in (30b), where that same topic is the agent.

(29) a. *s-taláqapi-t-n* *tac* *yáy-n's*
IMPF-call-TR-3SU F.DEF older.sister-3PS
'He calls his sister.'

32. Kinkade (1990: 342) shows this as an unusual function of the TOPICAL OBJECT construction in Upper Chehalis.

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b. *ƛ̓a s-wi-na ʔit mát-**wali*** (Kinkade 1990: 344)
FUT IMPF-be-3PS PF fetch-**TO**
'to come fetch him'

(30) a. *táx^{w}l pósa q̓aɬ qin-s-uucá-**wali***
although ogre MOD want-IMPF-kill-**TO**
'Even if the monster wants to kill him$_{i}$'
b. *wi ɬ t x̣ál-x^{w}* (Kinkade 1990: 345)
and UNR IND defeat-3OB
'he$_{i}$ will overcome him (the monster).'

Kinkade (1989: 28–30) shows in some detail the parallels between the Proto-Salishan topical object suffix **-wali* and reciprocal suffix **-awalx*^{o}, and although he does not reconstruct them to a single Proto-Salishan morpheme, he asserts that they are synchronically indistinguishable in Tillamook, virtually identical following the imperfective aspect suffix in Northern Chehalis, and together form a "minor paradigm" in Columbian. For our purposes, it is irrelevant whether or not these two suffixes come from a common Proto-Salishan suffix, but only that the forms are so similar in modern Salishan languages of the region. Our hypothesis is that speakers who were bilingual in Pre-Proto-Sah and one of the contemporary Salishan languages of the region saw the Salishan speakers apparently using the reciprocal suffix to mark the verb in situations when the object was a continuing topic. They then began to use the the existing reciprocal construction in Pre-Proto-Sah to serve that same function.

Kinkade's hypothesis thus gives a plausible scenario whereby Proto-Sahaptin **pépe-* 'RECIPROCAL' would have begun to mark situations with a topical object, after which that construction would have gone on to become the Proto-Sah *NONLOCAL INVERSE construction, where the prefix subsequently shortened to **pé-* uniquely in this innovative construction. Since the source Salishan construction does not motivate the innovative use of the associative case marker on the agent, for that, we look to the reciprocal construction that would have existed in Pre-Proto-Sah. We assume that, like in the modern languages, the reciprocal construction in Pre-Proto-Sah was grammatically intransitive. This would have prevented speakers of Pre-Proto-Sah from just calquing the entire construction directly from Salishan, where the reciprocal affix on the verb is accompanied by two unmarked core arguments. However, both Sahaptian languages allow an associative adjunct to be added to the reciprocal construction with the meaning of a "co-subject", explicitly identifying another participant who (along with the grammatical subject) is both agent and patient of the reciprocal (for Sahaptin, cf. (26) and for Nez Perce, (31)). This is a common pattern in reciprocal constructions (e.g., Olutec [Zapotec], Zavala Maldonado 2011: 267 and examples in Janic 2013

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from Oceanic and Bantu languages), and so there is no reason to hesitate to reconstruct it to Pre-Proto-Sah.

(31) *kii ék'ex iwépniin píine* (NzP tx, Phinney 1934 tx 31.070)
kii ék'ex iwépn-iin pii-ne
this magpie wife-ASSOC RECIP-say
'Here the magpie and his wife said to each other (let us go gather pine moss).'

Innovative reciprocal constructions have been studied in some detail by Lichtenberk (2000) and further by Evans (2008) and Janic (2013). Among other patterns that they identify, most important for our purposes here are cases in which reciprocal constructions become less specified for semantic roles of the two participants, resulting in what Lichtenberk (2000: 33) calls indicators of "relational plurality." In these situations, the actual semantic roles of the subject and the associative oblique participant are no longer necessarily both agent and patient, and in fact, they are no longer necessarily the same for the subject and the associative argument. Key for our purposes is that such a change accomplishes what we need: in the propositional structure of such a reanalyzed reciprocal construction, the associative participant no longer needs to be understood as associated with (i.e., having the same semantic role as) the subject. In some languages (e.g. Fijian [Austronesian] and Tswana [Bantu], cf. Janic 2013: 254–256), the associative argument becomes an oblique patient (i.e., the construction becomes an antipassive); in Pre-Proto-Sah, the associative appears to have become a marked agent/subject in the innovative *TOPICAL OBJECT > *NONLOCAL INVERSE construction.

Returning to the question of where in this scenario we can identify sources for hierarchical patterns in grammar, we posit that the reciprocal prefix became a marker of inverse direction via a "pattern-copying" expansion of the usage of the Pre-Proto-Sah reciprocal construction, on the model of the apparent use of the reciprocal suffix in the Salishan TOPICAL object construction. By the time of Proto-Sah, speakers no longer saw this as just a "topical object" use of the reciprocal construction, but had reanalyzed the entire construction into something distinct from the reciprocal: the Proto-Sah *NONLOCAL INVERSE construction, in which the reciprocal prefix was reanalyzed and then shortened into the inverse prefix and the associative-marked A was reanalyzed as the transitive subject. In this scenario, there is no obvious stage in which a universal hierarchy might have guided the reciprocal and the associative into their modern hierarchical functions, as a marker of inverse direction and a marker of an obviative 3SG.A acting on a higher topicality O.

5.5 In lieu of a conclusion

Rather than conclude by reiterating our reconstructions, and ranking them according to degree of confidence, we offer a couple of thoughts about what we

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have learned from our work on this puzzle. The first lesson is that the hierarchical grammatical patterns found in Sahaptin come from multiple sources, some (e.g., DOM) well-motivated and others (e.g., second position SAP enclitics) epiphenomenal, some (e.g. the restriction of ergative case marking to third person subjects) still uncertain and others (e.g. the inverse prefix and the obviative-ergative case marker in the *NONLOCAL INVERSE) arguably arising from pattern copying. If there is a single universal hierarchy that somehow motivates all these changes, it must be as messy as the changes themselves.

Abbreviations

ASSOC	associative	NEG	negative
BEN	benefactive	NOM	nominative
CAUS	causative	NZR	nominalizer
CSL	cislocative	OB, OBJ	object
DAT	dative	OBV	obviative
DEF	definite	PF	perfective
DEM	demonstrative	PL	plural
DIR	direct	PN	pronoun
DL	dual	PRX	proximate
ERG	ergative	PS	possessive
EXCL	exclusive	PST	past
F	feminine	Q	question
FUT	future	R	recipient
GEN	genitive	RECP	reciprocal
HAB	habitual	SG	singular
IMPV	imperfective	SU	subject
INCL	inclusive	T	theme of ditransitive
IND	indicative	T	transitive
INST	instrumental	TO	topical object
INV	inverse	TR	transitive
INST	instrumental	TX	text example
LOC	locative	UNR	unrealized
MOD	modal		

Also, for language names:

SAH	Sahaptin	PROTO-SAH	Proto-Sahaptian
KL	Klickitat dialect	Y	Yakima dialect
NZP	Nez Perce		

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CHAPTER 5

Diachrony and the referential hierarchy in Old Irish

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A set of Old Irish clitic person markers may co-index subject or object markers on the verb. Only one clitic of this set may appear at a time, however. The clitic, if present, indexes the verbal argument highest on the scale 1st person > 2nd person > 3rd person animate > inanimate. The restriction of one clitic per verb, a prerequisite for the hierarchy, is explained here as a result of the deictic origin of the clitic set. The deictic origin further favors the marking of local persons over non-local persons. For the upper and lower end of the hierarchy, however, the ranking appears to be determined rather by considerations of function. Since the clitics can mark topics, they favor 1st persons over 2nd and animates over inanimates.

1. Introduction

Old Irish (c. 700–950 CE) has a set of clitics (traditionally called *notae augentes*) with the following forms:[1]

1. Early Old Irish has phonemic palatalization in all positions, but this is lost in clitics at the dawn of the written record (around 700 CE). From this point, the quality of the sound preceding the *nota augens* determines the quality of the initial consonant of the *nota*, which in some cases further influences the following vowel. For example, one may compare 1SG. *nota* in (1a) and (3a). In (1a) *sa* is pronounced [sa] because it follows a non-palatalized sound in *sóirad* [soirəð], while in (3a) *se* is pronounced [sʲe] or perhaps [ʃe] because it follows a palatalized sound in *cimbid* [kʲimʲbʲəðʲ].

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Table 1. The *notae augentes*

1SG	*-sa* / *-se* (once *-sea*)	1PL	*-nai* / *-ni* (once *-sni*)
2SG	*-so*, *-su* / *-siu*	2PL	*-si*
3SG.M/N	*-som*, *-sum* / *-seom*, *-sium* (rarely also *-sa*)	3PL	*-som*, *-sum* (rarely also *-sa*)
3SG.F	*-si*		

The *notae augentes* may appear (*GOI* 252–3):

- after a noun, agreeing with a preceding possessive pronoun; as in (1);
- after a personal pronoun or conjugated preposition; as in (2);
- as the subject in copular sentences (where the copula may or may not be overtly present); as in (3);
- after a verb, agreeing with either the subject or object, which are indexed by verbal affixes; as in (4).

(1) a. *tri-m=sóirad=**sa*** Ml. 89[a]2
through-1SG=deliverance.ACC.SG=**1SG**
'through my deliverance'

b. *a=socht=**som*** Ml. 92[a]7
3PL=silence.NOM.SG=**3PL**
'their silence'

(2) a. *indib=**si*** Ml. 18[a]8
in(to).2PL=**2PL**
'to you'

b. *is=tu=**ssu*** Ml. 106[d]2
COP.3SG=2SG=**2SG**
'it is You'

(3) a. *am=cimbid=**se*** Wb. 27[c]22
COP.1SG=captive.NOM.SG=**1SG**
'I am a captive'

b. *is=día=**som*** Wb. 1[a]2
COP.3SG=god.NOM.SG=**3SG.M/N**
'he is God'

c. *maic=**ni*** *do=**som*** Wb. 19[d]8
son.NOM.PL=**1PL** to.3SG.M/N=**3SG.M/N**
'we are sons of his'

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(4) a. *amal ro-t=gád=**sa*** Wb. 27[d]19
as PRV-2SG.OBJ=pray.1SG.PRET=**1SG**
'as I have besought you'

b. *ro-m=lēicis=**se*** Ml. 44[b]10–11
PRV-1SG.OBJ=leave.2SG.PRET=**1SG**
'you have left me'

c. *do-n=gēnae=**siu*** Wb. 32[a]25
PRV-3SG.N.OBJ=do.2SG.FUT=**2SG**
'that you will do it'

d. *for-tat=tēt=**siu*** Ml. 43[b]11
PRV-2SG.OBJ=help.3SG.PRES=**2SG**
'it helps you'

e. *for-ta=comai=**som*** Ml. 29[a]3
PRV-3SG.F.OBJ=preserve.3SG.PRES=**3SG.M**
'he preserves it'

f. *ind=hūall ro-d=n-gab=**som*** Ml. 61[a]1
DET=pride.NSG PRV-3SG.M.OBJ=NAS-take.3SG.PRET=**3SG.M**
'the pride which had seized him'

The *notae* are always optional and appear only where person and number are already marked elsewhere in the clause.[2] The alternate form *-sa* of the 3SG. M./N. and 3PL. appears almost exclusively in a few early texts. Since it is generally rare, it cannot be established with certainty that it has exactly the same distribution and force as the more common *-som*, but the assumption is reasonable and will be used in what follows.[3]

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2. The only exceptions to this statement are the relatively rare examples like (3c), with elided copula. In the Würzburg and Milan glosses (Wb. and Ml.; our earliest large corpora), there are 3 such examples without the copula beside 73 with the copula. The elided copula in (3c) was *ammi(n)*, as the following example illustrates:

ammi=cland=ni doib=som Ml. 101[d]9
COP.1PL=offspring.NSG=1PL to.3PL=3PL
'we are their offspring'

3. Though the *communis opinio* is that *-sa* is early, Carey (1995: 81–82) argues that it is a diatopic variant located in the Irish Midlands. The two positions are not necessarily incompatible with one another, since the texts with the *-sa* variant are both old AND probably from the same area. In this chapter, it is assumed that *-sa* is in the first instance archaic. That is, it previously had a wider distribution but was being lost at the beginning of the written record. If Carey is correct and *-sa* is a diatopic variant, it would mean that *-sa* was simply preserved longer in one area than in the rest.

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In this context, another set of anaphoric clitics with a similar distribution must be mentioned as well. The 3rd person clitic *-side* appears:

- after a noun, agreeing with a preceding possessive pronoun; as in (5);
- after a personal pronoun; as in (6);
- as the subject in copular sentences (where the copula may or may not be overtly present); as in (7);
- after a verb, agreeing with either the subject or object, which are indexed by verbal affixes; as in (8).

(5) uita aeterna *is=hé* *a=dúlchinne=**sidi*** Wb. 3[b]18
life eternal COP.3SG.PRES=3SG.M 3SG.M/N=reward.NOM.SG=**3SG.M/N**
'eternal life, this is its reward'

(6) *it=hé=**side*** *imma=folgnet* *imdibe* Wb. 27[a]13
COP.3PL.PRES=3PL=**3PL** PVB.REL=cause.3PL.PRES circumcision.ACC.SG
'it is they which effect circumcision'

(7) a. *is=éola=**side*** Wb. 1[a]4
COP.3SG.PRES=knowing.NOM.SG=**3SG.M**
'He is knowing'

b. *dalte=**side*** *do=som* Wb. 23[a]11
pupil.NSG=3SG.M to.3SG.M/N.=3SG.M/N.
"he was a pupil of his"

(8) a. *ma* *nī=comollnither=**side*** Wb. 2[c]17
unless NEG=fulfill.3SG.SBJV.PASS=**3SG.M**
'unless it (the Law) be fulfilled'

b. *is=dīa* *co-ta=óei=**ade*** Wb. 29[d]29
be.3SG.PRES=God.NOM.SG PVB-3SG.F.OBJ=preserve.3SG.PRES=**3SG.F**
'it is God who preserves it'

The distribution is exactly the same as that of the *notae augentes* (see above and compare (1)–(4)) apart from the position after prepositions. After prepositions, tonic forms *suide* / *sodain* are used alone, i.e. without other person and number marking.[4]

4. For a full discussion of the paradigm and distribution of this anaphoric clitic set, see Griffith (2013). As just noted, tonic forms of *suide* are used with prepositions (e.g. *co=**suide*** 'to him' Ml. 42[a]6), but as early as the St. Gall glosses (Sg.) we find the use of the clitic *-side* after conjugated prepositions:

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Having discussed this necessary background material, I will now turn to the primary topic of interest here: the *notae augentes* when attached to verbs. While it had usually been assumed that the *nota* in such cases could simply emphasize whichever element (subject or object) required emphasis, I observed (Griffith 2008) that when attached to a verb with an object affix, the *nota augens*, if present, must agree with whichever verbal argument appears highest on the following scale:

1st person > 2nd person > 3rd person animate > 3rd person inanimate

There is little direct evidence for the differentiation of animate and inanimate, but the distinction fits the data. It also accords well with the more general observation (Griffith 2008, *GOI* 253–4, 272) that *notae* refer (almost) exclusively to animates.

While the hierarchy is an established fact of Old Irish, an open question is how it arose. Griffith (2011) attempted to answer the question, but there are some problems with that account (see below), and the question will be taken up anew here. A few basic points can be made at the outset. There are two separate issues to be addressed. First, there is the restriction by which only one *nota* may be attached to a verb. As can be seen above in (4), the *nota* may index the subject (exx. (a), (c), and (e)) or the object (exx. (b), (d) and (f)), but never both in the same sentence. That is, there can be only one *nota* per verb. This restriction is clearly not the result of a limit on clitics generally, since both subject and object can be indexed by a verbal clitic if the subject is indexed by a *nota* and the object by a member of the above-mentioned anaphoric clitic set:

(9) *ro-s=failigestar=**som**=**sidi*** Wb. 31[a]9
PRV-3SG.F.OBJ=manifest.3SG.PRET=**3SG.M=3SG.F**
'he has manifested it (the word=fem. *bríathar*)'

There must be another explanation for the limitation of one *nota* per verb. This restriction is, however, a prerequisite for the observed hierarchy effects.[5] The

*fuiri=**sidi*** Sg. 199[a]5
on.3SG.F=**3SG.F**
'on it'

The older form would have been **for=**suidi***. In Sg., then, the distributions of the *notae augentes* and the anaphoric clitic set are beginning to become exactly parallel.

5. As Peter Schrijver has pointed out to me, a hierarchy would in principle still be possible even if two *notae* were permissible on a verb (e.g. if the order of the elements were determined by a hierarchy), but such a hierarchy would look rather different than the one found in Old Irish. It is for that reason that I still refer to the restriction of one *nota* per verb as a necessary condition for the hierarchy as evidenced in Old Irish.

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second issue, assuming one can explain the restriction of one *nota* per verb, is why this single *nota* necessarily indexes the argument highest on the person scale, i.e. why it follows this particular version of the referential hierarchy.

Contrary to usual practice, I will not now turn to previous analyses before proceeding to a new one. The only previous analysis (Griffith 2011) will be discussed further below.

2. One *nota* per verb

2.1 The prehistory of the paradigm of the *notae augentes*

As just noted, a successful explanation must explain why only one *nota* may appear attached to a verb, and it must explain why that single *nota* follows the hierarchy outlined above. The restrictions will be tackled in turn.

In order to understand why only one *nota augens* can appear on a verb, it is important to understand the prehistory of the individual forms. The paradigm of the *notae* contains forms of varied backgrounds: the 1SG and 2SG are of deictic origin, while the 1PL, 2PL and 3SG.F are of pronominal origin. Finally, the 3SG.M/N and 3PL have two forms: the form *-sa*, which is restricted to some early texts and is probably of deictic origin;[6] and the more common form *-som*, which originally meant 'the same (one)' (cognate with English *same*, Gr. ὁμός 'id') and most likely functioned as a continuing topic marker (see below). While it may seem odd for such a disparate group of forms to be cobbled together as a paradigm, things fall into place quite cleanly if we start with the forms that have a deictic background.

Though there are other suggestions in the literature (McCone 1994: 189, 2006: 215ff.; Sims-Williams 1984: 151; *GOI* 282), the most plausible explanation for the 1SG and 2SG of the *notae augentes* is that they were originally deictics that became associated with person indexing before developing into pronouns (Schrijver 1997: 18–25; Griffith 2010; Lambert 2012). As noted above, 3SG.M and 3PL *-sa* most likely also has a deictic origin. The arguments in favor of the development from deictic to pronoun will be recapitulated here briefly.

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6. It is probable that the *-sa* found in the 3SG.M/N and 3PL is the same form as 1SG *-se*. As seen above (footnote 1), *-sa* and *-se* are variants of one another in Old Irish. That the attested forms of 3SG.M/N and 3PL are always *-sa* and never *-se* is probably due to the small number of examples (about a dozen) and the fact that they all happen to follow non-palatalized consonants and non-front vowels, which are the environments favoring *-sa* over *-se*. There is thus no obstacle to, though also no certain proof of, the identity of 1SG *-se* and 3SG.M/N and 3PL *-sa*.

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First, it can be observed that there are ample cross-linguistic parallels for deictics developing into pronouns. For the 3rd person, the development is hardly surprising. For the local persons, the development is rarer, though well-documented. For more information, see Hagège (1993: 216–217) and Heine & Song (2011: 607–610), who document proximal and distal deictics developing to 1st and 2nd person pronouns, respectively. Next, it should be noted that Old Irish has several deictics, two of which, *so* < Insular Celtic **so-* and *se* < Insular Celtic **si̯o-*, are of primary interest here.[7] Although their meanings are difficult to pinpoint, it appears that both have proximal meaning 'this' in Old Irish (see below and Griffith 2010: 112). In their purely deictic function, *so* and *se* are used in various contexts, most often in noun phrases, but also in prepositional phrases and occasionally alone: *in=fer=so* 'this man (lit. the=man=this)' or *ar=se* 'therefore (lit. because=this)'.

Deictic particles can often be used together with pronouns of the first and second persons (cf. Engl. *you there* or German *du da*). In the older Indo-European languages such usage is well-documented for the Indo-Iranian, Greek, and Anatolian branches (see Jamison 1992; Hock 1997a; b; Dunkel 1990; 1997; Klein 1996; 1997; Watkins 2000; Melchert 2016). The phenomenon can be most clearly seen in Vedic, where combinations of the demonstrative (*sá* 'this, the') or the deictic pronoun (*ayám* 'this' and *asáu* 'that') with pronouns and verbs of the 1st and 2nd persons are found.[8] The following examples show the demonstrative with overt (10) and null (11) pronoun. In the case of the null pronoun, the only marker of person is in the verbal ending.

(10)	***táṃ***	*tvā*	*vayáṃ*	*havāmahe*	RV 4.32.13c
	DET.**ACC.SG.M**	you.**ASG**	we.NPL	beseech.1PL.PRES	
	'we beseech you (here)'				

7. This is not the place for a lengthy treatment of the etymologies of these particles, which have been examined extensively elsewhere. For details, see Schrijver (1997: 17–28), who argues that they ultimately continue Proto-Indo-European forms, though some details are not entirely straightforward. Schrijver (1997: 31–33) also reconstructs the preform of the anaphoric *-side* / *suide* as **so-de-so-*, which contains as its initial element the same form found in OIr. *so* < **so-*.

8. It should be noted that the commonest combination is of *sá* with 2nd person, although other combinations are also found (1st person with *sá* or *ayám* and 1st or 2nd person with *asáu*). The deictic is inflected fully for number and case and can appear with a zero pronoun (agreeing with the verbal subject; as in (11) above), with a clitic personal pronoun (as in (10) above) or with a fully stressed personal pronoun (not exemplified here; see Jamison 1992 for examples).

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(11) ***sá*** *gíro* *juṣ**asva*** RV 10.69.3d
DET.**NOM.SG**.M praise.APL enjoy.2SG.IMPV
'(you here) enjoy the praises!'

It is thinkable that if cases like (11) were common enough, the particles *sá*, *ayám*, and *aláu* in Vedic could change from demonstratives or deictics to pure person markers. The change did not, in fact, occur, but it is a plausible one. Viewed in that light, the Old Irish *notae augentes* could very well have had their origin in deictic particles. Examples (12) and (13) parallel the Vedic ones with overt and null pronouns:

(12) *am*al=*as*=***me*=*sse*** Ml. 94^{b}7
as=COP.3SG.REL=1SG=1SG
du-da=forsat *inna=dūli*
PRV-3PL.OBJ=create.3SG.PERF DET=element.APL
'as it is I who created the elements'

(13) *ro=ded**us**=**sa*** Ml. 44^{d}10
PRV=melt.**1SG**.PRET=**1SG**.
'I melted away'

Since Old Irish tonic pronouns have a very limited distribution (only as predicates in cleft sentences or as left-dislocated hanging topics, but never as verbal subject or object), the way was open for the *notae augentes* to receive pronominal interpretation.

If this explanation is correct, then a deictic system developed into a pronominal system sometime in Pre-Irish. We might expect this new pronominal system, like the deictic system from which it developed, to be indifferent to number. However, given that all other pronominal paradigms in Old Irish rigorously differentiate number (cf. the tonic pronouns in Table 2), it is perfectly reasonable to assume that the newly pronominal *notae augentes* (the former deictics) introduced a distinction of number.

Table 2. The tonic pronouns of Old Irish

	Sg.	**Pl.**
1.	*mé*	*sní*
2.	*tú*	*sí*
3M.	*é*	
3F.	*sí*	*é*
3N.	*ed*	

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If a pronominal paradigm were to introduce number where it had not existed before, the question to be asked is how this would have been accomplished. It appears that new forms for the *notae augentes* were created for the local plural pronouns and 3SG.F by importing forms from the tonic pronoun paradigm (see Table 2) and de-accenting them. The development can be envisioned as in Table 3:

Table 3. The development of the *notae augentes*

Pre-*notae augentes* as deictic system				***notae augentes* as pronouns**	
	Sg. and Pl.			Sg.	Pl.
1.	*-se*		1.	*-se*	*-(s)ni*
2.	*-so*	→	2.	*-so*	*-si*
3.	*-sa*		3.	*-sa* (Fem. Sg. *-si*)	

The more basic members of the paradigm maintained their inherited morphological form, while the less basic members of the paradigm innovated.

Later, *-sa* was replaced by *-som*, as noted above. The primary motivation for the replacement of *-sa* by *-som* in the third person was probably the fact that the tonic pronouns, on which the paradigm of the *notae augentes* is partly based, distinguished 1SG from 3SG.M/N and 3PL, thus leading to the introduction of a distinction in the *notae* via the importation of *-som*. This explanation holds regardless of whether 3SG.M/N and 3PL *-sa* and 1SG *-se* are indeed the same form historically, or not, since even if they were not the same form, the two would in any case have become homophonous in Early Old Irish by regular sound change. The upshot is that the 3SG.M/N and 3PL followed the model of the tonic pronouns and introduced a new form, *-som*.[9]

Neither *-sa* nor *-som* distinguishes between 3SG.M, 3SG.N, and 3PL. For the 3PL and 3SG.M, the tonic forms are the same (see Table 2), and thus the *nota* of the 3PL was under no pressure to analogically generate a new form. On the other hand, the 3SG.N would presumably have been under pressure to create a separate *nota*, since the tonic pronouns have a separate 3SG.N form *ed*. As it happens, there is no separate 3SG.N *nota*. The critical fact is that a masculine and neuter of *-som* would probably not have been differentiable in the first place: *-som* was in origin an

9. Why specifically *-som* was chosen, rather than some other form, is difficult to say. The answer probably lies in the fact that it had some overlap in function with the *notae augentes*. That is, *-som* 'the same (one)' was well suited to mark topics, and topic marking was one of the functions of the *notae augentes* (see below).

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o-stem[10] substantived adjective 'the same (one)', and formal differences between masculine singular and neuter singular would not have been present in Old Irish for this inflectional class except via mutation effects on a following word. Since the *notae* do not cause mutation on following words, masculine and neuter would be formally identical. Furthermore, even if there had been a separate marker for neuters, it would only have appeared very rarely, since the *notae* seldom mark neuters. Based on the table in Griffith (2008: 53), about 1.5% of the total instances of 3SG *-som* co-index neuters. Any separate neuter marker, had it ever existed in the first place, could simply have been lost in the flood of non-neuter markers.

We may now summarize what has been argued for thus far. The primary locus of the paradigm of the *notae augentes* are the deictics *so* < **so*- and *se* < **si̯o*- (and possibly *sa* if it is not the same as *se*). All other forms are secondarily imported from the tonic pronouns or, in the case of *-som* in the third person, from other non-personal pronouns.

2.2 The function of the *notae augentes*

Before turning to the restriction of one *nota augens* per verb, we must examine one more issue: the function of the *notae*. In practice, it is very difficult to determine their function with any precision, especially in the case of the local persons. The traditional assumption (*GOI* 251), which is clear in the Latin name of the clitics, has been that they provide additional emphasis. While this is an extremely vague concept, it does appear that the *notae* express some degree of emphasis, frequently contrastive:

(14) *os=me=**se*** *oc=taircitul* *cech*
and=1SG=**1SG** at=prophesying.DSG every.GEN.SG
maith *doib=**som*** Ml. 54[c]30
good.GSG to.3PL=**3PL**
'(they used to inflict every evil and tribulation on me,) though I (was) prophesying every good to them'

In this function, more than one *nota* could be present in a sentence (see (14) as well as (3c) and footnote 2). At the same time, however, the 3rd person *notae* also show clear indications of marking the topic (Griffith 2011; 2013: 67–70; see also below), which follows quite straightforwardly from the standard explanation of *-som* as originally meaning 'the same (one)'. Less clear is whether the *notae* of local persons also mark topic, since very few texts have the correct narrative structure to test this. While there is still significant work to be done on the function of the

10. See *GOI* (223) for the inflection.

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notae augentes, it seems clear that they have contrastive emphasis as well as topic-marking functions.[11]

2.3 The origin of the restriction of one *nota* per verb

With this understanding of the historical development and function of the *notae augentes*, we can now make progress explaining why only one may appear on a verb at a time. Pronominal subjects and objects in Old Irish (as well as Pre-Irish) could only be marked on the verb itself. The same held for any optional clitics (the *notae augentes* and the anaphoric clitics). At the time that the *notae* were still deictic in meaning, it would have been confusing to have both proximal and medial-distal deictics on the verb at the same time. That is, a proto-sentence like (15) below (roughly parallel to (4b) above) would have had conflicting deixis, i.e. both 'here' and 'there / yonder', and it would not necessarily have been clear which deictic went with which pronominal marker. For that reason two *notae* would simply have been avoided.[12]

(15) **ro=me=lēgis=**se**=**so**
PRV=1SG.OBJ=leave.2SG.PRET=here=there / yonder
'you have left me here there / yonder (?)'

Given the argument that the *notae* in all persons have deictic origins, the above explanation will also apply to other combinations of persons, i.e. 1st person subject with 3rd person object, 2nd person subject with 3rd person object, etc. It appears that the deictic origin of the *notae* can give us the restriction to one *nota* per verb for free.

Interestingly, the topic function of the *notae* would also appear to give us this restriction for free. This is clearest in the third person, for which the topic marking function of the *notae* is best established (Griffith 2011; 2013: 67–70). If the verbal subject and object are both third person pronominals, only one of them can be the continuing topic, and thus only one may receive a *nota*. The other third person pronominal may simply be unmarked or it may receive extra marking with a clitic

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11. For the grammaticalization of contrastive markers as topic markers, see Radetzky (2002: Chapter 2), who places the development within a larger cline of locative / temporal marker > contrastive marker > topic marker.

12. If, in the early stages of the grammaticalization of the deictics as person indices, proximal and distal deictics could be associated with either 1st or 2nd person pronouns, as was the case in Vedic (see above and footnote 8), the potential for confusion with multiple *notae* on a verb would have been even higher.

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of the anaphoric *-side* class mentioned above. The following example (repeated from (9) above with additional context) shows how this can work in practice:

(16) *in=bethu* *do=rairngert=**som**$_i$*
DET=life.NSG PRV=promise.3SG.PERF.REL=3SG.M
is=sí *in=bríathar$_j$* *in=sin*
COP.3SG=3SG.F DET=word.NSG DET=that
et *ro-s$_j$=failigestar=**som**$_i$=**sidi**$_j$* Wb. 31^{a}9
and(Latin) PRV-3SG.F.OBJ=manifest.3SG.PRES=3SG.M=3SG.F
'the life which He has promised, that is the word, and He has manifested it'

As the Würzburg glosses, from which (16) is taken, gloss the Pauline letters of the New Testament, frequent topics are Paul, God, and Jesus. Here, the topic is God (the most prominent actor in the Latin text being glossed here), marked twice by *-som*. Old Irish *in bríathar* 'the word' is also mentioned in the Latin, but it is not as prominent. When it is referred to in the Irish, the anaphoric *-sidi* is used. This is a fairly standard pattern in Würzburg: backgrounded information (the continuing topic) is frequently referred to by *-som*, while items new to the discourse are often marked with *-side*. There is considerable overlap between the referents of *-som* and *-side* (see Griffith 2013: 67–70), and thus strict differentiation is not always possible, but the tendencies are clear. One further example will be given here to illustrate the differences between *-som* and *-side*:

(17) *int=í* *fora=tuit=**som***
DET=that on.REL=falls.3SG.PRES=3SG.M
immurgu *at=bail=**side*** Wb. 4^{d}15
however PRV.3SG.N=dies.3SG.PRES=3SG.M
'(it is the nature of a stone, then, that many blows are struck against it, and the one who falls on it, he breaks his bones,) but the one on whom it falls, he dies'

Here we see a rather uncommon example in the Old Irish glosses of an inanimate noun serving as a topic and being referred to by *-som*. The stone is introduced at the beginning of the gloss and is referred to twice by pronouns: 'against it' and 'on it'. It is established as the primary topic, and in the final clause of the gloss, given in (17), it is referred to by *-som*. The newer item in the discourse, *intí* 'the one' (serving as a *nominativus pendens* or left-dislocated topic), is then picked up by the anaphoric *-side*.

In both (16) and (17), the use of *-som* with the continuing topic does not appear to be required.[13] Rather, *-som* seems to be used when confusion is possible

13. In fact, no conditions have yet been discovered under which a *nota* must be used in Old Irish. This distinguishes the *notae* from their Modern Irish continuants, which are necessary in certain cases (see McCloskey & Hale 1984: 501–504, 509).

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or perhaps likely, and in such cases it refers to the most prominent discourse participant, thus disambiguating the pronominal referent.[14] The same applies to *-side*, except that it refers to a less prominent, newly introduced discourse participant. It is the clear preference of *-som* for referring to the most prominent participant that explains why a verb with two 3rd person pronominal arguments can nevertheless have only one *nota*: only one argument can be the most prominent, and it is this argument than can (though need not) receive the additional marking with the *nota*.

The above has demonstrated that for the third person, the topic marking function of the *notae augentes* can suffice to prohibit more than one from appearing on a verb. The argument could, *mutatis mutandis*, be the same for the local persons, but the chronology of the topic marking development leaves the entire argument open to question. Since the *notae* developed from deictics, the topic marking function must be somewhat later, presumably via the intermediary function of marking contrast (see footnote 11). While grammaticalization rates are variable, it would still take some time for the topic marking function to have become established in the language. As a result, it appears likely that topic marking arose too late to be responsible for the restriction of a single *nota* per verb. The deictic origins of the *notae* would have effected the one *nota* per verb restriction long before the topic function of the *notae* could have developed. Therefore, the development of the restriction must be ascribed to the deictic origins of the *notae* rather than to their use to mark topics.

As noted above, the restriction of one *nota* per verb is a necessary condition of the hierarchy with the *notae augentes* as found in Old Irish. Exactly this restriction was not properly accounted for in previous discussion of the origin of the hierarchy of *notae augentes* (Griffith 2011). Once a restriction to one *nota* per verb can be explained, however, the next question that must be answered is why the only *nota* permitted was the one highest on the hierarchy.

3. The referential hierarchy

3.1 General background

The Old Irish phenomenon under investigation here is an example of hierarchical alignment. As noted in Cristofaro (2013), hierarchical alignment can arise from a number of different sources. For instance, cislocatives 'here, hither' can be reinterpreted as person marking (or as pronouns generally, on which see Heine & Song 2011: 207–210). Alternatively, in languages with direct-inverse marking, the

14. This disambiguating function will be discussed further below.

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inverse marker can arise from a third-person form. A third pathway to hierarchical indexing can arise from the fact that indexes are frequently simply bound versions of independent pronouns, and many languages lack third person pronouns. In that case, 1st and 2nd persons would be marked in preference to 3rd because there were no 3rd person forms in the language.[15]

The involvement of cislocatives in hierarchical alignment appears initially promising for Old Irish, given that the origins of the local person *notae augentes* are deictics which also have locative interpretation: 'this one, here, now'. That is, it is quite plausible that a sentence like 'he feeds me here' could be reinterpreted as 'he feeds me=here'. What is unclear, however, is how to derive a hierarchy from this for Old Irish. Cislocatives can differentiate local and non-local actants in a hierarchical alignment, but in Old Irish, the deictics that become the *notae* are used for all three persons. In that respect, they do not appear to differentiate between 1st or 2nd persons on the one hand and 3rd person on the other. As a result, while the derivation of the *notae augentes* from deictics is an important factor in the rise of the hierarchy on the whole (as argued above for the one *nota* per verb restriction), it does not appear to play a role in the ranking of persons.

Since Old Irish does not possess any direct-inverse marking, we need not discuss diachronic sources of such marking here. The third pathway mentioned above, that independent pronouns are frequently the source of bound pronouns and that many languages lack 3rd person pronouns, also appears unappealing for Irish, since the language does have 3rd person pronouns. A closer look, however, suggests that this idea may nonetheless have at least some bearing on the question at hand. While Old Irish does have 3rd person pronouns, the pronouns are not the primary source of the *notae*. The *notae* have rather deictic origins, as argued above, and the behavior of the deictics is responsible for at least some of the behaviors exhibited by the *notae*.

3.2 Ranking local above non-local

In undertaking a more formal look at the origin of the hierarchy found in Old Irish, we must turn to Griffith (2011), where I attempted to explain the origin of the referential hierarchy as found in Old Irish. There, I argued that a functional explanation can differentiate the local persons from the third person. Though it is not taken up in that paper, a functional explanation can also differentiate inanimates from animates. For the differentiation of local and non-local

15. For exemplification and bibliographic references to literature on these types, see Cristofaro (2013).

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persons, a key observation is that the *notae augentes* cannot appear with overt NPs or relatives:

(18) **ad=cí*$_i$*=sa*$_i$ *in=fer*$_i$ *in=mnaí*
PRV=see.3SG.PRES=3SG.M DET=man.NOM.SG DET=woman.ACC.SG
*'the man he sees the woman'

(19) **in=fer*$_i$ *ad=chí*$_i$*=sa*$_i$ *in=mnaí*
DET=man.NOM.SG PRV=see.3SG.REL=3SG.M DET=woman.ACC.SG
*'the man who he sees the woman'

This restriction on the *notae* only affects 3rd persons, because 1st and 2nd persons cannot be referred to by overt NPs (the first part of the restriction) and because relative verbs with 1st or 2nd person antecedents are always in the 3rd person (the second part of the restriction). For the latter half of the restriction see (12) repeated here as (20):

(20) *am*al=*as*=***me=sse***
as=COP.3SG.REL=**1SG=1SG**
du-da=forsat *inna=dūli* Ml. 94^{b}7
PRV-3PL.OBJ=create.3SG.PERF DET=element.APL
'as it is I who created the elements (lit. as (the one) who created the elements is me'

As a result of the restriction on the appearance of *notae augentes* with 3rd person forms, local persons will always be available for a *nota* while 3rd person forms will not be:

(21) *no-b=soírfa=si* *dia* Wb 11^{b}4
PRV-2PL.OBJ=free.3SG.FUT=2PL God.NOM.SG
'God will free you (pl)'

In (21), the presence of *dia* 'God' blocks the appearance of a 3rd person *nota* in any case, meaning that even without the hierarchy, only the 2nd person plural nota *-si* could appear in this example. However, (21) also suggests a diachronic explanation for how the 3rd person is lower than the 1st and 2nd persons in the hierarchy for Old Irish.

One can assume that the hierarchy was not in place at some prehistoric time, but that the restriction on the co-occurrence of *notae* and NPs and relatives was. The first part of the assumption is good practice: do not assume what you are trying to explain. The second part of the assumption is grounded in the usage of the deictics, from which the *notae* arose. One of the most common uses of deictics is following definite NPs: *in=fer=so* 'this man (lit. the=man=this)'. That 3rd person *notae* cannot be used with overt NPs and relatives reflects the fact that, had

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a speaker of Pre-Irish wanted to use a pre-*nota* in a sentence with an overt NP or relative, he or she would have attached the deictic not to the verb but rather to the overt NP or the antecedent of the relative verb. Recasting Examples (18) and (19) above into good Old Irish yields:[16]

(22) *ad=cí*$_i$ *in=fer*$_i$*=sa* *in=mnaí*
PRV=see.3SG.PRES DET=man.NOM.SG=this DET=woman.ACC.SG
'this man sees the woman'

(23) *in=fer*$_i$*=sa* *ad=chí*$_i$ *in=mnaí*
DET=man.NOM.SG=this PRV=see.3SG.REL DET=woman.ACC.SG
'this man who sees the woman'

The above explanation is predicated on the origin of the 3rd person *notae augentes* being deictic. The original deictic *-sa* was eventually replaced by *-som* 'the same (one)', which appears primarily to mark a continuing topic. This replacement does not markedly change the argument for distributional restrictions of 3rd person *notae*, however. This is because relative pronouns and overt noun phrases would be expected to be incompatible with a word meaning 'the same' (or with a continuing topic marker, if the grammaticalization had already taken place). The result of all of this is that there would have been a bias toward non-third person *notae* in verbs with one local participant and one non-local one, as illustrated in (21). Over time, this statistical bias of local person *notae* simply became a fixed rule (Griffith 2011: 185–187). One might ask which of the explanations offered above, i.e. the one based on a deictic vs. topic-marking origin of the *notae*, is primarily responsible for the privileging of local persons over 3rd person. Given that *-som*, which has clearer topic-marking properties, is a rather late arrival in the *notae augentes*, an explanation based on the deictic origins is preferable. The deictics have a greater time-depth and thus there is more time for the effects of grammaticalization to have led to an exceptionless hierarchy.

That said, I do not wish to deny that the topic-marking property of the *notae* can have an affect on distributions. A case in point may be the privileging of animates over inanimates. In Old Irish, it is a synchronic fact that the *notae* seldom appear with inanimates. For the local persons, this is normal: inanimates very rarely are speakers or addressees. For 3rd persons, however, the tendency is also very strong. To summarize the findings of Griffith (2008: Tables 6, 11 and 15),

16. For the sake of clear exposition and in order to make the parallel between (18) and (19) more obvious, I have used the *sa* / *se* variant of the deictic in Examples (22) and (23). This variant was still quite common in the glosses but later gave way to the more common *so* during the course of Old Irish.

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there are 678 examples of the 3rd person *notae augentes* in the two largest corpora of Old Irish (Wb. and Ml.), and of these examples, 26 refer to inanimates (approximately 3.8%). It does not appear obvious that deictics should be less prone to mark inanimates than animates. Rather, the preference of the *notae* for animate reference is related to the fact that they appear to mark continuing topics (Griffith 2013: 67–70), and animates tend to be more topic-worthy. Therefore, it seems likely that the strong preference for animate reference for the 3rd person *notae* led to them being privileged over inanimates.[17]

Before turning to the thorny issue of the ranking of 1st person over 2nd, let us briefly summarize and compare two arguments ranking local persons above non-local. The main argument has been that co-occurrence restrictions on 3rd persons lead to a preponderance of local persons, which tendency is then conventionalized as a rule. A second argument was made more implicitly (see above pages 204–205). It was suggested that 3rd person *notae*, while never required, are frequently used to provide disambiguation. Ambiguity, however, would only really be an issue for verbs whose subject and object were 3rd person pronouns. For verbs with one local and one non-local pronominal argument, the referent of the 3rd person should not be ambiguous and thus not need marking, leading to a preference for marking the local argument.

One question is whether one of these two arguments is primary or whether they both worked together to create the local non-local split observed in Old Irish. It appears that the co-occurrence restrictions can be projected back in time more assuredly than the ambiguity avoidance arguments. The co-occurrence restriction most likely operated already at the beginning of the grammaticalization of the deictics as pronominals. They would not, in and of themselves, lead to the exceptionless hierarchy, but they would set up conditions that could easily lead to it. The ambiguity avoidance argument, on the other hand, depends more on the *notae augentes* having acquired the function of marking topics, which occurred demonstrably later in the grammaticalization process. The ambiguity avoidance may, however, have contributed the impetus that moved the preference for marking local persons to become a fixed rule. This argument is naturally speculative, but it appears plausible given the data.

17. It has been assumed here that animate / inanimate is the correct distinction with respect to the *notae augentes*, but it is unclear whether human / non-human or animate / inanimate is more correct. There are not enough relevant examples in the Old Irish material to make a certain determination (see Griffith 2008: 60–61). Fortunately, for the arguments presented here it is not a great importance which distinction is the more valid one.

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3.3 Differentiating the local persons

The functional explanations discussed above allow us to differentiate the lower end of the referential hierarchy in Old Irish: inanimates are differentiated from animates, and these together are in turn differentiated from local persons. For the differentiation of 1st and 2nd persons, however, it is more difficult to find a functional explanation for 1st person outranking 2nd. The following steps make up the basis of the argument in Griffith (2011):

- the relative frequency of the appearance of the various *notae* in Old Irish is presented (see Table 4);
- this relative frequency is projected back to Pre-Irish;
- it is argued that the statistical predominance of 1st person over 2nd (and 2nd over 3rd), originally merely a statistical preference, became a fixed rule in the language.

Table 4. Percentage of time a *nota augens* appears on a verb relative to how often it could occur[18,19]

	***nota augens* as verbal subject**		***nota augens* as verbal object**	
	singular	**plural**	**singular**	**plural**
1st	39% (156 / 401)	28% (80 / 289)	47% (35 / 75)	36% (24 / 66)
2nd	24% (44 / 182)	23% (74 / 317)	8% (1 / 13)	21% (12 / 57)
3rd masc	18% (219 / 1214)	7% (45 / 684)	13% (4 / 32)	13% (3 / 23)
3rd fem	8% (1 / 13)		0% (0 / 3)	

18. The data are gathered from Würzburg (= Wb.) and the first 53 folios of Milan (= Ml.; roughly 38% of the total number of glosses). For the third person subject *notae*, the data is from Griffith (2008) and encompasses all of Milan and Würzburg. 3rd person agreement of a *nota* with a neuter is ignored, since it is almost non-existent in Old Irish. Also, note that a *nota augens* can only agree with a 3rd person object if the subject is also 3rd person. Furthermore, to be sure that the agreement is with the object, the subject must be overt, relative or non-human (or one argument is fem. and the other masc. or plural). Very few examples meet these criteria, thus explaining the very small sample size for 3rd person infixed objects.

19. Apparent differences within the table (i.e. between 2SG.OBJ and 2PL.OBJ or between subject and objects) are unexplained. I would argue, however, that they are for the most part not statistically significant. For example, while the 2SG.OBJ appears to be much less frequently marked than other 2nd person forms, it is also by far the least common in the data, and performing a Fisher's exact test of 2SG.OBJ with any other 2nd person forms shows that the differences are about 50% likely to be due to chance (p-values between 0.45 and 0.50). I do not think, therefore, that differences within the 1st, 2nd or 3rd persons require discussion. Differences between the persons, however, are (generally) significant, and that was the important point in Griffith (2011) and indeed here.

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As the *notae* mark topics as one of their functions (Griffith 2011; also 2013: 67–70), the gradient observed in Table 4 (1st person most common, 2nd person less so, 3rd person least common) is in agreement with that observation, if Wierzbicka (1981) is correct about 1st person being most topic-worthy. While the explanation above, based on statistical preferences that eventually become fixed rules, can account for the referential hierarchy, it makes the unverifiable assumption that the distribution of the *notae* in Table 4 can be projected back to Pre-Irish. Since the position of the non-local persons can be derived independently (see above), they need not concern us further here, but how to explain the ranking of the 1st person above the 2nd is genuinely problematic.

One aspect of the above explanation is promising: the topic marking function of the *notae augentes* as an explanation for the ranking of 1st person above 2nd person. There is no need to project the percentages back into Pre-Irish, as was done in Griffith (2011). One need only observe that once the topic marking function of the *notae augentes* became grammaticalized somewhat late in the prehistory of Irish, it may be responsible for adjustments at the ends of the hierarchy. That is, the major split of local vs. non-local persons was already established as a result of the deictic origin of the *notae*, but the ranking of inanimates below animate 3rd persons (discussed above) and of 1st person above 2nd person may indeed be due to the effects of the *notae* gaining topic marking function. Once the *notae* also began marking topics, the 1st person would have begun being marked more frequently. Two effects of this are visible in Old Irish. The first is the fact that 1st persons are marked much more frequently than other persons (see Table 4). The second effect is the higher position of the 1st person in the hierarchy of the *notae augentes*. Two possible weaknesses in the argument, however, are that topic marking function of the *notae* for local persons is not yet well researched and the topic marking function is itself not very old. One might therefore ask whether it could have had led to the exceptionless position 1st person > 2nd person in a (presumably relatively) short period of time. These weaknesses must be weighed against those of other possible explanation.

As it turns out, there are rather limited alternate explanations to the one just offered, but two possible options present themselves. The first involves using some notion of agreement to generate the hierarchy. For the Old Irish hierarchy, the *nota* – the only element showing the hierarchy – is facultative: it indexes person marking already present on the verb. As such, one can argue that there is formal syntactic agreement between the *nota* and one argument of the verb. This assumes, in essence, that the verbal subject ending and object affix are primary, and the *nota* must agree with one of them to be licit. In this vein, Kern's (2013) tentative suggestion within minimalist syntactic theory can be considered. She notes that if a probe tries to agree with multiple conflicting goals (more or less: if a *nota augens* searches on the verb for an item to agree with and has a choice of

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verbal subject or object), it can lead to hierarchical effects, if person is defined as follows:

Table 5. person features

1st person	2nd person	3rd person
+ speaker	– speaker	– speaker
+ participant	+ participant	– participant

The probe would determine which verbal argument had the most positive features and agree with it, leading to the observed hierarchy of *notae*. The approach is appealing in that it appears to offer a solution to the referential hierarchy based on universal definitions of person. It is not, however, a diachronic explanation of the phenomenon. Such an explanation would require that speakers of Pre-Irish at some point re-analyzed the deictics as person markers. In that re-analysis, there would be a change of categorial status from determiner to an underspecified agreement marker, the form of which is determined by the verb (or conjugated preposition or possessed NP) to which it is attached. A formal account along these lines may well be possible, but it would take us too far afield to pursue here. What is less clear is how the adding of contrastive and topic marking function could be accounted for under this approach. At present, it appears that the most that can be said about this approach is that while a diachronic syntactic account may indeed be possible, it cannot be taken as likely without significant further argumentation.

A rather different tack is to look at the nature of the deictic system in relation to informational content.[20] In a two-way deictic system, the proximal deictic 'here' is more specific, i.e. more informative, than the medial-distal member 'there / yonder', which covers the large mental and physical space not considered by the speaker to be immediately near. It may simply be that, in sentences with two local arguments, speakers of (Pre-)Old Irish privileged the more informative proximal deictic member, which later became the 1st person *nota*, over the less informative medial-distal member, which later became the 2nd person *nota*. In this way the final element of the hierarchy in Old Irish may have fallen into place.

20. I would like to thank a reviewer for suggesting this line of thinking.

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This functional explanation depends on Old Irish having a two-way deictic system. While this appears to be the case, the subject is not well researched, so the facts will be reviewed here very briefly. The Old Irish deictic system contains the following members:[21]

(24) a. *so* (also *se* / *sa*, *sin*)
proximal
'here; now'

b. *tall*
medial-distal
'there / yonder; then'

Supporting the idea that Old Irish has two-way, rather than three-way, deixis is the Old Irish form *ucut* 'there / yonder'. Etymologically, this is a conjugated preposition with a locatival meaning 'by you (sg)', but it later gets integrated into the Modern Irish three-way deictic system as a distal member: *seo*=proximal, *sin*=medial, *úd* / *siúd* (> OIr. *ucut*)=distal (see Bammesberger 1983: 60–61; Diessel 2012: 2419). The diachronic development makes the most sense if *ucut* was originally medial-distal but obtained distal deixis in the restructuring of the Old Irish two-way system as the Modern Irish three-way system.

It appear that Old Irish indeed has a two-way deictic system that associates the 1st person with proximal deixis and the 2nd person with medial-distal deixis. This fact allows us to argue that the 1st person *nota augens* became higher-ranked than the 2nd person because speakers privileged the more informative form over the less-informative form. Unfortunately, I am not aware of cross-linguistic parallels for this sort of development, and as a result this argument should be regarded as possible, but not probable.

This investigation of how the 1st person in the Old Irish *notae augentes* became higher ranked than the 2nd person has offered a few possibilities. A generative account along the lines sketched briefly above might work, but there are at present too many unknowns to argue that it is likely. On the other hand, an account based on the informational content of the proximal deictic (> 1st person) being higher and thus preferred to that of the medial-distal deictic (> 2nd person) does not enjoy cross-linguistic support and must be regarded as unproven. It appears that the most convincing account the remains is the one based on the topichood of the *notae augentes*.

21. For the basic distributional facts see Thurneysen (1909: 283–284).

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4. Conclusions

Let us now take stock. It has been argued here that while the individual forms in the paradigm of the *notae augentes* have various backgrounds, the basis of the paradigm is a set of deictic pronouns that developed into personal forms (Schrijver 1997: 17–33; Griffith 2010). This prehistory of the *notae augentes* yields a simple explanation for why verbs with subject and object indexes may have only one *nota*. For verbs with two argument indexes, only a single deictic (i.e. a single pre-*nota augens*) was allowed in order to avoid the appearance, on a single word, of two elements expressing conflicting deixis. This restriction of one deictic per verb, once in place, remained active even after the particles lost their deictic force and developed into full-fledged person markers.

The deictic origin of the *notae*, which yields a simple explanation for the restriction of one *nota* per verb, also can clarify distributional restrictions on the 3rd person *notae*, i.e. that they cannot appear with overt NPs or on relative verbs. These distributional restrictions favor the marking of local persons over non-local ones, eventually leading to a rule excluding non-local *notae* when the verb contains local person indexes. While the above ranking depends on the deictic origin of the *notae*, motivating the rankings at the ends of the referential hierarchy (1st person > 2nd person and animates > inanimates) seems to be the result of something other than the deictic origins of the *notae*. These rankings are best explained by the topic marking function of the *notae augentes*. With two 3rd person arguments, only one can be topical. As animate nouns are more likely topics than inanimate ones, they receive a *nota*. Similarly, at the other end of the scale, 1st persons are argued to be the most topical of all, which favors their marking above that of 2nd persons. In each of the individual parts of the referential hierarchy (1st > 2nd, local > non-local, and animate > inanimate) statistical preferences eventually became conventionalized as fixed rules, leading to the exceptionless hierarchy of the *notae augentes* found in Old Irish.

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Grammatical abbreviations

ACC	accusative
ERG	ergative
F	feminine

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FUT	future
GEN	genitive
IMPV	imperative
M	masculine
N	neuter
NAS	nasalization mutation
NOM	nominative
OBJ	object
PASS	passive
PERF	perfect
PL	plural
PRES	present
PRET	preterite
PRV	preverb
REL	relative
SBJV	subjunctive
SG	singular

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CHAPTER 6

From ergative case-marking to hierarchical agreement

A reconstruction of the argument-marking system of Reyesano (Takanan, Bolivia)

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This paper reconstructs the history of a set of innovated 1st and 2nd person verbal prefixes in Reyesano which manifest the phenomenon of 'hierarchical agreement' in transitive clauses, according to a 2>1>3 hierarchy. I argue that these prefixes come from independent ergative-absolutive pronouns which first became case-neutral enclitics in 2nd position in main clauses and then verb prefixes. And I show that the hierarchical effects that the prefixes manifest in synchrony have nothing to do with the working of a hierarchy during the grammaticalization process. In doing so, the paper contributes to the growing body of diachronic evidence against the idea that the person hierarchy is a universal of human language reflecting a more general principal of human cognition.

1. Introduction

Reyesano (aka Maropa) is a moribund language spoken by less than a dozen fluent speakers in the lowlands of Amazonian Bolivia.[1] The language belongs to the small Takanan family, together with Araona, Cavineña, Ese Ejja and Tacana. The Takanan languages are listed in Table 1, which provides estimates about their current number of speakers as compared to the number of ethnic group members, and references to the main studies available on these languages.[2]

1. For a general sociolinguistic presentation of the language and an overview of its phonology and grammar, see Guillaume (2010a; 2012).

2. Note that in the case of Ese Ejja and Tacana, the main studies are based on the dialects of respectively, Sonene/Madidi and Tumupasa.

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Table 1. Takanan languages (figures from Crevels & Muysken 2009)

Name	Location	No. speakers	No. ethnic group members	Main studies on the languages
Cavineña	Bolivia	601	1683	Camp & Liccardi (1989), Guillaume (2008)
Ese Ejja	Bolivia & Peru	518	732	Vuillermet (2012)
Araona	Bolivia	111	158	Pitman (1980); Emkow (2006)
Tacana	Bolivia	50	7345	Guillaume (2013; fieldnotes 2009–2013)
Reyesano	Bolivia	12	4019	Guillaume (2009; 2012; fieldnotes 2004–2008)

Figure 1 gives Girard's (1971) internal classification of the Takanan languages consisting of three branches (Kavinik, Chamik and Takanik), all placed at the same level within the family tree. Even though I make use of this classification in this paper, it must be stated that it is exclusively based on phonological and lexical reconstructions, and on fairly limited material. Work remains to be done in order to fully confirm it and to investigate whether the branches can be put into a more complex hierarchy.

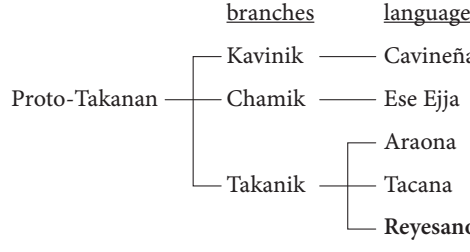

Figure 1. Internal classification of Takanan languages (Girard 1971)

Reyesano has an argument-coding system which is very unusual for a Takanan language, with its lack of an ergative case marking system and its presence of verbal prefixes for indexing SAP. The Reyesano system of person prefixes is not only unusual from a Takanan viewpoint, it is also noteworthy from a typological perspective. As illustrated in (1), the way these verbal prefixes are selected to cross-reference the arguments of transitive verbs is done through what is known as 'hierarchical agreement / indexation' (DeLancey 1981; this volume), i.e. according to a set of rules primarily based on the relative ranking of the arguments on a

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person hierarchy (2>1>3 in the case of Reyesano) rather than on their grammatical functions (A vs. O).[3]

(1) Reyesano transitive verbs with a 1st person argument and a 3rd person argument

a. **1SG** → 3
***m**-a-ba*(*-a*)
1SG-PST-see-PST
'**I** saw him/her/it/them'

b. 3 → **1SG**
***m**-a-ba-ta*(*-a*)
1SG-PST-see-3A-PST
'he/she/it/they saw **me**'

The only property that Reyesano shares with the argument-coding system of most of the other Takanan languages is the marking of 3rd person A (singular or plural) and 3rd person plural S by way of a suffix *-ta*, which can be seen in (1b) in its 3A marking function.

In Guillaume (2009), I have provided a detailed synchronic description of the Reyesano hierarchical agreement system, together with a general typologically-informed discussion of the argument-coding system of the language. In Guillaume (2011), I have presented a comparative-historical study of the 3rd person verbal suffix *-ta* in the five Takanan languages and argued that it reconstructs to a 3rd person plural subject (S/A) marker **-ta* in Proto-Takanan. In the present paper, I propose a historical reconstruction of the remaining properties of the Reyesano argument-coding system, namely the SAP prefixes and the lack of an ergative case marking system.

The first question that is raised is whether the properties unique to Reyesano correspond to innovations or retentions of an older system that could go back to Proto-Takanan. I provide evidence that the first hypothesis (innovations) is the most plausible for both properties, i.e. the rise of person prefixes and the full loss of ergative case marking represent unique developments in Reyesano. The second question to be addressed is how such a system arose diachronically. Here, I put forward the hypothesis that the Reyesano person markers arose out of SAP independent pronouns in 2nd position (P2) in main clauses. In that particular position, they lost their prosodic and distributional autonomy (becoming P2 weak pronouns and then clitics) and their case-marking distinctions. I then suggest that the move from P2 weak / clitic pronouns to verb prefixes is a consequence of the

3. When no source for an example is given, the example comes from my own corpus.

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high frequency of occurrence of these pronouns with an immediately following verb, and I invoke language contact as a likely motivation for accomplishing this step. Finally, I argue that the SAP>3 hierarchical pattern is the mechanical result of the obligatory presence of the suffix *-ta* '3A' in pre-Reyesano transitive verbs and that the 2>1 pattern can be accounted for in sociopragmatic terms.

The paper is organized as follows. It begins by a presentation of the main characteristics of the argument-coding system of Reyesano (§ 2) and those of the other Takanan languages (§ 3) in terms of case marking, word order (1st versus 2nd position in the clause) and verbal agreement. The reconstruction of the argument-coding system of Reyesano is then presented in Sections 4 and 5. Section 4 deals with the loss of case marking (§ 4.1) and the rise of the verbal prefixes (§ 4.2). As for Section 5, it offers a reconstruction of the hierarchical effect that characterizes the person prefixes, starting with the SAP>3 ranking in mixed scenarios (§ 5.1) and the 2>1 ranking in local scenarios (§ 5.2). Finally, Section 6 provides a summary of the proposed reconstruction and a discussion of the relevance of this reconstruction to the on-going debate around the nature of the functional motivations or raison d'être of person hierarchies.

2. Reyesano argument-marking system

The argument-marking system of Reyesano is of the head-marking type (Nichols 1986), realized by way of optional nominal or pronominal NPs that are unmarked for case (§ 2.1) and obligatory pronominal affixes on the verb (§ 2.2).

2.1 Marking of nominal and pronominal NPs

S, A and O arguments can be optionally expressed by NPs or independent pronouns. When this happens, they are never marked for case. Nominal NPs are syntactically free to occur in any position in the clause (with a strong tendency to occur post-verbally in discursively unmarked contexts). An illustration of the absence of case markers on core NPs in a transitive clause is given in (2a) and in an intransitive clause in (2b). As shown by the translation of (2a), the relative position of the two core NPs in a transitive clause does not have any effect on the interpretation of their grammatical function (A or O).[4]

4. In the first (data) line of the examples, the subscripts A, O and S are used to disambiguate the grammatical function of the arguments.

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(2) a. Reyesano transitive clause
A-kachi-ta(-a) te ***iba***$_{O}$ *te* ***awadza***$_{A}$.
PST-bite-3A-PST BM jaguar BM tapir
'The tapir bit the jaguar.' (or, with a different context: the jaguar bit the tapir)

b. Reyesano intransitive clause
A-wudzudzu-a te ***awadza***$_{S}$.
PST-run-PST BM tapir
'The tapir ran away (when I shot at it).'

When expressed by independent pronouns, core arguments, whether S, A or O, are realized by a single (neutral) paradigm of forms, provided in Table 2.

Table 2. Reyesano independent pronouns

PERSON	SG	PL
1	*eme*	*ekama*
2	*mi(w)e*	*mika(we)*
3	*tu(w)e*	*tuna(we)*

These pronouns seem to occur preferentially either in 1st or 2nd position in the clause (as in other Takanan languages; see below), depending on discursive factors.[5] Examples illustrating the 1st person singular pronoun *eme* in 1st and 2nd position and in the three different grammatical functions are provided below: A in (3), O in (4) and S in (5).

(3) Reyesano
a. ***Eme***$_{A}$ *te m-e-maneme-da te bururu*$_{O}$.
1SG BM 1SG-IPFV-kill-IPFV BM toad
'(In order to cure a broken limb,) I kill a toad.'

b. *M-a-ba(-a) te* ***eme***$_{A}$ *dai-me-in te bakwa*$_{O}$.
1SG-PST-see-PST BM 1SG good-ASF-AUGM BM viper
'I saw the viper very well.'

(4) Reyesano
a. ***Eme***$_{O}$ *te* [*ki tata kwana*]$_{A}$ *dai-me*
1SG BM 1SG.GEN daddy PL good-ASF
te m-a-uepe-ta(-a).
BM 1SG-PST-raise-3A-PST
'Me, my parents raised me well.'

5. Note that in Reyesano, unlike in some other Takanan languages, no systematic study of the distribution of independent pronouns has been conducted yet.

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b. *Jiawe=beu te* ***eme***$_{O}$ [*Tata Dzusu*]$_{A}$ *m-a-itutia-ta(-a).*
today=PERF BM 1SG Mr God 1SG-PST-send-3A-PST
'Now, God sent me.'

(5) Reyesano
a. ***Eme***$_{S}$ *juwa te m-e-puti.*
1SG also BM 1SG-FUT-go
'Me too, I'm going to go.'
b. *Tuedu=beu te* ***eme***$_{S}$ *m-a-kwineyu-a te*
there=PERF BM 1SG 1SG-PST-arrive-PST BM
[*ki fusil=neje*].
1SG.GEN shotgun=ASSOC
'There I arrived with my shotgun.'

For the purpose of this paper, it is worth mentioning the presence in Reyesano of a 'reduced' form of the 2nd person singular pronoun, *=mi*, which is unstressed (therefore analyzed as a clitic) and found in my corpus in P2 in a few conventionalized expressions, as in the greeting question in (6). Note that in the same context, the 'full' form of the 2nd person singular pronoun *mi(w)e* can be used instead, with no perceptible difference in meaning, as in (7).

(6) Reyesano
Sebata ***=mi***$_{S}$*? Daipiwe masa.*
how =2SG good more.or.less
'How are you?' 'I'm fine.' (lit. more or less good) (elicited)

(7) Reyesano
Sebata te ***miwe***$_{S}$*? Eme*$_{S}$ *chenu te mal, chiki-ji jiawe…*
how BM 2SG 1SG PITY BM bad disease-ADJZ today…
'How are you?' 'I'm bad, I'm sick (lit. with disease)…'

2.2 Verbal agreement[6]

Core arguments, depending on their person, number and/or grammatical function are marked on the verb by way of either suffixes, if they refer to a 3rd person (§ 2.2.1), or prefixes, if they refer to a SAP (§ 2.2.2).

2.2.1 *3rd person agreement*

In transitive clauses, if the A is a 3rd person, whether singular or plural, it is obligatorily marked on the verb, via the suffix *-ta*; in contrast, a 3rd person O is never

6. For a comprehensive description of the Reyesano verbal agreement system, see Guillaume (2009).

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marked on the verb. The following transitive examples, with a 3rd person A, illustrate the presence of *-ta* when the O is a 2nd person (8a) and when the O is a 3rd person (8b) (repeated from (2a)). (See also examples of the presence of *-ta* when the O is a 1st person in (4a,b) above.)

(8) Reyesano transitive clauses with a 3rd person A

a. **3 → 2**
E-pue-de *te* *karetu*$_S$, *mi-(e-)pacha-**ta***.
IPFV-come-IPFV BM cart 2SG-FUT-stamp.on-3A
'(Be careful!) A cart is coming and will run over you (lit. stamp on you)'.

b. **3 → 3**
*A-kachi-**ta**(-a)* *te* *iba*$_O$ *te* *awadza*$_A$.
PST-bite-3A-PST BM jaguar BM tapir
'The tapir bit the jaguar.'

In intransitive clauses, if the S is a 3rd person plural, it is normally marked on the verb via the suffix *-ta*,[7] whose form and distribution within the verb template are identical to those of the 3rd person A marker. If the S is a 3rd person singular, it is never marked on the verb. The following intransitive examples illustrate the presence of *-ta* when the S is a 3rd person plural (9a) and its absence when the S is a 3rd person singular (9b) (repeated from (2b)).

(9) Reyesano intransitive clauses with a 3rd person S

a. 3PL
*A-wudzudzu-**ta**(-a)* *te* [*ki* *paku* ***kwana***]$_S$.
PST-run-3S.PL-PST BM 1SG.GEN dog PL
'My dogs were already running (searching for some game animal).'

b. 3SG
A-wudzudzu-a *te* *awadza*$_S$.
PST-run-PST BM tapir
'The tapir ran away (when I shot at it).'

2.2.2 *SAP agreement*

In intransitive clauses, if the S is a SAP, it is obligatorily marked on the verb via one of four prefixes that are distinguished according to the person (1st vs. 2nd) and number (singular vs. plural) of the argument. The SAP prefixes are listed in Table 3 and their use with intransitive verbs exemplified in (10).

7. There are a few exceptions; see discussion in Guillaume (2009: 35).

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Table 3. Reyesano agreement prefixes

PERSON	SG	PL
1	*m-*	*k-*
2	*mi-*	*mik-*

(10) Reyesano intransitive verbs with a SAP S

a. 1SG
***m**-a-puti-a*
1SG-PST-GO-PST
'**I** went'

b. 1PL
***k**-a-puti-a*
1PL-PST-GO-PST
'**we** went'

c. 2SG
***mi**-a-puti-a*
2SG-PST-GO-PST
'**you (sg)** went'

d. 2PL
***mik**-a-puti-a*
2PL-PST-GO-PST
'**you (pl)** went'

In transitive clauses, the prefix agreement system is hierarchical. In the same slot, the verb marks the argument that is higher on a 2>1>3 scale, regardless of its grammatical function (A or O), via the same forms that are used in intransitive verbs (Table 3). The marking of the higher ranked participant in all the possible combinations of person and number is illustrated in (11), in mixed configurations, and (12), in local configurations.

(11) Reyesano transitive verbs: mixed configurations (SAP ↔ 3)

a. **1SG** → 3
***m**-a-ba*(*-a*)
1SG-PST-see-PST
'**I** saw him/her/it/them'

b. 3 → **1SG**
***m**-a-ba-ta*(*-a*)
1SG-PST-see-3A-PST
'he/she/it/they saw **me**'

c. **1PL** → 3
***k**-a-ba(-a)*
1PL-PST-see-PST
'**we** saw him/her/it/them'

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d. 3 → **1PL**
***k**-a-ba-ta(-a)*
1PL-PST-see-3A-PST
'he/she/it/they saw **us**'

e. **2SG** → 3
***mi**-a-ba*(*-a*)
2SG-PST-see-PST
'**you (sg)** saw him/her/it/them'

f. 3 → **2SG**
***mi**-a-ba-ta*(*-a*)
2SG-PST-see-3A-PST
'he/she/it/they saw **you (sg)**'

g. **2PL** → 3
***mik**-a-ba(-a)*
2PL-PST-see-PST
'**you (pl)** saw him/her/it/them'

h. h3 → **2PL**
***mik**-a-ba-ta(-a)*
2PL-PST-see-3A-PST
'he/she/it/they saw **you (pl)**'

(12) Reyesano transitive verbs: local configurations (1 ↔ 2)[8]

a. **2SG** → 1 / 1 → **2SG**
***mi**-a-ba*(*-a*)
2SG-PST-see-PST
'**you (sg)** saw me/us'
or: 'I/we saw **you (sg)**'

b. **2PL** → 1 / 1 → **2PL**
***mik**-a-ba(-a)*
2PL-PST-see-PST
'**you (pl)** saw me/us'
or: 'I/we saw **you (pl)**'

Having presented the argument-marking system of Reyesano, we now turn to the argument-marking systems of the other languages of the Takanan family (Araona, Cavineña, Ese Ejja and Tacana).

8. Note that the verbal forms of (12a) and (12b) are identical to those of (11e) and (11g), respectively.

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3. Araona, Cavineña, Ese Ejja and Tacana argument-marking systems

Araona, Cavineña, Ese Ejja and Tacana all have very similar argument-marking systems, which contrast radically with that of Reyesano at two levels. Firstly, when their core arguments are realized by nominal or pronominal NPs, these are normally case-marked according to an ergative pattern (§ 3.1). Secondly, agreement marking on the verb in these languages is either limited to 3rd person or altogether absent (§ 3.2); crucially, none of these languages has a prefix (or any other) slot for SAP indexation.[9]

3.1 Ergative marking of nominal and pronominal NPs

Similarly to Reyesano, S, A and O arguments in Araona, Cavineña, Ese Ejja and Tacana can be optionally expressed as nominal NPs and the position of these NPs in the clause is syntactically free. Unlike in Reyesano, however, overt nominal NPs in these languages are case-marked according to an ergative pattern. As illustrated in (13) with examples from Tacana, this pattern is manifested by a special (ergative) marker on the A NP and no marking on the S and the O NP.[10]

(13) Tacana

a. transitive clause[11]

Jiawe	*=da*	***id'eti***$_{O}$	***biwa=ja***$_{A}$	*y-abu-ta-(a)ni.*
now	=TOP	sun	spider.monkey=ERG	IPFV-carry-3A-IPFV.SIT

'Now the spider monkey is carrying the sun.'

b. intransitive clause

Biwa$_{S}$	*=da*	*kema*	[*tsakwa*	*echa=su*]	*bade-ti-a.*
spider.monkey	=TOP	1SG.DAT	mapajo(tree)	branch=LOC	hang-GO-PST

'The spider monkey (that I shot) went to hang on the branch of a mapajo tree.' (elicited)

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9. I am not counting as instantiations of 'person agreement/indexation' the verbal affixes expressing commands (imperative, hortative and jussive), which have specific forms depending on the person of the subject of the clause. Nor am I counting a few imperfective/posture inflections which have one allomorph when the subject of the verb is a SAP in A function – e.g. *-einia* in (27b) – and another one when it is a 3rd person (in S or A functions) – e.g. *-ani* in (28b) – or a SAP in S function.

10. As will be seen later, depending on the referent type, ergative marking is more or less consistent in Tacana.

11. Note that the grapheme *j* refers to the glottal fricative [h].

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Core arguments can also be realized by way of pronouns. Pronouns display a very strong tendency to occur either in 1st position (P1) or 2nd position (P2) in the clause, according to the discourse status of their referent. Detailed studies of these forms in Cavineña (Guillaume 2006; 2008; 2010b) and Tacana (Guillaume 2013; 2015a; fieldnotes 2009–2010) have revealed a number of differences in the morphological, syntactic and prosodic properties of the pronouns whether they are used in the P1 or P2 positions. These differences suggest an analysis in terms of two distinct sets, despite a fair amount of overlapping forms: a set of P1 independent pronouns, listed in Table 4, and a set of P2 weak or clitic pronouns, listed in Table 5.[12]

Table 4. 1st position (independent) pronouns in ergative Takanan languages

	Cavineña		**Ese Ejja**		**Araona**		**Tacana**	
	S/O	**A**	**S/O**	**A**	**S/O**	**A**	**S/O**	**A**
1SG	*ike*	*era*	*eya*	*eyaya*	*ema*	*yama*	*ema*	*yama*
2SG	*mike*	*mira*	*miya*	*miyaya*	*midya*	*midyaja*	*mida*	*miada*
3SG	*tuke*	*tura*	*oya*	*owaya*	*joda*	*wada*	*tueda*	*tuaweda*
	rike	*riyara*			*joma*			
1dl.inc	*yatse*	*yatsera*	–	–	*tseda*	*tseada*	*etseda*	
1dl.exc					*tsema*	*tseama*	*etse(j)u*	
2dl	*metse*	*metsera*	–	–	*metseda*	*metseada*	*metseda*	
3dl	*tatse*	*tatsera*	–	–	*watseda*	*watseada*	*tuatseda*	
	retse	*retsera*						
1PL.inc	*ekwana*	*ekwanara*	*esea*	*eseaya*	*kwada*	*kwadaja*	*ekwaneda*	
1PL.exc			*ekwana*	*ekwaa*	*kwama*	*kwamaja*	*ekwana(j)u*	
2PL	*mikwana*	*mikwanara*	*mikyana*	*mikyanaya*	*mikana*	*mikanaja*	*mikwaneda*	
3PL	*tuna*	*tunara*	*oya*		*kana*	*kanaja*	*tuneda*	
			ona(ya)	*onaa(ya)*	*dakana*	*dakanaja*		

12. The use of pronouns in P2 in Ese Ejja, Araona and Reyesano has not been investigated yet. It is therefore expected that the paradigms of P2 pronouns in these three languages are incomplete.

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Table 5. 2nd position (weak/clitic) pronouns in Takanan languages (based on Guillaume 2015a)

	Cavineña		**Ese Ejja**		**Araona**		**Tacana**	
	S/O	**A**	**S/O**	**A**	**S/O**	**A**	**S/O**	**A**
1SG	*=ike ~ =Ø*	*=era ~ =Ø*	*=mo* *=iña* *eya*	? *eyaya*		*=ya(?)* *yama*	*ema*	*yama* *ema*
2SG	*=mi(ke)*	*=mi(ra)*	*=mi* *midya* *miya*	 *miyaya*		*=mi* *=midya*	*=mid(a)* *=mi*	*miada*
3SG	*=tu(ke)* *=ri(ke)*	*=tu(ra)* *=riya(ra)*	?	?	?	?	–	–
1dl.inc 1dl.exc	*=yatse*	*=yatse(ra)*	–	–	?	?	*etseda* *etse(j)u*	
2dl	*=metse*	*=metse(ra)*	–	–	?	?	*=metse* *metse*	
3dl	*=tatse* *=retse*	*=tatse(ra)* *=retse(ra)*	–	–	?	?	–	–
1PL.inc	*=ekwana*	*=ekwana(ra)*	*=se* *esea*	*=sea* ?	*kwada*	*kwadaja*	*ekwana* *ekwa* *ekwaneda*	
1PL.exc			*ekwana*	*ekwaa*	*kwama*	*kwamaja*	*=ekwana(j)u* *ekwana(j)u*	
2PL	*=mikwana*	*=mikwana(ra)*	?	?	?	?	*mikwaneda* *mikwana*	
3PL	*=tuna*	*=tuna(ra)*	?	?	?	?	–	–

The use of P1 pronouns is illustrated with examples from Tacana in (14a,b). This use corresponds to discursively marked contexts (such as contrastive focalization or topicalization), in which special emphasis is put on the identity of a particular argument of the clause in order for it to be properly identified by the addressee. In this use, the pronouns have the following properties, which they share with lexical nouns used in core argument functions: they have a unique 'full' form (as given in Table 4); they are always stressed;[13] they pattern strictly ergatively (at least the sin-

13. Pronouns, like the majority of lexical or grammatical words in Tacana, are underlyingly stressed on the 3rd mora (i.e., vowel or semi-vowel [j]) counting from the left. The 3rd mora pattern, however, only shows up on the surface when the word heads a phonological word which consists of at least four moras (e.g., *tumupása* 'village of Tumupasa', *tumupása=su*

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gular forms in Tacana); and they can be modified (typically by discourse-related of particles).[14]

(14) Tacana

a. [**jamáḍa**] [**éma**]
Mawe! ***Yama***$_{A}$ *=da* *e-manuame.* ***Ema***$_{S}$ *ebiasu* *tuche-da.*
NEG 1SG.ERG =TOP FUT-kill 1SG a.lot strong-ASF
'No! It's me who will kill him (and not him who will kill me). It's me who is the strongest.'

b. [**miaḍáʂ̻ehjaḍa**]
Miada$_{A}$ *=we* *=jia* *=da* *kepia,* *manuame-iti-a…*
2SG.ERG =RESTR =DUBIT =TOP where kill-PFV-PST
'Apparently it's you (and nobody else) who killed him somewhere.'

The use of P2 pronouns is illustrated with other Tacana examples in (15) and (16). Here the pronouns occur right after the last word of the first constituent and typically within the same prosodic contour.[15] In texts, the use of pronouns in the P2 appears to be more frequent than in the P1.[16] This observation would correlate with the fact that P2 pronouns are used in discursively unmarked contexts in which the identity of the argument has been established previously. In this position, the pronouns have a number special morphological and prosodic properties that set them apart from lexical nouns or pronouns in P1, and that strongly suggest a process of incipient grammaticalization: they display a range of variant forms (in free variation or conditioned by morphophonological rules), ranging from 'full' forms that correspond to the forms used in P1 to 'reduced' versions of the 'full' forms; they follow either an ergative or a neutral pattern; they are either stressed or unstressed (i.e., clitics); they are normally not modified (by discourse-types particles); and

---

'village of Tumupasa=LOC', *ebakwá=ja* 'child=ERG', *tata=détse* 'father=DL'). When the word heads a phonological word with three or less moras, the rule is that stress falls on the penultimate mora (e.g., *ebákwa* 'child', *tatá=ja* 'father=ERG', *táta* 'father'). In (14a), the pronoun *yama* heads a three mora phonological word (formed by *yama* and the enclitic *=da*); it is therefore stressed on the 2nd (and penultimate) mora. As for the pronoun *ema* in the same example, used without any accompanying clitics, it is stressed on the 1st (and penultimate) mora. In (14b), *miada* heads a 7 mora phonological word (formed by *miada* and the three enclitics *=we*, *=jia* and *=da*); it is therefore stressed on the 3rd mora from the left.

14. In the first (phonetic) line of the examples, the symbols used in the transcriptions are those of the IPA.

15. If there is a pause, this pause occurs most of the time right after the pronoun, rather than before.

16. Note that the high frequency of use of pronouns in P2 rather than P1 is impressionistic, as no text count has been done yet.

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they must occur in a fixed order if there is more than one in that position (the lower on a 1>2>3 hierarchy, the earlier in the sequence).

(15) Tacana

a. [hjaʂ́éḍa**jáma**]
*Jiawe =da **yama**$_{A}$ e-manuame.*
now =TOP 1SG.ERG FUT-kill
'Now I will kill him.'

b. [twéḍabeu**éma**]
*Tueda$_{O}$ =beu **ema**$_{A}$, piada$_{O}$ dia-idha.*
this =PERF 1SG one eat-REM.PST
'This is what I ate, one (empanada).'

c. [jéwakabitineh**emiḍajáma**]
*[Ye waka biti=neje] =**mida**$_{O}$ **yama**$_{A}$ e-manuame.*
this cow skin=ASSOC =2SG 1SG.ERG FUT-kill
'I'm going to kill you with this whip.'

(16) Tacana

a. [ájṭṣe**miáḍa**]
*Ai =tse **miada**$_{A}$ mi=mewa abu-kwa.*
what =MAYBE 2SG.ERG 2SG=ALONE carry-ABIL
'How can you carry it alone?'

b. [képja**miḍa**]
*Kepia =**mida**$_{A}$ e-jeti-einia?*
where =2SG IPFV-fetch-IPFV.SIT.1/2
'Where are you going to fetch it (the cheese)?'

c. [ḍá**mi**]
*Daja =**mi**$_{A}$ sobrino$_{O}$ e-kisa.*
thus =2SG nephew FUT-relate
'So will you say to your nephew.'

d. [ajpwí**miḍéma**]
*Ai=puji =**mida**$_{A}$ **ema**$_{O}$ tuajududu-iti-a?*
what=PURP =2SG 1SG run.away.from-PFV-PST
'Why did you run away from me?'

Note that the P2 is also the locus for another range of grammatical elements, such as markers of discourse status (e.g. *=da* 'TOP' in (14a,c) and (15a)), epistemic modality (e.g. *=jia* 'DUBIT' in (14b) and *=tse* 'MAYBE' in (16a)), evidentiality, speaker attitude, etc. When P2 pronouns co-occur with such types of markers, they always come last, whether they are stressed or not.

In Cavineña, there is an additional property that further sets apart the pronouns in P2 from those in P1, which is that a P2 pronoun can co-occur with a P1 pronoun or an NP referring to the same argument in the same clause, as seen in

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(17a) with the P2 2nd person singular clitic *=mi* and the P1 2nd person singular pronoun *mike* and in (17b) with the P2 3rd person singular clitic *=tu* and the NP *iba* 'jaguar'.

(17) Cavineña

a. ***Mike***$_{S}$ ***=mi***$_{S}$ *kwa-wa=ama* *escuela=ju*. (Tavo Mayo 1977: 39)
2SG =2SG go-PERF=NEG school=LOC
'You didn't go to school (, did you?) (the priest asked me).'

b. [*Tuke* *tupuju*] ***=tu***$_{S}$ ***iba***$_{S}$ *tsajaja-chine*. (Camp & Liccardi 1972 :33)
3SG behind =3SG jaguar run-REC.PST
'The jaguar ran behind him (i.e. the jaguar chased him).'

To date, the morphological, syntactic and prosodic properties of pronouns have only been investigated in detail in Cavineña and Tacana. Yet, it seems that the same distinction between P1 and P2 pronouns is also present in Araona, Ese Ejja and Reyesano. Firstly, as was mentioned in § 2.1 for Reyesano and as can be seen in Table 5 for Araona and Ese Ejja, these three languages do have specific P2 pronouns, such as the enclitic *=mi* '2SG', which is found in all the Takanan languages (and reconstructible to Proto-Takanan) and, (at least) in Ese Ejja, several other enclitic forms such as *=mo* '1SG', *=se* '1PL', etc.[17] Secondly, in Reyesano, we have also commented that the pronouns that can be used in P1 can also be used in P2 (§ 2.1). And thirdly, in Araona and Ese Ejja, a review of the examples provided in the available grammatical studies on these languages (Pitman 1980; Emkow 2006 for Araona; Vuillermet 2012 for Ese Ejja) reveals that in most cases, the SAP pronouns are placed either in the P1 or in the P2, as can be seen in the following examples with 1st person pronouns in A function in Araona (18) and Ese Ejja (19).

(18) Araona

a. ***Yama***$_{A}$ *teje*$_{O}$ *tsae-odi* *behuehue*. (Pitman 1980: 93)
1SG.ERG field hoe-REPET now
'I am hoeing my field now.'[18]

b. *Becata* ***yama***$_{A}$ *pia*$_{O}$ *tí-shao-bo-ani*. (Pitman 1980: 93)
later.on 1SG.ERG arrow IPFV.give-come.and.return-going-IPFV.SIT
'Later on I will come back and give you the arrow.'[19]

---

17. Note that in Araona and Ese Ejja, as we commented for Reyesano, the P2 clitics appear to be used in fairly restricted contexts.

18. This translation is mine. The original, in Spanish, is 'Yo estoy rozando el chaco ahora'.

19. The original, in Spanish, is 'Más tarde vendré otra vez y le daré la flecha.'

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(19) Ese Ejja

a. ***Eyaya***$_{A}$ *xaxasiye-yobo*$_{O}$ *saja-ki-naje.* (Vuillermet 2012: 332)
1SG.ERG palm.sp-bud cut-go.to.do-PST
'I went to cut buds of xaxasiye (chonta palm).'

b. *Ekwe='ai*$_{O}$ ***eyaya***$_{A}$ *ba-ñaki-naje.* (Vuillermet 2012: 307)
1SG.GEN=old.sister 1SG.ERG see-come.TRS&do-PST
'I saw my elder sister when I arrived (before going again).'

3.2 Verbal agreement

In three of the four languages with ergative case marking discussed in this section, Araona, Ese Ejja and Tacana, verbal agreement is limited to 3rd person arguments. In the fourth language, Cavineña, verbal agreement is altogether absent. In Araona, Ese Ejja and Tacana, 3rd person agreement is realized the same way as in Reyesano, with a cognate suffix *-ta* or *-ka* that marks 3rd person A arguments (singular or plural) of transitive clauses (20) and 3rd person plural S arguments of intransitive clauses (21). (Note that (20b) is repeated from (13a).)

(20) Tacana transitive clauses with a 3rd person A

a. **3** → 2
Aya$_{A}$ *=papu* *=mida*$_{O}$ *e-dia-**ta**.*
who.ERG =UNKNOWN =2SG FUT-eat-3A
'Someone will eat you.'

b. **3** → 3
Jiawe =da id'eti$_{O}$ *biwa=ja*$_{A}$ *y-abu-**ta**-(a)ni.*
now =TOP sun spider.monkey=ERG IPFV-carry-3A-IPFV.SIT
'Now the spider monkey is carrying the sun.'

(21) Tacana intransitive clauses with a 3rd person S

a. 3PL
*Enekita =beu se=**kwana***$_{S}$ *e-manu-**ta**-sa.*
really =PERF fish=PL IPFV-die-3S.PL-IPFV.LIE
'Really the fish (pl) were dying.'

b. 3SG
… beu [*mesa ebakwa*]$_{S}$ *manu-iti-a.*
PERF 3SG.GEN child die-PFV-PST
'… his child had died.'

Depending on the languages, intransitive and transitive 3rd person markers have varying degrees of productivity. In Tacana, like in Reyesano, 3rd person marking is obligatory in transitive clauses and almost obligatory in intransitive ones. In Ese Ejja, 3rd person marking is obligatory in transitive clauses but fairly rare in intransitive ones (Vuillermet 2012: 373–377). Finally, in Araona, according to

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both Pitman (1980: 43) and Emkow (2006: 560–566), 3rd person marking is not obligatory in transitive clauses, although it is extremely frequent in the examples provided in the work of both authors. In intransitive clauses, 3rd person marking is even rarer than in Ese Ejja.[20]

4. Reconstructing the history of the Reyesano argument-marking system

The main characteristics of the argument-marking systems of the five Takanan languages are summarized in Table 6.

Table 6. Summary of argument-marking systems of Takanan languages

Language	(ergative) case marking	3rd person verbal agreement	SAP verbal agreement	P2 pronouns
Cavineña	*=ra*	–	–	x
Ese Ejja	*=(y/w)a*	x	–	x
Araona	*=(j)a*	x	–	x
Tacana	*=(j)a*	x	–	x
Reyesano	–	x	x	x

In the remainder of the paper, I propose a historical reconstruction of the three most noteworthy aspects of the Reyesano argument-marking system: (i) the lack of ergative case marking (§ 4.1); (ii) the SAP prefixes (§ 4.2) and (iii) the hierarchical pattern (§ 5). (Recall that 3rd person verbal agreement has been reconstructed to Proto-Takanan, as a 3rd person plural subject marker *-*ta*; Guillaume 2011.)

4.1 Loss of ergative case marking

The absence of case marking in Reyesano, in either nominal or pronominal NPs, could suggest that Proto-Takanan did not have case markers and that ergative case markers would have developed later on in Araona, Cavineña, Ese Ejja and Tacana. An ergative marker would not have developed in Reyesano, which would have therefore retained the old system. Such a view, however, does not seem plausible, for the following reason. In the internal classification of the Takanan languages, if Girard is correct (see Figure 1), Reyesano does not have a separate status, but

20. For a more comprehensive discussion and a historical reconstruction of 3rd person agreement in the different Takanan languages, see Guillaume (2011).

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belongs to a lower branch (Takanik), together with two other languages (Araona and Tacana). Therefore, if Reyesano had retained an old non-ergative case-marking system, the ergative markers in the other languages would have been innovated multiple times and recently. If that were the case, the ergative markers in the different languages should show some evidence of this multiplicity of recent innovations, such as (i) traces of the etymological sources and/or (ii) different forms. What we see, however, is just the opposite.

Firstly, as far as I know, the ergative markers in the different languages do not have evident (non ergative) cognates that could suggest a recent innovation. Secondly, the form and distribution of the ergative markers, whether as clitics on nominal NPs or affixes in independent pronouns, are very similar. This led me, in a preliminary reconstruction work (Guillaume 2015b; 2015c; 2015d), to posit the reconstructability of the ergative marker in Proto-Takanan in the form of the Proto-morpheme **ra* and the distribution in Table 7.[21]

Table 7. Tentative reconstruction of the Proto-Takanan ergative marker

**ra*	→ *ra*	**Cavineña**	
	→ *(y/w)a*	Ese Ejja	*ya* / *i,e*__ *wa* / *o*__ *a* / *a*__
	→ *(j)a* [ha]	Araona	*ja* [ha] / *a*__ *a* / elsewhere
	→ *(j)a* [ha]	Tacana	*(h)a* [ha] ~ Ø

Therefore, if Proto-Takanan had an ergative case-marking system (morpheme **ra*) and if Reyesano correctly belongs to a sub-branch of Proto-Takanan, this necessarily means that Reyesano's ancestor had an ergative marker and that Reyesano has lost it. As for the form of this marker, it was most likely **ja* [ha], considering that *ja* [ha] is the form of the actual ergative marker in both Araona and Tacana, the other two languages from the Takanik branch.

There are additional comparative facts in favor of this scenario. One of them is the 'defective' character of the ergative system of Tacana, which very possibly illustrates what took place in the past in Reyesano. The 'defective' ergative system of Tacana can be observed in different areas of argument marking. Firstly,

21. The likely reconstructability of the ergative marker in Proto-Takanan also pleads against the possibility that only some languages could have developed the ergative marker which would then have spread through contact to the other languages, but not to Reyesano.

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it manifests itself in the 'optionality' of ergative marking on nominal NPs in any position in the clause (22) and on 3rd person singular independent pronouns in P1 in main clauses (23).[22]

(22) Tacana

a. ***Tataedhi=ja***$_{A}$ *=pa* *bakwa*$_{O}$ *tidhi-ta-iti-a.*
grandfather=ERG =REP viper step.on-3A-PFV-PST
'Grandfather stepped on the viper.' (elicited)

b. ***Tataedhi***$_{A}$ *=pa* *bakwa*$_{O}$ *tidhi-ta-iti-a.*
grandfather =REP viper step.on-3A-PFV-PST
'Grandfather stepped on the viper.' (elicited)

(23) Tacana

a. ***Tu<aw>eda***$_{A}$ *se*$_{O}$ *duse-ta-iti-a.*
3SG<**ERG**> fish fetch-3A-PFV-PST
'He brought fish.' (elicited)

b. ***Tueda***$_{A}$ *se*$_{O}$ *duse-ta-iti-a.*
3SG fish fetch-3A-PFV-PST
'He brought fish.' (elicited)

Secondly, the 'defective' ergative system of Tacana is observed in the variable marking of singular SAP in A function in the P2 in the clause. As already discussed in § 3.1, these can be either marked by a specific ergative form, or by a neutral form which can also be used to mark a SAP in O and S functions. Thus compare the 1st person singular ergative pronoun *yama* in (24a) (repeated from (15a)) with its variant form *ema*, used to encode a 1st person singular argument in A function in (24b) (repeated from (15b)), and which formally matches the form of the 1st person singular in O function (25) and in S function (26).

(24) Tacana

a. *Jiawe =da* ***yama***$_{A}$ *e-manuame.*
now =TOP 1SG.ERG FUT-kill
'Now I will kill him.'

b. *Tueda*$_{O}$ *=beu* **ema**$_{A}$, *piada*$_{O}$ *dia-idha.*
this =PERF 1SG one eat-REM.PST
'This is what I ate, one (empanada).'

(25) Tacana

[*Tusa ete=su*] ***ema***$_{O}$ *dusu-ta-idha*
3SG.GEN casa=LOC 1SG transport-3A-REM.PST
'He took me to his house.'

22. For more details on the phenomenon of optional ergative marking in Tacana, see Guillaume (2014).

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(26) Tacana
[*Mi=e-bianetia=puji*] ***ema***$_{S}$ *pue-iti-a…*
2SG=IPFV-protect=PURP 1SG come-PFV-PST
'I came to protect you…'

The same phenomenon can be seen with the 2nd person singular pronoun in P2 in A function which, in addition to its ergative form *miada* (27a), repeated from (16a), has two variants, *=mida* (27b), repeated from (16b), and *=mi* (27c), repeated from (16c), which correspond to the absolutive forms in O function (28a, b) and S function (29a, b), again manifesting the complete neutralization of case marking.

(27) Tacana
a. *Ai =tse* ***miada***$_{A}$ *mi=mewa abu-kwa.*
what =MAYBE 2SG.ERG 2SG=ALONE carry-ABIL
'How can you carry it alone?'
b. *Kepia* ***=mida***$_{A}$ *e-jeti-einia*?
where =2SG IPFV-fetch-IPFV.SIT.1/2
'Where are you going to fetch it (the cheese)?'
c. *Daja* ***=mi***$_{A}$ *sobrino*$_{O}$ *e-kisa.*
thus =2SG nephew FUT-relate
'So you will say to your nephew.'

(28) Tacana
a. *Caimán=ja* ***=mida***$_{O}$ *nid'ujemi-ta-iti-a.*
caiman=ERG =2SG remove.soul-3A-PFV-PST
'The damn caiman bewitched you (lit. removed your soul).'
b. *Corregidor=ja* ***=mi***$_{O}$, *e-kisaba-me-ta-ani…*
corregidor=ERG =2SG IPFV-ask-CAUS-3A-IPFV.SIT
'The corregidor made someone ask you (if you could accompany them…).'

(29) Tacana
a. *Jiawe=kita* ***=mida***$_{S}$ *e-bute.*
now=INTENS =2SG FUT-go.down
'Now you will go down (from the tree).'
b. *Kepia* ***=mi***$_{S}$ *puti-a*?
where =2SG go-PST
'Where did you go?'

(Note that the 'defective' ergative marking of singular SAPs is only found in P2 in the clause; in P1, singular SAPs in A function are consistently marked ergative.)

Thirdly, the 'defective' ergative system of Tacana is observed in the absence of distinct ergative 1st, 2nd, and 3rd person dual and plural pronouns, whether they are used in P1 (Table 4) or P2 (Table 5) in the clause.

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Since Tacana, like Reyesano, belongs to a sub-branch of Proto-Takanan, and since it is the only ergative Takanan language to display such 'defective' properties (in the marking of NPs, 3rd person singular independent pronouns, singular SAP in P2 and non-singular pronouns in any position), the optionality of the ergative case marking in Tacana must necessarily be interpreted as a case of innovation rather than retention, and as evidence of the beginning of loss of the ergative/absolutive case distinction in this language (Guillaume 2014). Considering that Tacana and Reyesano are in a sister relation in the internal classification of the family, it seems very probable that what is happening in Tacana nowadays is exactly what happened in Reyesano at an earlier stage and that in Reyesano the process was fully completed, giving rise to the total loss of the ergative case marker in the marking of nominal or pronominal NPs.

4.2 Rise of person prefixes

The presence of SAP person and number agreement prefixes in Reyesano could suggest that Proto-Takanan had such prefixes, that they were retained in Reyesano and lost in the other languages. Among the arguments that one could put forward to defend this view is that their segmental make-up is fairly reduced (limited to one consonant, *m* and *k*, in the case of 1st person markers), which could suggest that they have been grammaticalized a very long time ago. Yet, there are stronger arguments in favor of the claim that Proto-Takanan did not have any of these prefixes and that they correspond to a recent innovation.

4.2.1 *Innovation rather than retention*

The first argument in favor of the innovation hypothesis is the same as that for innovation in the loss of ergative case marking in Reyesano, namely that within the internal classification of the Takanan family, Reyesano does not form a separate branch (Figure 1). If present in Proto-Takanan, the SAP prefixes would still have been present at the Proto-Takanik level which means that they would have been subsequently lost independently in all the four Takanan languages that don't have them. This is a very unlikely scenario considering that, according to the present knowledge that we have of these languages, there are no traces of verbal person prefixation in their grammars.

The second argument in favor of innovation comes from the forms of the prefixes, which happen to be very similar to those of the independent (neutral) pronouns in Reyesano and those of the P1 and P2 (absolutive) pronouns of the other Takanan languages, as can be seen in Table 8, which repeats in part Table 4 and includes the Reyesano prefixes. (The formal similarities between the prefixes and the independent pronouns are highlighted in bold).

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Table 8. Person prefixes and (neutral) independent pronouns in Reyesano and (absolutive) independent pronouns in the other Takanan languages

			Takanik		Kavinik	Chamik
	Reyesano		Tacana	Araona	Cavineña	Ese ejja
1SG	***m***-	***eme***	***ema***	***ema***	*ike*	*eya*
2SG	***mi***-	***mi****(w)e*	***mi****da*	***mi****dya*	***mi****ke*	***mi****ya*
1PL	***k***-	*e****k****ama*	*e****k****wana(j)u / e****k****waneda*	***k****wama /****k****wada*	*e****k****wana*	*esea / e****k****wa(na)*
2PL	***mik***-	***mik****a*(*we*)	***mik****waneda*	***mik****ana*	***mik****wana*	***mik****yana*

As one can observe, the agreement prefixes *mi-* '2SG', *k-* '1PL' and *mik-* '2PL' are all found forming part of their corresponding independent pronouns in all the languages. The only prefix whose shape is not found in the independent pronouns in all the languages is the 1st person singular *m-*, which has nothing in common with Cavineña *ike* and Ese Ejja *eya*. Yet, an *m* segment is present in Reyesano *eme* and Araona and Tacana *ema*. Considering that these three languages belong to the same sub-branch of the family (Takanik) it looks very likely that Reyesano *m-* comes from the grammaticalization of a 1st person independent pronoun with the shape **eme* or **ema* in Proto-Takanik. By deduction, one can surmise that the other members of the prefix paradigm (*mi-* '2SG', *k-* '1PL' and *mik-* '2PL') have developed out of the Proto-Takanik independent pronouns for 2SG, 1PL and 2PL, whose exact shape remains to be determined.

Having provided evidence that the Reyesano SAP prefixes are much more likely an innovation rather than a retention of Proto-Takanan and that they arose out of independent pronouns, we now turn to the investigation of how these independent pronouns came to develop into agreement prefixes.

4.2.2 *From independent pronouns to agreement prefixes*

Cross-linguistically, we know that the grammaticalization of independent pronouns to agreement markers normally proceeds along the following formal and functional dimensions (Siewierska 2004: 126, 262):

(30) Grammaticalization path from independent pronouns to agreement markers (Siewierska 2004: 126, 262)
- formal dimension: independent person marker > weak form > clitic > agglutinative affix
- functional dimension: anaphoric pronoun > pronominal agreement marker > ambiguous agreement marker > syntactic agreement marker

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Starting with the formal dimension, if we look for weak forms of 1st and 2nd person independent pronouns in the present-day Takanan languages, we find them in the P2 in main clauses, where there is evidence of incipient grammaticalization, such as alternations between morphological variants, and/or between forms that are stressed or unstressed (i.e., clitics; see § 3.1). It is also of note that the use of pronouns in P2 is apparently much more frequent than in P1, a phenomenon which coincides with the discursively unmarked status of pronouns in P2. Having shown that this phenomenon is well documented in at least two languages that belong to two distinct branches of the family (Cavineña and Tacana), and that it is also probably present in the other three (Araona, Ese Ejja and Reyesano), we can probably reconstruct a 'P2 pronoun slot' in Proto-Takanan main clause structure. In this slot, P2 pronouns would go through the grammaticalization process to become P2 agreement markers, a pattern which is attested in other languages of the world (see for example the P2 agreement markers in Sahaptin and Salishan languages; Gildea & Jansen, this volume). And we can make the hypothesis that the present day Reyesano main clauses, with person prefixes on the main verb, are historically cognate to these clauses with a P2 in the different Takanan languages. It is therefore quite likely that in Reyesano, the weakening of independent pronouns in the 'P2 pronoun slot' represents the first stage in the path from independent pronouns to pronominal prefixes.

The second stage in the grammaticalization path is that from weak and highly frequent P2 pronouns to obligatory verb prefixes. Here I argue that this move is the result of the high frequency in which one finds the verb located immediately after the P2 pronouns or pronominal clitics – e.g. in Reyesano (5b), Tacana (15a, c), (16b, d), (20a), Cavineña (17a) and Ese Ejja (19b) –, and the fact that this collocation is probably much more frequent than any other kind of collocation between a P2 pronoun with another class of word. A rough count of the distribution of the Tacana P2 clitic *=mi* '2SG' (in combination or not with another following P2 pronoun) in main clauses in 11 texts reveals the following distribution: out of 57 occurrences of *=mi*, 29 (50%) are immediately followed by the main inflecting verb (or auxiliary) of the clause, 8 (14%) by the (non-inflecting) lexical verb of a complex predicate (with an inflecting auxiliary) and 20 (35%) by some other kind of element or constituent (typically a noun phrase or an adverb-like word).

One could object that P2 pronouns, which tend to be pronounced together with a preceding word, and which are enclitics for some of them (e.g. *=mi* 'SG'), should develop into suffixes rather than prefixes. This is probably not a strong counterargument, however, for the reason that P2 pronouns do not rigidly combine with a specific preceding word class. The first constituent can be basically anything, a conjunction, a noun phrase, a postpositional phrase, a verb, a

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subordinate clause, etc. In addition, the last word of the first constituent and the P2 pronouns can be separated by other types of P2 elements (marking discourse status, epistemic modality, evidentiality, etc.). Finally, it is worth adding that a similar phenomenon, known as the Tobler-Mussafia Law, has been documented in some Indo-European languages with P2 clitics, as reported by Spencer and Luís (2012) in their typological study of clitics:

> An interesting variant on the second-position placement is shown in Bulgarian and a variety of medieval forms of Romance, in which the first position in the clause can be occupied by a whole variety of constituents and the clitic cluster then follows that first constituent, but *the element following the clitics has to be the main verb* (with or without auxiliary verbs). The exception is when the first element in the clause is itself the main verb. The result is that *the clitics are always adjacent to the verb*. This is the Tobler-Mussafia patterning, and it would appear that it represents an intermediate stage for many languages on the way to the next pattern of placement, adjacent to the verb, represented by Bulgaria's closest neighbour, Macedonian. (emphases mine) (Spencer & Luís 2012: 73)

One could also wonder whether the Reyesano verb prefixes could not have originated in other types of constructions, such as, for example, subordinate clause constructions reanalyzed as main clauses, a diachronic pattern documented in other languages (see for example Gildea 1998). Note that in some Takanan languages (as in Ese Ejja and Tacana), such subordinate clause constructions can encode the arguments by way of unaccented pronominal forms which are formally related to the pronouns of main clauses in the Takanik languages. In Tacana, there is a set of case-neutral pronominal forms which are proclitic to the first word of the subordinate clause, as with (at least) *mi*='2SG' (see e.g. (26)), *tu*='3SG' and *tuna*='3PL'. Unfortunately, very little is known about these forms and their exact functions in subordinate clauses, in which case I am not in a position to evaluate this hypothesis any further at this point. On the other hand, it should be noted that Reyesano main clauses with person prefixes on the verb do not display obvious structural differences that would play against the validity of their cognacy with the main clauses in the other Takanan languages, apart from the absence of case marking (but also underway in Tacana) and for a preferred (but not syntactic) verb-initial order. Crucially, most of the Reyesano verbal inflectional morphology is unambiguously cognate with that of at least the languages of the Takanik sub-branch (Araona and Tacana), which also have the 3rd person suffix *-ta* '3A', the past suffix *-a*, the 'future or imperfective' prefix *e-*, and the set of posture-based imperfective suffixes. The only 'abnormal' component of the Reyesano inflectional morphology, whose historical origin is unknown, is the prefix *a-*, which must be used in conjunction with the past tense suffix *-a* (forming, at least synchronically, a circumfix), as seen in, for example, (2a,b). However,

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as far as I know, this prefix does not seem to be cognate with any element associated with clausal subordination in Takanan languages either.

Turning to the functional dimension of the grammaticalization path, there is evidence that, at least in one language, Cavineña, a pronoun in P2 can co-occur with an independent pronoun in P1 (or an NP in any position) referring to the same argument in the same clause. This was discussed in § 3.1 and exemplified with (17a,b), which are repeated below for convenience. (See also (32b) and (33b).)

(31) Cavineña

a. ***Mike***$_S$ ***=mi***$_S$ *kwa-wa=ama* *escuela=ju.*
2SG =2SG go-PERF=NEG school=LOC
'You didn't go to school (, did you?).' (Tavo Mayo 1977: 39)

b. [*Tuke* *tupuju*] ***=tu***$_S$ ***iba***$_S$ *tsajaja-chine.*
3SG behind =3SG jaguar run-REC.PST
'The jaguar ran behind him (i.e. the jaguar chased him).'
(Camp & Liccardi 1972: 33)

Although such a possibility is not attested in other Takanan languages, its presence in Cavineña suggests that agreement is a possible natural output of the weakening of independent pronouns in P2, and could therefore have occurred in Reyesano.

Having explained how the person prefixes probably developed in Reyesano, we still need to provide an account of why this development took place in this language and not in the other Takanan languages. If I am correct that clause structure with P2 pronouns can be reconstructed to Proto-Takanan, this construction is therefore very stable in time in the Takanan family. If we add that within this construction the P2 pronouns can develop most of the characteristics of typical verbal indexation systems (such as agreement, as in Cavineña), there does not seem to be any cogent language internal functional reason for a language to develop an alternative system in which the person markers are attached to the verb rather than retained in P2 in the clause. This suggests that the development of the person prefixes could have been triggered by some external factors, such as multilingualism with languages which had verbal person prefixes or proclitics. In other words, the Reyesano prefix or proclitic pattern could have been borrowed from languages with which the Reyesano speakers would have been very familiar. Here, I would like to suggest that such a situation arose out of the contact that Reyesano most likely had with this type of languages within the Moxos geographic and cultural region, to the east of the Beni river (today Beni department). As a matter of facts, most of the present-day languages which have traditionally bordered Reyesano in that region do have either SAP verbal person prefixes, such as the Arawak language Mojeño (Danielsen 2011: 507; Rose 2011: 474; 2015) and the isolate languages Cayubaba (Crevels 2012a: 365) and Canichana (Crevels 2012b: 442–443), or SAP verbal

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person proclitics, such as the isolate language Movima (Haude 2011: 565).[23] In the 17th–18th centuries, many of these languages were forced to live together within Jesuit missions / reductions (Crevels 2002). The present-day town of Reyes, where most remaining Reyesano people live nowadays, happen to have been such a mission, called *Los Santos Reyes*, founded around 1706 (Guillaume 2012: 193–194). In 1773, according to Block (1994: 87–88), this mission was organized around three groups (*parcialidades*) defined on linguistic criteria, the **Macarani**, the **Majieno** and the **Romano**, which had the practice of exchanging females. Block does not identify the languages spoken by these people. However, the first two seem to correspond to two languages reported to have been spoken in the mission *Los Santos Reyes* at about the same time, **Maracane** and **Magíana**, for which we have a few words, collected by the governor Lázaro de Ribera at about the same time and published in 1786–1794 (Ribera 1989: 82, 169–170). Interestingly, the Maracane (Macarani) seem to have spoken a language similar to that of the present day Reyesano[24] and the Magíana (Majieno) a language similar to that of the present day Mojeño (Arawak).[25] (As for the Romano, as far as I know, we do not have any linguistic material on their language.) Therefore, it seems that in the context of the mission *Los Santos Reyes*, the speakers of the ancestor of Reyesano (the Macarani/Maracane people) have been in very close contact and bilingual with the speakers of a language closely related to the present day prefixing Arawak language Mojeño (the Majieno/Magíana people). It is worth adding that the system of person prefixes in this language, like Reyesano, contains distinct forms encoding 1st vs 2nd person and singular vs plural number (Danielsen 2011: 507; Rose 2011: 474; 2015).

The other four Takanan languages are less likely to have been in close contact and multilingual with the prefixing languages listed above (or any other prefixing languages). Traditionally (and still essentially today) spoken to the west of (or

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23. Note that at least one direct neighbor to Reyesano in the same region, the isolate language Mosetén-Chimane, does not have person prefixes or proclitics (Sakel 2011: 542, 544).

24. This hypothesis is based on the following Maracane words most of which are nearly identical to present day Reyesano: *saypive* 'good' (Reyesano *daypive* [ðajpiβe]), *maabesaíme* 'bad' (Reyesano *mawe daime* [maβ̞eðajme] 'NEG good'), *quetata* 'the father' (Reyesano *ke~ki tata* 'my father'), *qua* 'the mother' (Reyesano *kua*), *eperegí* 'the friend' (no such word in my Reyesano database but Tacana has *epereji* [epeɾehi]) and *viba* 'spider monkey' (Reyesano *biwa*).

25. The hypothesis is based on the Magíana words *nuu-há* [1SG.POSS-father] and *nuu-héno* [1SG.POSS-mother], which are very similar in the present day Mojeño dialects Ignaciano and Trinitario (*n(u)-* '1SG.POSS', *iya* 'father', *éna/eno* 'mother': Françoise Rose, p.c.; Ott & Burke de Ott 1983), and on the *-ana* ending in language name Magíana, which corresponds to the plural suffix in the Ignaciano dialect (Ott & Burke de Ott 1983: 50), which is the Mojeño dialect geographically the closest to Reyesano.

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along) the Beni river, they were not immediate neighbors of the prefixing languages of the Moxos geographic and cultural region. Rather, they were neighbors of languages which do not have person prefixes or proclitics, such as the Andean foothill isolate language Leko (Kerke 2006: 174ff), the Andean languages Quechua (Adelaar 2004: 207ff), Aymara (Adelaar 2004: 274ff) and now extinct Pukina (Adelaar 2004: 350ff), and the Amazonian Panoan language Chácobo-Pacahuara (Córdoba, Valenzuela & Villar 2012). Therefore, whether or not the four non-prefixing Takanan languages were multilingual with other languages, in mission[26] or in other contexts, it is very unlikely that they were influenced by prefixing languages.

5. The genesis of hierarchical effect

We will now turn to the last, and probably most fascinating, piece of the puzzle, which is the pattern in which SAP forms are selected according to a 2>1>3 person hierarchy in transitive clauses and the fact that the prefix forms do not distinguish the grammatical function played by their referent.

5.1 Hierarchical pattern SAP>3

Starting with the development of the SAP>3 portion of the hierarchy, I argue that it is a direct consequence of the role played by the obligatory verbal suffix *-ta* '3A' in transitive clauses, which indicates that the agent/subject of the clause is a 3rd person (see § 2.2.1 and § 3.2). I propose that the original presence of this suffix, reconstructible in Proto-Takanan (see Guillaume 2011), made it unnecessary for Reyesano to develop another 3rd person affix, which would have been functionally redundant. All that was needed, in order to make the system maximally efficient and economical, was to complement *-ta* '3A' with a set of SAP affixes which, by their mere presence vs. absence, would disambiguate whether the other argument is a 1st, 2nd or 3rd person and whether this other argument refers to the O or to the A. The validity of this scenario is supported by comparative evidence, to be found in the contrastive grammaticalization of independent pronouns in P2 in Tacana and Cavineña. In Tacana, which also has the verbal suffix *-ta* '3A', only SAP

26. Cavineña and Tacana, like Reyesano, are mission languages whose ancestors were forced to cohabit with other languages of the region. In both cases, the missions were Franciscan, not Jesuit, and they were established more recently: in the case of Cavineña, it was *Misión Jesús de Cavinas*, founded in 1764 (Guillaume 2008: 5–6) while in the case of Tacana it was the three missions *Santísima Trinidad del Yariapu*, founded in 1713, *San José de Uchumiamonas*, founded in 1716 and *San Antonio de Ixiamas*, founded in 1721.

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(and never 3rd person) pronouns are found in P2 in the clause, as illustrated with 1st person pronouns in (24) and (25) and 2nd person pronouns in (27) and (28).

By contrast, in Cavineña, a language which does not have the verbal suffix *-ta* '3A' (this suffix has become a passive marker; see Guillaume 2011), both SAP and 3rd person pronouns can be found in P2 in the clause, as in (32) and (33).

(32) Cavineña

a. *Nereda* ***=tura***$_{A}$ ***=Ø***$_{O}$ *a-kware…*
scold =3SG.ERG =1SG affect-REM.PST
'She (my mother) scolded me…'

b. *Metajudya* ***=tuke***$_{O}$ ***=Ø***$_{A}$ *a-ya* *etare*$_{O}$.
tomorrow =3SG.ABS =1SG affect-IPFV house
'Tomorrow I will make (lit. affect) a nest (lit. a house).'

(33) Cavineña

a. [*Mike* *chapa* *metse=tibu*] ***=tura***$_{A}$ ***=mi***$_{O}$ *tupu-ya*.
2SG dog owner=REASON =3SG.ERG =2SG follow-IPFV
'Since you are the dog$_i$'s owner, he$_i$ will follow you.'

b. *Ai*$_{O}$ ***=tuke***$_{O}$ ***=mi***$_{A}$ *mare-wa*?
INT =3SG.ABS =2SG shoot.at-PERF
'What did you (sg) shoot at?'

In Reyesano, as in other reported cases, the SAP>3 ranking in mixed configurations is therefore straightforward: it mechanically falls out of the absence of 3rd person weak or clitic pronouns in P2 in pre-Reyesano. As we will see in § 6, this development path provides an interesting contribution to the on-going theoretical debate around the functional motivations for the cross-linguistic recurring role of the SAP>3 hierarchy.

As for the fact that the prefixes do not distinguish the grammatical function played by their referent, this is most likely the result of the loss of case-marking in the SAP pronouns, as attested in Tacana where, as discussed in § 4.1, (i) singular SAPs in P2 display variants which neutralize the ergative-absolutive distinction and (ii) the whole set of non-singular (SAP and 3rd person) pronouns do not distinguish between ergative and absolutive forms, either in P1 or P2.

5.2 Hierarchical pattern 2>1

In local configurations, the motivation for why there is only one prefix which corresponds to the 2nd person in either 1→2 and 2→1 configurations (thus the 2>1 ranking) cannot be the same as that proposed for the development of the SAP>3 portion of the hierarchy, i.e., in terms of maximizing the efficiency

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of disambiguation. The reason is that here, there is nothing in the verb (or elsewhere) to help retrieve the grammatical function of this 2nd person prefix (like the *-ta* '3A' suffix in SAP↔3 configurations). And indeed, if we look at local configurations in both Cavineña and Tacana, where the situation is the same, one finds that both 1st and 2nd person pronouns are allowed in P2, that they typically co-occur at the same time, and that 2nd person pronouns obligatorily precede 1st person pronouns, regardless of their grammatical function. The pattern is illustrated with data from Tacana in (34a,b), in the 1→2 configuration, and (35a,b), in the 2→1 configuration. (Note that (34a) is repeated from (15c) and (35b) from (16d).)

(34) Tacana

a. [*Ye waka biti=neje*] =***mida***$_{O}$ ***yama***$_{A}$ *e-manuame.*
this cow skin=ASSOC =2SG 1SG.ERG FUT-kill
'I'm going to kill you with this whip.'

b. *E-id'ua* =***mida***$_{O}$ ***yama***$_{A}$.
FUT-wait.for =2SG 1SG.ERG
'I will wait for you.'

(35) Tacana

a. *Ai petse* ***miada***$_{A}$ ***ema***$_{O}$ *dia-kwa.*
what EXCL 2SG.ERG 1SG eat-ABIL
'How can you carry it alone?'

b. *Ai=puji* =***mida***$_{A}$ ***ema***$_{O}$ *tuajududu-iti-a*?
what=PURP =2SG 1SG run.away.from-PFV-PST
'Why did you run away from me?'

Therefore, it is reasonable to assume that in P2 in local configurations (unlike in P2 in mixed configurations) in pre-Reyesano, pronouns expressing both arguments, one for 2nd person and one for 1st person, would have been available for further grammaticalization into verbal prefixes. As it turns out, however, the resulting grammaticalization pattern in Reyesano only makes reference to 2nd person, not 1st person. Logically, this could have happened according to at least two different grammaticalization paths, which will be discussed in turn below: (i) grammaticalization of only 2nd person pronouns or (ii) grammaticalization of both 2nd and 1st pronouns with subsequent loss of 1st person forms.

The first proposed grammaticalization path, which I believe is the most plausible, would be a consequence, during the grammaticalization process, of the cross-linguistically well-documented tendency for speakers to avoid explicit reference to both 1st and 2nd person in local configurations, so as to reduce the

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face-threatening effects that such configurations frequently have (Heath 1991; 1998; Siewierska 2004: 237–241; DeLancey this volume). As argued by Heath (1991; 1998), this sociopragmatic phenomenon is responsible for a wide range of opaque agreement patterns documented in local configurations in Australian and Amerindian languages. One of the patterns listed by Heath is precisely that which consists in marking only one of the two arguments ('strategy 3: one of the two markers (elsewhere nonzero) expressed by zero'). Moreover, it appears that it is most commonly the 2nd person that is marked (as in Reyesano) rather than the 1st person (Siewierska 2004: 240).

According to this scenario, pre-Reyesano would have developed a tendency to avoid 1st person pronouns in this context, resulting in the pattern in which 1st person pronouns did not develop into verbal prefixes. Comparative evidence in favor of this hypothesis comes from the observation that in Tacana 2nd and 1st person in P2 in local configuration display a number of discrepancies in terms of their morphology, prosody and distribution. These discrepancies suggest that in this language 2nd person pronouns are at a more advanced stage of grammaticalization than 1st person pronouns, being therefore more prone to become prefixes.[27] The discrepancies can be observed in the following tables, which list all the attested forms, combinatorial patterns and frequency of occurrence of 2nd and 1st person singular[28] pronouns attested in my whole corpus,[29] whether in 2→1 scenarios (Table 9) or in 1→2 scenarios (Table 10).

27. In Cavineña and in the other Takanan languages, I have no clear information whether 2nd and 1st person might display the kind of discrepancies found in Tacana. Yet, it is not unreasonable to believe that such discrepancies are present in these languages as well and are even reconstructible to Proto-Takanan, considering that the only P2 pronoun clearly reconstructible to Proto-Takanan is a 2nd person form, the 2nd person singular *=mi* (§ 3.1).

28. Tacana 1st and 2nd person non-singular pronouns (1st person dual inclusive, 1st person dual exclusive, 2nd person dual and 2nd person plural) have been less studied and there are not enough examples and combinations in the available corpus to be able to say whether they display the similar type of prosodic, morphological and distributional imbalance as found between 1st and 2nd person singular.

29. The Tacana corpus consists of 36 narrative texts that I recorded from three women and six men in the village of Tumupasa between 2009 and 2013. In the Toolbox program, these texts amount to 3224 sentences. In addition, the corpus includes 729 sentences that I elicited in isolation and 14 narrative texts that were published by the SIL missionary Ottaviano (1980), which amount to 981 sentences in Toolbox.

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Table 9. Morphological, prosodic and distributional properties of Tacana P2 singular SAP pronouns in local (2→1) scenarios

pattern	2SG pronoun in P2 (A function)	1SG pronoun in P2 (O function)	nb. of token (out of 24 examples)	frequency
a.	*miada*	*ema*	2	low
b.	*=mid(a)*[29]	*ema*	10	high
c.	*=mi*	*ema*	11	high
d.	*=mida*	Ø (*ema* in 1st posit.)	–	–
e.	*=mida*	Ø	1	low
f.	*=mi*	Ø (*ema* in 1st posit.)	–	–
g.	*=mi*	Ø	–	–
h.	Ø	*ema*	–	–
i.	Ø	Ø (*ema* in 1st posit.)	–	–
j.	Ø	Ø	–	–
k.	Ø (*miada* in 1st posit.)	*ema*	–	–
l.	Ø (*miada* in 1st posit.)	Ø	–	–

Table 10. Morphological, prosodic and distributional properties of Tacana P2 singular SAP pronouns in local (1→2) scenarios

pattern	2SG pronoun in P2 (O function)	1SG pronoun in P2 (A function)	nb. of token (out of 70 examples)	frequency
m.	*=mid(a)*[30]	*yama*	30	high
n.	*=mi*	*yama*	15	high
o.	*=mida*	Ø (*yama* in 1st posit.)	11	high
p.	*=mi*	Ø (*yama* in 1st posit.)	6	mid

(*Continued*)

30. The reduced variant *=mid* is almost (always?) used in recorded texts. The full variant *=mida* is generally used in elicitation (and while repeating recordings in slow speech).

31. The reduced variant *=mid* is occasionally heard in recorded texts. The full variant *=mida* is normally used either in recorded text, in elicitation, and while repeating recordings in slow speech.

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Table 10. (*Continued*)

pattern	2SG pronoun in P2 (O function)	1SG pronoun in P2 (A function)	nb. of token (out of 70 examples)	frequency
q.	=*mida*	Ø	5	mid
r.	=*mi*	Ø	1	low
s.	Ø (*mida* in 1st posit.)	*yama*	–	–
t.	Ø (*mida* in 1st posit.)	Ø	–	–
u.	Ø	*yama*	2	low
v	Ø	Ø	–	–

As seen in these two tables, the main differences between 2nd and 1st person P2 singular pronouns in local configurations are as follows:

- **prosody**: 2nd person singular pronouns, whether in A or O function, are almost always unstressed (there are only two exceptions in the whole corpus; cf. pattern a.); by contrast 1st person singular pronouns, whether in A or O functions, are always stressed;
- **morphology**: 2nd person singular pronouns in P2 display alternating forms (=*mid* and =*mi*) which are segmentally different from 2nd person singular pronouns in P1 in the clause (ergative *miada* or absolutive *mida*); by contrast, 1st person singular pronouns in P2 always have the exact same forms as 1st person singular pronouns in P1 (ergative *yama* and absolutive *ema*)[32]
- **distribution**: 2nd person singular arguments, whether in A or O functions, are almost always expressed by a 2nd person pronoun (there are only two exceptions in the whole corpus, in the 1SG→2SG configuration; cf. pattern u.); by contrast, 1st person singular arguments are quite frequently unmarked in P2, especially in 1SG→2SG configurations, being either expressed by a pronoun in P1 (cf. patterns o. and p.) or left unmarked altogether (cf. pattern q. and r.)

Departing from the Tacana patterns displayed in Table 9 and Table 10, it is a small step to yield a single grammaticalized pattern of 2nd person singular forms. All that is needed is that the case-neutral =*mida Ø* and =*mi Ø* sequences, in both 2→1 and 1→2 configurations, become more frequent and obligatory,

32. Note that in mixed configurations, as illustrated in § 3.1, the P2 encoding of 1st person singular argument can be done by way of either the ergative pronoun *yama* (cf. (15a)) or absolutive/neutral pronoun *ema* (cf. (15c)).

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with the 2nd person clitic losing its anaphoric / referential properties and turning into an agreement marker. In the 1SG→2SG scenario, the *=mida Ø* and *=mi Ø* sequences are already fairly frequent, accounting for 33% of the corpus examples (23 tokens out of 70 examples; cf. patterns o, p, q & r), which already indicate a 'pattern'. In that first scenario, the grammaticalization of the Reyesano 2nd person prefixes would have only required frequency to become higher. In the 2SG→1SG scenario, however, the frequency of *=mida Ø* and *=mi Ø* sequences is much lower, actually close to null (only one token of *=mida Ø* out of 24 examples in the available corpus; cf. pattern e.), which therefore does not seem to form any 'pattern'.[33] In that second scenario, the grammaticalization of the Reyesano 2nd person prefixes would have therefore initially required the introduction of *=mida Ø* and *=mi Ø* 'patterns' (i.e., occurring in more examples) before it became highly frequent.

The second logically possible grammaticalization path, which I believe is less probable, is the grammaticalization of both 2nd and 1st pronouns with subsequent loss earlier or later in the process, of 1st person forms through some mechanism of phonological reduction. Arguably, early phonological reduction could have occurred along the lines of what happens in P2 clitic pronouns in Cavineña, where there is a morpho-phonological rule that regularly deletes the suffix of the final clitic (or the whole final clitic if it is a 1st person singular) whenever the sentence contains a following word. The application of this rule can be seen at work in the b-examples in (36), with 1→2 combinations, and (37), with 2→1 combinations (see full details in Guillaume 2006: 182–187; 2008: 576–583; 2010b: 105–107).

(36) Cavineña

a. *Iwa-baka-wa* ***=mike***$_{O}$ ***=era***$_{A}$.
wait.for-SHORT.TIME-PERF =2SG =1SG.ERG
'I've waited for you a little bit.' (elicited)

b. *Iyaja=kwita=dya* ***=mike***$_{O}$ ***=Ø***$_{A}$ *katsa-wana-ya*!
NOW=RESTR=FOC =2SG =1SG.ERG beat-ADVERS-IPFV
'I will whip you right away, damn it!'

(37) Cavineña

a. *Adeba-ya* ***=mira***$_{A}$ ***=ike***$_{O}$?
know-IPFV =2SG.ERG =1SG
'Do you know me?' (Camp & Liccardi 1989: 68)

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33. The lack of *=mida Ø* and *=mi Ø* sequences in 2→1 scenarios might be an effect of the small number of examples of that configuration in my corpus (only 24, as compared to the 70 examples of 1→2 configurations).

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b. *Tapeke=kwana*$_{O}$ *=**mi-ra***$_{A}$ *=**Ø***$_{O}$ *baka-wa.*
trip.food=PL =2SG-ERG =1SG ask.for-PERF
'You asked me about (lit. for) trip food.'

However, the presence and effects of a similar deletion rule in pre-Reyesano is not very likely. Firstly, no such rule is attested in Tacana, in spite of the fact that Reyesano is genetically much closer to Tacana than to Cavineña. And secondly, the Cavineña deletion rule applies not only in local (1↔2) scenarios, but also in mixed (SAP↔3) scenarios (cf. (32a,b) and (33a,b)) and intransitive scenarios (cf. (31a,b)) (as well as in non-local, 3↔3 scenarios). Therefore, if such a rule had been present in Pre-Reyesano, it should have resulted in the absence of SAP prefixes in these other scenarios as well.

Finally, one could suggest loss of 1st person forms at a later stage in the grammaticalization process, i.e., once both 2nd and 1st pronouns had grammaticalized into clusters of person prefixes. According to this path, if we take the actual forms of the 2nd and 1st person prefixes (as used other configurations) and combine them according to the placement rule of P2 pronouns in Tacana (i.e., 2nd before 1st), pre-Reyesano would have first had the four prefix clusters listed in (38).

(38) Putative clusters of 2nd and 1st person P2 pronouns in pre-Reyesano
mi-m- 2SG→1SG / 1SG→2SG
mi-k- 2SG→1PL / 1PL→2SG
mik-m- 2PL→1SG / 1SG→2PL
mik-k- 2PL→1PL / 1PL→2PL

Subsequently, each of the pronoun clusters would have collapsed into a single form which in each combination corresponds to the first member of the cluster (i.e., the 2nd person). Although there is no strong argument against this possible development, there is at the same time no strong argument in favor of it. In particular, it is unclear what motivation could have triggered such reduction process. And as far as I know, this type of reduction process is not attested elsewhere in Reyesano or in other Takanan languages. As a result, I believe that the first proposed hypothesis, i.e., the grammaticalization of only 2nd person pronouns under the sociopragmatic pressure to avoid transparency in local scenario, is the most plausible of the three, from comparative and cross-linguistic perspectives.

6. Summary and conclusions

In this paper I have proposed a historical reconstruction of the Reyesano hierarchical agreement prefixes together with a reconstruction of the whole argument-marking system. It was argued that the actual system is the result of two recent

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innovations unique to this language within the Takanan family: the complete loss of ergative marking and the grammaticalization of person prefixes.

The proposed grammaticalization path can be summarized along the following lines. Initially, pre-Reyesano was characterized by consistent ergative case marking on NPs and P1 pronouns in A function, regardless of their position on the referential hierarchy. With NPs, ergative marking was done via an enclitic postposition *=*ja* [ha]. With P1 pronouns, it was realized by way of two distinct sets of ergative vs. absolutive pronouns. In P1, pronouns were used in discursively marked contexts (such as contrastive focalization or topicalization). In discursively unmarked contexts, 1st and 2nd person pronouns (but not 3rd person pronouns) were used in P2. In that position 1st and 2nd person pronouns could co-occur, with the 2nd person pronoun always positioned before the 1st. In P2, the pronouns manifested evidence of incipient grammaticalization (lack of independent stress, presence of allomorphic variants and loss of ergative-absolutive distinction).

Later on, ergative marking was lost with NPs and P1 pronouns as well. The ergative marker *=*ja* [ha] and the ergative set of P1 pronouns first became optional and then fell out of use altogether. Evidence from Tacana suggests that the process started with (1st, 2nd and 3rd person) dual and plural pronouns (these have a unique neutral paradigm in Tacana). It then affected the 3rd person singular pronouns and the NPs (these are optionally marked in Tacana). Finally, the process of loss was completed with 1st and 2nd person singular (these have two distinct ergative vs. absolutive paradigms in Tacana).

In parallel to the loss of ergative marking in NPs, P1 and P2 pronouns, grammaticalization of SAP pronouns continued its progression in P2. Their frequency of use increased and they became obligatory. Some forms preceded others in this process: 1st and 2nd person in intransitive clauses and in transitive mixed scenarios (1→3, 2→3, 3→1 and 3→2), and 2nd person in the 1→2 local scenario. In the 2→1 local scenario, 2nd person forms gain frequency at a later stage. In local scenarios, 1st person pronouns never became obligatory and therefore never turned into 1st person verbal prefixes in this context. As the use of SAP pronouns became more and more frequent in P2, they lost their anaphoric / referential function, which created a functional need for using a co-referential pronoun in P1, which resulted in P2 pronouns becoming agreement markers.

The last step in the grammaticalization process is that from P2 pronouns to verbal prefixes. This move was made possible by the fact that the verb is the most frequently used word class immediately after the P2 pronouns. And it was likely motivated by the situation of bilingualism with prefixing Arawak languages (most likely the Mojeño language) in the context of the Jesuit mission *Los Santos Reyes* which was founded in the 18th century.

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The proposed reconstruction of the Reyesano hierarchical pattern provides an interesting contribution to the on-going theoretical debate around the functional motivations for the cross-linguistic recurring role of the SAP>3 hierarchy and, more generally, the 1 > 2 > 3 proper > 3 human > 3 animate > 3 inanimate 'nominal' hierarchy (Dixon 1994), in the working of several grammatical systems (e.g., person agreement, direct-inverse marking, case marking, etc.). Contrary to the traditional view that the person (or nominal) hierarchy would be a universal of human language reflecting a more general principal of human cognition, several recent typological work, such as Cristofaro (2013) or Gildea and Zúñiga (2016), have challenged this view, arguing that it is not supported by the diachronic evidence. They show that the source morphemes and/or constructions that lead to hierarchical effects are not unique but fairly heterogeneous, and that the diachronic changes that affect these source morphemes and/or constructions to eventually lead to grammatical systems with hierarchical effects typically do not involve the intervention of a person hierarchy.

The reconstruction of the Reyesano hierarchical agreement system proposed here supports this view by providing a new case study of a hierarchical pattern (2>1>3) whose genesis did not involve the intervention of the person hierarchy at any stage of its development. In this language, the SAP>3 hierarchical effect is the accidental result of the fact that pre-Reyesano (and Proto-Takanan) had a verbal suffix for indexing 3rd person arguments in A function, with the historical consequence that the language never used 3rd person pronouns in P2 and never grammaticalized 3rd person prefixes. In Gildea and Zúñiga's (2016) typology of sources for hierarchical (and inverse) systems, the Reyesano pattern can be placed within the 'zero 3rd person forms' source type (the other source types being passive constructions, deictic verbal morphology, and cleft constructions). As for the 2>1 hierarchical effect, I argued that it is also the accidental result of a well-known sociopragmatic avoidance strategy, characteristic of local configurations, which prevented speakers from using 1st person pronouns in P2 in transitive.

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Abbreviations

→	acting on
ABIL	abilitative
ABS	absolutive
ADJZ	adjectivizer
ASF	adjective suffix (semantically empty)
ASSOC	associative
AUGM	augmentative
BM	boundary marker
DAT	dative
DUBIT	dubitative
ERG	ergative
EXCL	exclamative
FOC	focus
FUT	future
GEN	genitive
IPFV	imperfective
INT	interrogative
INTENS	intensifier
INTERJ	interjection
LIE	in a lying posture
LOC	locative
NEG	negative
PERF	perfect
PERL	perlative
PFV	perfective
PL	plural
PST	past
PURP	purpose
REC.PST	recent past
REM.PST	remote past
REP	reportative
REPET	repetitive
RES	resultative
RESTR	restrictive
SG	singular
SIT	in a sitting posture
TMP	temporal subordinate clause marker
TOP	topic
TRS	transitory (motion)

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CHAPTER 7

The direction(s) of analogical change in direct/inverse systems

Guillaume Jacques & Anton Antonov

In this chapter, we extract general principles of language change from the study of the evolution of the conjunct order in various Algonquian languages, and propose four generalizations concerning the directionality of the spread of analogy in these systems. These generalizations are expected to bring insights on the analysis of data from other language families with direct/inverse marking but insufficient philological record, such as for instance Sino-Tibetan.

Keywords: analogy; direct/inverse; hierarchical agreement; Algonquian; Arapaho; Cree; Ojibwe; Mi'gmaq; conjunct order

1. Introduction

In families without recorded history the comparative method, combined with internal reconstruction, is the only way to reconstruct unattested stages. Still, when applying the comparative method it is important to understand the directionality of analogical levelling. Indeed, morphological systems are affected not only by regular sound changes, but are also subject to analogical changes which make them more regular, either by undoing the effects of sound change or by replacing syncretic morphemes by analyzable combinations.

Algonquian is the only family with direct/inverse morphology whose verbal proto-system can be reconstructed without sparking controversy. This is due to the combination of three factors. First, the sound laws of Algonquian languages are perfectly understood (except for Blackfoot). Second, some languages, in particular Fox and Miami-Illinois, are very conservative, and preserve the proto-system in an almost pristine way. Third, records dating back to the seventeenth century

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for some languages provide information on the intermediate stages between the proto-language and the modern forms.

That is why in this chapter we have decided to focus on four case studies in the diachrony of direct/inverse systems in four Algonquian languages: Cree, Ojibwe, Mi'gmaq and Arapaho. Based on these, we propose four generalizations concerning the directionality of analogical change in direct/inverse systems. These generalizations then allow us to show the importance of diachrony in the rise of the so-called typological hierarchies, especially in the case of direct/inverse systems.

For other families with direct/inverse systems, no such diachronic information is available, due to the absence of ancient attestations and/or the fact that many of these languages are either isolates or else belong to very small language families. Hence, it is easier at the present stage to observe the attested history of Algonquian languages and deduce from it a series of principles, which can then be tentatively applied to languages with direct/inverse systems for which such detailed information is not available.

2. Some terminological preliminaries

Algonquian languages present multiple challenges to the unprepared, some of which (especially those pertaining to the verbal domain which is the main topic of this chapter) we will try to explain in this short introduction (partly based on the more detailed discussion in Jacques & Antonov 2014).

2.1 Verb classes and animacy

Algonquian verbs are traditionally classified into four classes, according to the animacy of the S/P argument. There is thus a major distinction between animate (NA) and inanimate (NI) nouns. It is important to note that the terms 'animate' and 'inanimate' gender are descriptive conventions, and that many inanimate objects, 'sock(s)' and 'rock(s)', for instance, are assigned animate gender in Cree and other Algonquian languages.

The four classes are the following: VII (intransitive verbs with an inanimate actor), VAI (intransitive verbs with an animate actor), VTI (transitive verbs with an inanimate patient) and VTA (transitive verbs with an animate patient). The last two classes also have an animate actor. In addition, there are some VAI verbs which take inanimate patients and some VTI verbs which only have one argument (cf. Table 1). Here we will call them VAI_{TR} and VTI_{INTR}, respectively.

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2.2 Direct/inverse and obviation

It is important to observe that in spite of the existence of syntactically transitive but morphologically intransitive verbs (see Table 1), the only verbs that index both of their participants as long as they are not third person are the VTA (transitive animate) ones. The resulting complex forms reference their participants using S, A, P-neutral affixes. This, in turn, calls for the use of a special 'direction' marker (traditionally called a 'theme sign') in order to indicate the 'direct' vs 'inverse' direction of the action. The use of one or the other reflects the position of the agent on the following hierarchy (valid for Plains Cree):

Table 1. The four verb classes in Algonquian exemplified by Plains Cree

Verb class	S, A, P [± ANIM]	Cree	Meaning
VII	S = INAN	*wâpiskâ-*	'be white'
		miywâsi-	'be good'
		wâpa-	'be dawn'
VAI	S = ANIM	*wâpiskisi-*	'be white'
		miywâsisi-	'be good'
		pimipahtâ-	'run'
VAI_{TR}	A = ANIM + P = ± ANIM	*mêki-*	'give (out) s.o. or sth'
	A = ANIM + P = INAN	*âpacihtâ-*	'use sth'
VTI	A = ANIM + P = INAN	*wâpaht-*	'see sth'
VTI_{INTR}	S = ANIM	*mâham*	'canoe downriver'
VTA	A = ANIM + P = ANIM	*wâpam-*	'see s.o.'

(1) SAP > animate proximate > animate obviative > inanimate

If the agent is higher than the patient the verb shows direct marking (mainly marked by the suffix *-**â**-/-ê-*), but if it is lower then the verb receives inverse marking (*-ik(w)-*).[1] Thus, we observe a triple distinction between proximate animate, obviative animate and inanimate referents.

1. It is generally considered that the second person outranks the first person (2 > 1) in Algonquian languages, but this refers to a distinct hierarchy related to the slot accessibility of person prefixes, not the distribution of direct and inverse forms. Concerning obviative inanimates, see a recent study by Muehlbauer (2012).

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Obviation is an ubiquitous feature in Algonquian which is reflected both in verbal and nominal morphology. Its basic function is to distinguish two or more third-person participants within a given sentence or stretch of discourse. Thus, in oral narratives, the *obviative* (OBV, *-(w)a* in Cree) is used to introduce a hitherto unknown participant by contrast with the unmarked form which is called the *proximate* (PROX). There can be at most one proximate participant within a given clause. Later on, the interplay between the two helps the listener to keep track of who does what to whom. Except if s/he is a persistent topic, no participant is inherently tied to a proximate or obviative status solely by virtue of their inherent semantic features. The obviative must also be used on the possessee, and on the verb whose argument the possessee is, whenever the possessor is third-person (cf. Example (2) below and Example (3) in Section 2.5).

(2) *pêyak piko nipah-êyiwa o-mis-a wâposw-a*
one just kill-3′→3″ 3POSS-older_sister-OBV rabbit-OBV
'His sister had killed but one rabbit.' (Wolfart, 1996, p. 401)

Example (2) also illustrates the so-called *further obviative* form, which is often abbreviated as 3′→3″ (cf. Section 2.4), with the verb *nipah-* 'to kill', the form used when both arguments of a transitive verb are obviative.

2.3 Independent vs. conjunct order

The inflectional paradigms of the Algonquian verb classes have further been organized in five sets (called 'orders') in Proto-Algonquian, of which most modern languages preserve only three, i.e. the Independent, the Conjunct and the Imperative, having discarded the other two, ie. the Interrogative and the Prohibitive. While the imperative order is self-explanatory (and won't be dealt with in this chapter), the **independent** (which will be discussed only in passim) and the **conjunct** roughly correspond to verb forms used in main and subordinate clauses, respectively (for the actual forms cf. Tables 3 and 4).

2.4 Visualizing complex participant configurations

It is customary to represent systems indexing more than one argument (usually two) such as those found in Algonquian languages in tabular format as in Table 2, where rows indicate agent and columns patient. The different transitive configurations are symbolically represented by using an arrow, with the agent

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on its left and the patient on its right, both abbreviated as 1, 2, 3 for first, second and third person respectively. In the case of third person arguments 3 indicates **proximate** and 3′ **obviative** referents. In intransitive forms, by contrast, the abbreviation refers to the sole argument of the verb. They are systematically included for reference.

The cells corresponding to the 1→1 and 2→2 configurations are semantically reflexive and are thus filled in grey, since in most languages they tend to be expressed by an intransitive construction.[2] The 3→3 cell, on the other hand, is not since the corresponding configuration is not necessarily reflexive.

Table 2. The three domains of the transitive paradigm

	1	**2**	**3**
1		1→2	1→3
2	2→1		2→3
3	3→1	3→2	3→3
INTR	1	2	3

It is convenient to separate the transitive paradigm into three DOMAINS (Zúñiga 2006, 47–54), represented in Table 2 by different colours. First, the LOCAL domain (in blue) comprises the forms 1→2 and 2→1, where both arguments are SAPs. Second, the NON-LOCAL domain (in red) refers to the cases where both arguments are third person. Third, the MIXED domain (in green) includes all the forms with a SAP argument and a third person (1→3, 2→3, 3→1, 3→2).

2.5 Plains Cree paradigms

We can now give the full paradigms for the main four classes using some of the verbs from Table 1. Table 3 presents the independent order while Table 4 shows the conjunct order, whose diachronic evolution will be at the centre of subsequent discussion. In this and all subsequent tables and examples, direct and inverse suffixes appear in boldface.

The following example from Plains Cree will serve as an illustration of the actual use of these verb classes and the two main orders.

2. The same applies, in languages with clusivity (a distinction between first person inclusive [1PI] vs exclusive [1PE]), such as the Algonquian languages, to the combination of first inclusive and second person.

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Table 3. Plains Cree Independent Order paradigms of VTA *wâpam-* "see s.o.", VTI *wâpaht-* "see sth", VAI *wâpiskisi-* "be white (+ ANIM)", *pimipahtâ-*"run", VII *wâpiskâ-* "be white (-ANIM)", *miywâsin* "be good", *wâpan* "be dawn" (based on Wolfart, 1996)

	A\P	1SG	1PI	1PE	2SG	2PL	3SG	3PL	3′SG	3′PL
VTA	1SG				*ki-wâpam-iti-n*	*ki-wâpam-iti-nâw-âw*	*ni-wâpam-**â**-w*	*ni-wâpam-**â**-w-ak*	*ni-wâpam-im-**â**-w-a*	
	1PI						*ki-wâpam-**â**-naw*	*ki-wâpam-**â**-na-w-ak*	*ki-wâpam-im-**â**-na-w-a*	
	1PE				*kiwâpamitinân*		*ni-wâpam-**â**-nân*	*ni-wâpam-**â**-nân-ak*	*ni-wâpam-im-**â**-nân-a*	
	2SG	*ki-wâpam-in*		*ki-wâpam-inân*			*ki-wâpam-**â**-w*	*ki-wâpam-**â**-wak*	*ki-wâpam-im-**â**-wa*	
	2PL	*ki-wâpam-in-âwâw*					*ki-wâpam-**â**-wâw*	*ki-wâpam-**â**-wâw-ak*	*ki-wâpam-im-**â**-wâw-a*	
	3SG	*ni-wâpam-**ik***	*ki-wâpam-**iko**-n-aw*	*ni-wâpam-**iko**-nân*	*ki-wâpam-**ik***	*ki-wâpam-**iko**-wâw*			*wâpam-(im)-**ê**-w*	
	3PL	*ni-wâpam-**ikw**-ak*	*ki-wâpam-**iko**-n-aw-ak*	*ni-wâpam-**iko**-nân-ak*	*ki-wâpam-**ikw**-ak*	*ki-wâpam-**iko**-wâw-ak*			*wâpam-(im)-**ê**-wak*	
									*wâpam-**ê**-yi-wa*	
	3′	*ni-wâpam-**iko**-yi-wa*	*ki-wâpam-**iko**-nawa*	*ni-wâpam-**iko**-nâna*	*ki-wâpam-**iko**-yi-wa*	*ki-wâpam-**iko**-wâwa*	*wâpam-**ik***	*wâpam-**ikw**-ak*	*wâpam-**iko**-yi-wa*	
	A\P	1SG	1PI	1PE	2SG	2PL	3SG	3PL	3′SG	3′PL

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Table 3. (*Continued*)

	A\P	1SG	1PI	1PE	2SG	2PL	3SG	3PL	3′SG	3′PL
	1SG							*n-iwâpaht-ê-n*		
	1PI							*ki-wâpaht-ê-(n-â)n-aw*		
	1PE							*ki-wâpaht-ê-n-ân*		
VTI	2SG							*ki-wâpaht-ê-n*		
	2PL							*ki-wâpaht-ê-n-âwâw*		
	3SG							*wâpaht-am*		
	3PL							*wâpaht-am-w-ak*		
	3′							*wâpaht-am-iyi-w-a*		
VAI		*ni-wâpiskisi-n*	*ki-wâpiskisi-(nâ)naw*	*ni-wâpiskisi-nân*	*ki-wâpiskisi-n*	*ki-wâpiskisi-nâwâw*	*wâpiskisi-w*	*wâpiskisi-wak*	*wâpiskisi-yi-wa*	
		ni-pimipahtâ-n	*ki-pimipahtâ-(nâ)naw*	*ni-pimipahtâ-nân*	*ki-pimipahtâ-n*	*ki-pimipahtâ-nâwâw*	*pimipahtâ-w*	*pimipahtâ-wak*	*pimipahtâ-yi-wa*	
						wâpiskâ-w	*wâpiskâ-w-a*	*wâpiskâ-yi-w*	*wâpiskâ-yi-w-a*	
VII							*miywâsin*	*miywâsin-w-a*	*miywâsin-iyi-w*	*miywâsin-iyi-w-a*
							wâpan		*wâpan-iyi-w*	

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Table 4. Plains cree conjunct order paradigms of VTA *wâpam-* "see s.o.", VTI *wâpaht-* "see sth", VAI *wâpiskisi-* "be white (+ ANIM)", *pimipahtâ-*"run", VII *wâpiskâ-* "be white (ANIM)", *miywâsin* "be good", *wâpan* "be dawn" (based on Wolfart, 1996)

	A\P	1SG	1PI	1PE	2SG	2PL	3SG	3PL	3′SG	3′PL
VTA	1SG				*ê-wâpam-it-ân*	*ê-wâpam-it-ako-k*	*ê-wâpam-ak*	*ê-wâpam-ak-ik*	*ê-wâpam-im-ak*	
	1PI						*ê-wâpam-**â**-yahk*	*ê-wâpam-**â**-yahko-k*	*ê-wâpam-im-**â**-yahk*	
	1PE				*ê-wâpam-it-âhk*		*ê-wâpam-**â**-yâhk*	*ê-wâpam-**â**-yâhk-ik*	*ê-wâpam-im-**â**-yâhk*	
	2SG	*ê-wâpam-i-yan*					*ê-wâpam-at*	*ê-wâpam-ač-ik*	*ê-wâpam-im-at*	
	2PL	*ê-wâpam-i-yêk*		*ê-wâpam-i-yâhk*			*ê-wâpam-**â**-yêk*	*ê-wâpam-**â**-yêko-k*	*ê-wâpam-im-**â**-yêk*	
	3SG	*ê-wâpam-i-t*	*ê-wâpam-**iko**-yahk*	*ê-wâpam-**iko**-yâhk*	*ê-wâpam-isk*	*ê-wâpam-**iko**-yêk*			*ê-wâpam-(im)-**â**-t*	
	3PL	*ê-wâpam-i-č-ik*	*ê-wâpam-**iko**-yahko-k*	*ê-wâpam-**iko**-yâhk-ik*	*ê-wâpam-isk-ik*	*ê-wâpam-**iko**-yêko-k*			*ê-wâpam-(im)-**â**-č-ik*	
	3′	*ê-wâpam-i-yi-t*	*ê-wâpam-**iko**-wâ-yahk*	*ê-wâpam-**iko**-wâ-yâhk*	*ê-wâpam-iy-isk*	*ê-wâpam-**iko**-wâ-yêk*	*ê-wâpam-**iko**-t*	*ê-wâpam-**iko**-čik*	*ê-wâpam-**â**-yi-t*	
									*ê-wâpam-**iko**-yi-t*	
	A\P	1SG	1PI	1PE	2SG	2PL	3SG	3PL	3′SG	3′PL
	1SG							*ê-wâpaht-am-ân*		
	1PI							*ê-wâpahtamahk*		

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Table 4. (*Continued*)

	A\P	1SG	1PI	1PE	2SG	2PL	3SG	3PL	3′SG	3′PL
	1PE							*ê-wâpaht-am-âhk*		
VTI	2SG							*ê-wâpaht-am-an*		
	2PL							*ê-wâpaht-am-êk*		
	3SG							*ê-wâpaht-ah-k*		
	3PL							*ê-wâpaht-ahk-ik*		
	3′							*ê-wâpaht-am-iyi-t*		
VAI		*ê-wâpiskisi-yân*	*ê-wâpiskisi-yahk*	*ê-wâpiskisi-yâhk*	*ê-wâpiskisi-yan*	*ê-wâpiskisi-yêk*	*ê-wâpiskisi-t*	*ê-wâpiskisi-č-ik*	*ê-wâpiskisi-yi-t*	
		ê-pimipahtâ-yân	*ê-pimipahtâ-yahk*	*ê-pimipahtâ-yâhk*	*ê-pimipahtâ-yan*	*ê-pimipahtâ-yêk*	*ê-pimipahtâ-t*	*ê-pimipahtâ-č-ik*	*ê-pimipahtâ-yi-t*	
VII							*ê-wâpiskâ-k*	*ê-wâpiskâ-k-i*	*ê-wâpiskâ-yi-k*	*ê-wâpiskâ-yi-k-i*
							ê-miywâsih-k	*ê-miywâsih-k-i*	*ê-miywâsin-iyi-k*	*ê-miywâsin-iyi-k-i*
							ê-wâpah-k		*ê-wâpan-iyi-k*	

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(3) *â, êwak ôma kâ-wî-tâhkôt-am-ân*[1],
well DEM DEM:INAN NMLZ-FUT:PROX-discuss(VTI)-TH-1SG:CNJ
matwân cî kwayask ni-ka-kî-isi-tâhkôt-ên[2] *tânis*
I_wonder properly 1-FUT-PST-thus-discuss(VTI)-1SG:INDEP how
ê-kî-itâcimostaw-it[3]
CNJ-PST-tell_about(VTA)-3SG→1SG:CNJ
kâ-kî-oyôhtâwî-yân[4], *ôm îta*
NMLZ-PST-have_as_father(VAI [TR])-1SG:CNJ DEM:INAN here
kâ-pakosêyim-ikawi-yân[5] *ka-kî-tâhkôt-am-ân*[6],
NMLZ-expect(VTA)-UNSPEC-1SG:CNJ FUT-PST-discuss(VI)-TH-1SG:CNJ
êwak ôm 'ôskiciy' k-êsiyîhkâtê-k[7]; *ât[a]*
DEM DEM:INAN pipestem(NI) NMLZ-be_called(VII)-3SG:CNJ although
*âni mitoni kwayask ni-kî-wîhtamâ-**ko**-h*[8]
then really properly 1-PST-tell_about(VTA)-INV-PRET also
mîna n-ôhcâwîs, ita ê-kî-kanawêyiht-ah-k[9] *êwak*
1-father's_brother there CNJ-PST-keep(VTI)-TH-3SG:CNJ DEM
ôma, ita o-mosôm-a kâ-kî-ohtaskat-am-iyit[10]
DEM:INAN there 3-grandfather-OBV NMLZ-PST-leave(VTI)-TH-3′:CNJ
êwak ôma
DEM DEM:INAN

'Well, this which I am about to discuss, I wonder if I will be able to discuss it with proper faithfulness, just as my late father had told me the story about it, here [at the Saskatchewan Indian Languages Insititute] where I should (be able) to discuss it, this 'pipestem' as it is called; although I had most properly been told about it also by my father's brother, where he had kept this, where his grandfather had left this pipestem behind.' (Ahenakew & Wolfart, 1988, p. 107)

Verb forms (1) and (6) illustrate the use of the conjunct order while verb form (2) illustrates the use of the independent order of the TI verb *tâhkôt-* 'discuss sth, discourse upon sth', respectively. The verb stands in the conjunct order in (1) because it acts as a (nominalized) relative clause modifying *êwak ôma* 'that one': 'that one (ie. subject) which I am going to discourse upon'; in (6) it is in a complement clause with a deontic meaning: '(it is expected of me) that I should discuss it'. In (3) we see the TA verb *itâcimostaw-* 'tell s.o. thus about it' used in the conjunct order since it appears in a *wh-* clause headed by *tânis* 'how'. The verb form is furthermore inverse since the narrator was told about it by his father, and so we have a case where the patient (or semantically speaking, the addressee in this case) is higher than the agent on the hierarchy in 1. In (4) we see another example of *kâ-* (NMLZ) used this time as a headless relative clause built from the transitive (sic!) AI verb *oyôhtâwî-* 'have s.o. as one's father' which as such appears in the conjunct order:

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'(litt.) the one I had as (my) father'. (5) is an example of a TA verb *pakosêyim-* 'expect sth from s.o.' with the unspecified actor suffix *-ikawi-* (UNSPEC) used in the conjunct because it modifies *ita* 'there (where)': '(litt.) there where it is expected of me'. In (7) we have the conjunct order form of the II verb *isiyîhkâtê-* 'be called thus' used as a relative clause modifying *êwak ôma* 'that one' (referring to *oskiciy-* NI 'pipestem'): '(litt.) that one which is called thus'. In (8) we find another TA verb *wîhtamaw-*'tell s.o. about sth/s.o.' appearing in the inverse since once again the narrator (1SG) has been told about the pipestem by his uncle (3SG). And finally, (9) *kanawêyiht-* 'keep it' and (10) *ohtaskat-* 'leave it (suddenly)' are both TI verbs appearing in the conjunct order, both of them having *oskiciy-* NI 'pipestem' as their object and modifying once again *ita* 'there (where)'. Observe that (10) shows obviative morphology as well since it has to agree with its subject *omosôma* 'his grandfather' which as explained earlier must bear obviative marking (*-a*) as its possessor is third person.

3. The reshaping of the conjunct order in Algonquian

Algonquian languages share complex verbal paradigms that are mostly inherited from their common ancestor. Even languages, such as Arapaho and Cheyenne, which have undergone some drastic sound changes largely preserve the Proto-Algonquian paradigms albeit with some interesting reshaping.

The present section focuses on two particular paradigms: the conjunct order indicative intransitive animate (VAI) and transitive animate (VTA) conjugations.

This choice is determined by the fact that the Algonquian conjunct order paradigms constitute the only case in the languages of the world where the creation of a direct/inverse system from a non-hierarchical system can be observed. While the Proto-Algonquian conjunct order paradigm was partly accusative and partly tripartite, some languages, in particular Plains Cree, varieties of Nishnaabemwin, Mi'gmaq and Arapaho have reshaped it towards a direct/inverse system. In the case of Cree and Ojibwe, historical documents even attest intermediate stages showing how the morphological reshapings came about.

In this section, we first describe the Proto-Algonquian conjunct order conjugation, then present Plains Cree, Nishnaabemwin, Mi'gmaq and Arapaho data, and finally propose a series of generalizations based on these observations.

3.1 Proto-Algonquian

The reconstruction of the conjunct order paradigm of Proto-Algonquian is uncontroversial. Table 5 (based on Bloomfield 1946 and Goddard 2000) presents the

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indicative mode forms of that order, which are directly attested as such in Fox (Kickapoo) and Miami (Costa 2003).

The final *-*i* is the indicative mode sign. In the subjunctive, participle and iterative forms the mode signs are *-*ê*, *-*a* and *-*iri* respectively (Oxford 2014, 295).[3] Note that the indicative mode suffix palatalizes an earlier **-*t*- in *-*č*- contrary to the subjunctive and participle forms which preserve the non-palatalized **-*t*-. Thus, the 2SG→3 participle form is *-*ata* while the indicative one is *-*aci*. As we will see, most of the languages in which the final vowel of the verb form is lost have generalized the non-palatalized forms in the indicative mode of the conjunct order by analogy with the subjunctive and participle forms.

Table 5. Proto-algonquian conjunct order indicative paradigm, VAI and VTA

A\P	1SG	1PI	1PE	2SG	2PL	3SG	3PL	3′
1SG				*-eθ-ân-i*	*-eθ-akokw-i*	*-ak-i*	*-ak-wâw-i*	*-em-ak-i*
1PI						*-ankw-i*		*-em-ankw-i*
1PE				*-eθ-ânk-i*		*-akenč-i*		*-em-akenč-i*
2SG	*-iy-an-i*		*-iy-ânk-i*			*-ač-i*	*-at-wâw-i*	*-em-ač-i*
2PL	*-iy-êkw-i*					*-êkw-i*		*-em-êkw-i*
3SG	*-i-č-i*	*-eθ-ankw-i*	*-iy-amenč-i*	*-eθ-k-i*	*-eθ-âkw-i*			*-â-č-i*
3PL	*-i-wâ-č-i*			*-eθ-k-wâw-i*				*-â-wâ-č-i*
3′	*-i-ri-č-i*			*-em-eθ-k-i*		*-ekw-eč-i*	*-eko-wâ-č-i*	
INTR	*-ân-i*	*-ankw-i*	*-ânk-i*	*-an-i*	*-êkw-i*	*-č-i / -k-i*	*-wâ-č-i*	*-ri-č-i*

The proto-Algonquian system is clearly not a direct/inverse one, except for the non-local scenarios (3→3′ and 3′→3) where what will later become the direct (*-***â***-) and inverse (*-*ekw*-) markers can be seen. As for the rest, some parts of the system are tripartite, in particular some sub-sets of the first and second singular and the first person plural exclusive forms. For instance, intransitive 1PE*-*ânk*- and transitive 1PE→3 *-*akent/č*-, 3→1PE*-*iy-ament/č*- are all marked by unrelated morphemes (*S* ≠*A* ≠*P*).

3. The participle also presents a different set of endings for the plural forms, which will not be discussed here.

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Other forms present accusative alignment; for instance, the second plural has *-êkw-* in both intransitive and direct forms, but **-âkw-* in inverse ones (*S* ≠*A* ≠*P*). In all inverse and local configurations, there are specific markers for first person (**-i(y)-*) and second person (**-eθ-*) patients. The first person inclusive, which represents the association of the speaker(s), ie. a first person, with the hearer, i.e. a second person, also shows the second person patient marker (**-eθ-*) on top of its corresponding direct marker (**-ankw-*) in inverse configurations. Incidentally, this is one of two suffixes neutral as to the syntactic roles in the system, alongside third person **-t/č-/k-* (cf. Table 6).

Table 6. The alignment of PA personal verb suffixes

S	A		P
1SG	**-ân-* (→2SG)		**-i-*
		**-akokw-* (→2PL)	
		**-ak-*(→3)	
1PI	**-ankw-*		**-eθ-ankw-*
1PE	**-ânk-* (→2)		**-iy-ânk-* (2→)
		**-akent/č-* (→3)	**-iy-ament/č-* (3→)
2SG	**-an-* (→1SG)		**-eθ-*
		**-at/č-* (→3)	
2PL	**-êkw-*		**-eθ-akokw-* (1SG→)
			**-eθ-âkw-* (3SG→)
3SG	**-t/č-/*-k-*	(→1, 2SG, 3′)	**-t/č-/*-k-*
3PL	**-wâ-t/č-*	*-k-wâw-*	**-wâw-/*-wâ-t/č-*

The following sections show how such a non-hierarchical system was independently reshaped as a (partial) direct/inverse system in several Algonquian languages by ousting the syncretic forms and replacing them with (more) transparent ones.

3.2 Plains Cree

Table 7 presents the conjunct order paradigm of Modern Plains Cree while Table 8 presents the earliest attested stage in the conjunct order paradigm of Plains Cree.

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Table 7. Plains cree conjunct order indicative paradigms (Wolfart, 1996)

A\P	1SG	1PI	1PE	2SG	2PL	3SG	3PL	3′
1SG				*-it-ân*	*-it-ako-k*	*-ak*	*-ak-ik*	*-im-ak*
1PI						***-â**-yahk*	***-â**-yahko-k*	*-im-**â**-yahk*
1PE					*-it-âhk*	***-â**-yâhk*	***-â**-yâhk-ik*	*-im-**â**-yâhk*
2SG	*-i-yan*		*-i-yâhk*			*-at*	*-a-č-ik*	*-im-at*
2PL	*-i-yêk*					***-â**-yêk*	***-â**-yêko-k*	*-im-**â**-yêk*
3SG	*-i-t*	***-iko**-yahk*	***-iko**-yâhk*	*-isk*	***-iko**-yêk*			*-(im)-**â**-t*
3PL	*-i-č-ik*	***-iko**-yahko-k*	***-iko**-yâhk-ik*	*-isk-ik*	***-iko**-yêko-k*			*-(im)-**â**-č-ik*
3′	*-i-yi-t*	***-ikow-â**-yahk*	***-ikow-â**-yâhk*	*-iy-isk*	***-ikow-â**-yêk*	***-iko**-t*	***-iko**- č- ik*	*-**â**-yi-t*
								***-iko**-yi-t*
INTR	*-yân*	*-yahk*	*-yâhk*	*-yan*	*-yêk*	*-t*	*-č-ik*	*-yi-t*

Comparing Table 7 with Table 8 we can easily see that the direct forms and the inverse ones, bearing the so-called 'theme signs' *-**â**-* (direct) vs. *-iko-* (inverse), originally present only in non-local (3→3′ and 3′→3, respectively) scenarios have been generalized to other parts of the paradigm at the expense of older, syncretic ones.

Table 8. 19th century plains cree conjunct order indicative paradigms (based on Dahlstrom, 1989)

A\P	1SG	1PI	1PE	2SG	2PL	3SG	3PL	3′
1SG				*-it-ân*	*-it-ako-k*	*-ak*	*-ak-ik*	*-im-ak*
1PI						*-ahk*	*-ahko-k*	*-im-**â**-yahk*
1PE					*-it-âhk*	*-ak-iht*	*-ak-ihč-ik*	*-im-**â**-yâhk*
2SG	*-i-yan*					*-at*	*-ač-ik*	*-im-at*
2PL	*-i-yêk*		*-i-yâhk*			*-êk*	*-êko-k*	*-im-**â**-yêk*
3SG	*-i-t*	*-it-ahk*	*-i-yam-iht*	*-isk*	*-it-êk*			*-(im)-**â**-t*
3PL	*-i-č-ik*	*-it-ahko-k*	*-i-yam-ihč-ik*	*-isk-ik*	*-it-êko-k*			*-(im)-**â**-č-ik*
3′	*-i-yi-t*	***ikow-â**-yahk*	***-ikow-â**-yâhk*	*-iy-isk*	***-ikow-â**-yêk*	***-iko**-t*	***-iko**-č-ik*	***-â**-yi-t*
								***-iko**-yi-t*
INTR	*-yân*	*-yahk*	*-yâhk*	*-yan*	*-yêk*	*-t*	*-č-ik*	*-yi-t*

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According to Dahlstrom (1989), the change proceeded in two steps. First, as shown in Table 9, the relevant inverse forms were innovated,[4] based upon the generalized use of the inverse marker in the independent order and by analogy with the inanimate actor forms which had the inverse marker already in both orders as a result of an earlier and non-documented similar analogical process. This change was completed by the end of the 19th century.

Then, the direct forms 1PL→3 and 2PL→3 followed suit, and the modern system is attested as such at the very beginning of the 20th century (cf. Table 10). A comparison between Tables 8 and 7 shows that the direct *-**â**-* and inverse *-**iko**-* morphemes have spread at the expense of inherited portmanteau morphemes in modern Plains Cree, resulting in a less opaque system.

Table 9. Innovative inverse forms in the plains cree conjunct order VTA paradigm

	Innovative VTA paradigm	**Inanimate actor forms**	**PA paradigm (inanimate actor)**	**Conservative VTA paradigm (19th century)**	**PA paradigm (VTA)**
3SG→1PE	*-**iko**-yâhk*	*-**iko**-yâhk*	**-iy-amenki*	*-iy-amiht*	**-iy-amenči*
3PL→1PE	*-**iko**-yâhk-ik*			*>-iy-amihč-ik*	
3SG→1PI	*–**iko**-yahk*	*-**iko**-yahk*	**-eθ-ankwe*	*it-ahk*	**-eθ-ankwe*
3PL→1PI	*-**iko**-yahko-k*			*-it-ahko-k*	
3SG→2PL	*-**iko**-yêk*	*-**iko**-yêk*	**-eθ-âkwe*	*-it-êk*	**-eθ-âkwe*
3PL→2PL	*-**iko**-yêko-k*			*-it-êko-k*	

Table 10. The plains cree VTA paradigm innovative conjunct order direct forms

	Innovative VTA paradigm	**Conservative VTA paradigm (19th century)**	**Proto-Algonquian**
1PE→3SG	*-**â**-yâhk*	*-akiht*	**-akenč-i*
1PE→3PL	*-**â**-yâhk-ik*	*-akihcik*	
1PI→3SG	*-**â**-yahk*	*-ahk*	**-ankw-i*
1PI→3PL	*-**â**-yahko-k*	*-ahko-k*	
2PL→3SG	*- **â**-yêk*	*-êk*	**-êkw-i*
2PL→3PL	*- **â**-yêko-k*	*-êko-k*	

4. Here and afterward innovative forms are shown in grey.

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Following are some of the examples Dahlstrom 1989 gives to illustrate the change. They come from the 1855 translation of the Gospel according to St. John and the First Epistle General of John compared to a 1904 edition of the New Testament. We can see that the older forms still in use in the former two have been replaced by the innovative ones in the latter.

In Example (4a) we see an example of the direct vs inverse mixed scenario archaic forms 1PI→3SG (*-aht*) and 3SG→1PI (*-itahk*), respectively, which are replaced by the innovative ones, viz. *-**â**-yahk* and *-**iko**-yahk* in Example (4b).

(4) a. *namawiya kiyânaw, ê-kîh-sâkih-ahk Manitôw,*
NEG 1PI CNJ-PST-love (VTA)-1PI→3SG:CNJ God
mâka wiya ê-kîh-sâkih-itahk.
but 3SG CNJ-PST- love (VTA)-3PI→1PI:CNJ
'…not that we loved God, but that he loved us, …'
(First Epistle General John 4.10 (1855), Dahlstrom 1989, p. 3)

b. *namawiya kiyânaw, ê-kîh-sâkih-**â**-yahk Manitôw,*
NEG 1PI CNJ-PST- love (VTA)-DIR-1PI→3SG:CNJ God
*mâka wiya ê-kîh-sâkih-**iko**-yahk.*
but 3SG CNJ-PST- love (VTA)-INV-3SG→1PI:CNJ
'…not that we loved God, but that he loved us, …'
(First Epistle General, John 4.10 (1904), Dahlstrom 1989, p. 3)

Examples like this where both the direct and the inverse configurations show the archaic suffixes in the 1855 translation are less common than those where only the direct configurations are archaic. Indeed, the change was already well under way in the inverse configurations, as only one third of the inverse forms documented in this translation show the relevant archaic suffixes, while the remaining two thirds had already been innovated (Dahlstrom 1989, p. 3). Compare Example (5a) and (5b) with an example of the shift from an archaic to an innovative form in the case of a direct scenario (ie. 1PL→3) and Example (6a) and 6b in the case of the corresponding inverse scenario (ie. 3→1PL) where the innovative form is already in use in the older version.

(5) a. *kita nipah-akiht*
for kill(VTA)- 1PE→3SG:CNJ
'…for us to kill him...' (John 18.31 (1855), Dahlstrom 1989, p. 3)

b. *kita nipah-**â**-yâhk*
for kill(VTA)- DIR-1PE
'…for us to kill him...' (John 18.31 (1904), Dahlstrom 1989, p. 3)

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(6) a. *kâ-kîh-is-itisahw-**iko**-yâhk-ik*
NMLZ-PST-thus-send(VTA)-INV-1PL-3PL
'…them that sent us…' (John 18.31 (1855), Dahlstrom 1989, p. 3)

b. *kâ-kî-pê-itisahw-**iko**-yâhk-ik*
NMLZ-PST-thus-send(VTA)-INV-1PL-3PL
'…them that sent us…' (John 1.22 (1904), Dahlstrom 1989, p. 3)

This reshaping of the system has thus taken place some time between the 19th and the beginning of the 20th centuries. It is particularly noteworthy that it has affected only mixed scenarios with plural speech act participants and has been completed only in the Plains Cree dialect.

Indeed, other dialects such as Woods Cree, for instance, still use the archaic forms, at least those of the direct set. Example (7) shows an archaic direct 1PL→3SG form (*-akiht*), while Example (8) illustrates the corresponding inverse configuration with 3SG→1PL and the archaic *-iyamiht*.

(7) *îkosi* *â-kî-isi-kiskinawhamâ-kawi-yâ*
thus CNJ-PST-thus-teach(VTA)-UNSPEC-1PL
ta-pamih-akiht *isa* *kisî-aya.*
PURP-look_after(VTA)-1PL→3SG:CNJ you_know old-person
'that's how we were taught to look after an elder, you know.'
(Westfall & Castel, 2001, p. 275)

(8) *akwâni* *îkosi* *â-kî-isi-pimâcih-iyamiht.*
then thus CNJ-PST-thus-bring_up(VTA)- 3SG→1PL:CNJ
'…and that's how he (= my father) brought us up.'
(Westfall & Castel, 2001, p. 182)

These archaic forms are used alongside the innovative forms (*-**â**-yâ* and *-ikow-â*, respectively), and in the case of the inverse scenario the above cited example is only one of two attested in more than 560 pages of transcribed oral corpus comprising spontaneous narratives from dozens of speakers. This and the fact that the innovative forms are the only ones attested in the direct 1PI/2PL→3 (*-**â**-ya*/*-**â**-yîk*) and the corresponding inverse 3→1PI/2PL (*-ikow-a*/*-ikowîk*) scenarios, show that a similar analogical process is under way in the Woods Cree dialect as well, and we think it can be expected to reach the same levelling result.

3.3 Ojibwe

Some Nishnaabemwin (Ojibwe) dialects present innovations similar to those observed in Plains Cree, but limited to the inverse configurations. Table 11, based on data from Valentine (2001, 295), presents the Nishnaabemwin conservative paradigm. The suffixes with capital *-I-* appear with the palatalized

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allomorphs of *s/sh-* and *n/zh-* alternating verbs. For instance 'give' *miin-* / *miizh-* has *miin-inaan* 1SG→2SG with non-palatalizing *i* (from PA **e*) and *miizh-id* 3SG→1SG with palatalizing *i* (from PA **-i*, the first person patient theme sign).

As in Cree, Nishnaabemwin has generalized the non-palatalized allomorphs of second and third person conjunct order suffixes: We thus find 2SG→3SG-*ad* corresponding to proto-Algonquian **-ači* & ***-ati* in the indicative conjunct order instead of expected **-aj*. This is because the subjunctive and participle forms, which were **-ate* and **-ata*, respectively, were not palatalized, and were continued by the non-patalized form *-ad*, which was then generalized to the indicative mode of the conjunct order after the loss of final vowels. This development is not shared by all Ojibwe dialects: The Algonquin Ojibwe dialect described by Cuoq (1866), for instance, has instead generalized the palatalized form (see Bloomfield 1946, 101).

Table 12 (see Valentine 2001, 178–9) shows that some dialects of Nishnaabemwin, such as Parry Island, have developed innovative forms combining *-**igo**-* with the VAI endings as optional variants of the conservative suffixes. The conservative forms themselves have been reshaped in comparison with the paradigm recorded in the 19th century. This includes the introduction of the 2PL suffix *-eg* in the inverse 3→2PL form from the direct 2PL→3 form together with the doubling of the second person theme sign *-in* (from **-eθ-*), and the replacement of the 3→1PE-*iyamintʃ* by an analysable form created by combining the direct *-angid* and the first object theme sign *-i*. For the sake of comparison, Table 12 also shows the 19th century Algonquin forms from Cuoq (1866, 51), which are directly inherited from proto-Algonquian.

Table 11. The conservative Ojibwe VTA and VAi paradigms

A\P	1SG	1PI	1PE	2SG	2PL	3SG	3PL	3′
1SG				*-inaan*	*-inagog*	*-ag*	*-agwaa*	
1PI						*-ang*	*-ang-waa*	
1PE				*-inaang*	*-angid*	*-angidwaa*		
2SG	*-Iyan*		*-Iyaang*			*-ad*	*-adwaa*	
2PL	*-Iyeg*					*-eg*	*-egwaa*	
3SG	*-Id*	*inang*	*-Iyangid*	*-ik*	*-ineg*			*-**aa**-d*
3PL	*-Iwaad*	*-inangwaa*	*-Iyangidwaa*	*-ikwaa*	*-inegwaa*			*-**aa**-waad*
3′						*-**igo**-d*	*-**igo**-waad*	
INTR	*-yaan*	*-yang*	*-yaang*	*-yan*	*-yeg*	*-d / -g*	*-waad*	*-nid*

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Table 12. The Ojibwe VTA paradigm inverse forms and their PA origins

	Innovative paradigm	Conservative paradigm	19th century Nipissing Ojibwe	Proto-Algonquian
3→1SG	*-**igo**-yaan*	*-id*	*-itʃ*	**-ič-i*
3→1PI	*-**igo**-yang*	*-inang*	*-inang*	**-eθankw-i*
3→1PE	*-**igo**-yaang*	*-iyangid*	*-iyamintʃ*	**-iyamenč-i*
3→2SG	*-**igo**-yan*	*-ik*	*-ik*	**-eθk-i*
3→2PL	*-**igo**-yeg*	*-ineg*	*-inaak*	**-eθâkw-i*
3′→3SG	*-**igo**-d*	*-igod*	*-igotʃ*	**-ekweč-i*
3′→3PL	*-**igo**-dwaa*	*-igodwaa*	*-igowaatʃ*	**-ekowaač-i*

This dialect of Nishnaabemwin goes further than Plains Cree as far as inverse configurations are concerned, since the analogy has affected not only plural forms, but also singular ones. It is noteworthy that direct forms, on the other hand, have remained unchanged.

3.4 Mi'gmaq

The Listuguj (or Restigouche) dialect of Mi'kmaq (or Mi'gmaq in Listuguj orthography), an Eastern Algonquian language spoken in Quebec, shows a number of interesting innovations in its verbal system. The discussion here is based on Quinn (2012).

One such innovation concerns the transitive animate paradigm. While it has replaced, along with all Mi'gmaq dialects, the PA independent order forms by the conjunct order ones (cf. Table 13), Listuguj has departed from the other dialects' more direct PA reflexes based on local person 'theme signs', still present at earlier attested stages of the dialect (cf. Table 14) by innovating the TA morphology for the mixed 3→1/2PL scenario (cf. Table 15). According to Quinn (2012), the innovation consists in a combination of the inverse suffix (*-ug-* & PA **-ekw-*) and the reflexive one (*-si-* < PA **-esi-*). This hypothesis is subject to debate (Will Oxford, p.c.).

Table 13. Mi'gmaq independent order (& PA conjunct order participle) indicative paradigm

A\P	1SG	1PE	1PI	2SG	2PL	3SG	3PL	3′SG
1SG				*-ul*	*-ulnoq*	*-(V)'g*	*-(V)'gig*	
1PE				*-ulneg*	*-(Ve)g't*	*-(Ve)g'jig*		
1PI						*-ugg*	*-uggwig*	
2SG	*-i'lin*	*-i'lieg*				*-(V)'t*	*-(V)'jig*	

(*Continued*)

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Table 13. (*Continued*)

A\P	1SG	1PE	1PI	2SG	2PL	3SG	3PL	3′SG
2PL	*-i'lioq*					*-(V)oq*	*-(V)oqig*	
3SG	*-i'lit*	*-ugsieg*	*-ugsi'gw*	*-(V)'sg*	*-ugsioq*			*-a-t'l*
3PL	*-i'lijig*		*-ugsi'gwig*	*-(V)'sgig*				
3′SG						*-t'l*		

Table 14. Early 20th century Mi'gmaq VTA indicative independent order paradigm of *nemi-* 'to see' (based on Hewson & Francis, 1990)

A\P	1SG	1PE	1PI	2SG	2PL	3′SG	3PL	3′SG	3′PL
1SG				*nemi'l*	*nemi'–l–oq*	*nemi'–g*	*nemi'–g–jig*		
1PE				*nemi'–l–eg*	*nemi'–gət*	*nemi'–gə–jig*			
1PI						*nemi'–gw*	*nemi'–gw–jig*		
2SG	*nemi'–n*	*nemi'–eg*				*nemi'–t*	*nemi'–jig*		
2PL	*nemi'–oq*					*nemi'–oq*	*nemi'-oq*		
3SG	*nemi'–t*	*nemi'-namə–t*	*nemi'–l–g*	*nemi'-sg*	*nemi'–l–oq*			*nemi'–a–jl*	*nemi'–a–ji*
3PL	*nemi'–jig*	*nemi'-namə–jig*	*nemi'–l–gw–jig*	*nemi'sg–jig*				*nemi'–a–ti–jl*	*nemi'–a–ti–ji*
3′SG						*nemi'–a–li–jl*	*nemi'–a–li–ji*		
3′PL						*nemi'–a–ti–li–jl*	*nemi'–a–ti–li–ji*		

This development is comparable though only partially cognate to the development in the local scenario in Parry Island Nishnaabemwin (cf. Section 3.3), but is also (partially) attested in Wampanoag (Goddard & Bragdon, 1988, 556).

Table 15. The Mi'gmaq VTA paradigm innovative inverse forms

	Innovative paradigm (Listuguj)	Conservative paradigm (other dialects)	Proto-Algonquian
3→1PE	*-ugsi-eg*	*-i-nam't*	**-iyamenč-i*
3→1PI	*-ugsi-gw*	*-ul-gw*	**-eθankw-i*
3→2PL	*-ugsi-oq*	*-ul-oq*	**-eθâkw-i*

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Table 16. The Mi'gmaq VTA paradigm innovative 1sg patient forms

	Innovative paradigm (Listuguj)	Conservative paradigm (other dialects)	Proto-Algonquian
2SG→1SG	*-i'-li-n*	*-i'-n*	**-i-yan-i*
2→1SG/PL	*-i'-li-eg*	*-i'-eg*	**-i-yêkw-i* (2p→1s)
3SG→1SG	*-i'-li-t*	*-i'-t*	**-i-t-a*
3PL→1SG	*-i'-li-jig*	*-i'jig*	**-i-cik-i*

Listuguj Mi'gmaq also shows an innovative reshaping of the sequence of a TA stem ending in final *-i* and a following 1SG patient theme sign *-i* as *-i'li-* (see Table 16). The origin of this extra *-l-* is unclear but according to Quinn (2012) we may be dealing with either the VTA abstract final *-l* (with no particular semantic import), or else the *-l-* may have come about due to some sort of paradigmatic analogy with the 2SG patient suffix *-ul*. The regular (inherited) endings were then added after a replication of the 1SG patient suffix *-i*. We think that it is possible to suggest one more solution to this problem: the *-li-* element may be related to the obviative suffix appearing in inverse non-local scenarios 3′→3 in other dialects which goes back to PA **-ri-*.

3.5 Arapaho

The paradigm reshaping that has occurred in Cree, Nishnaabemwin and Mi'gmaq is not isolated. Among Algonquian languages, Arapaho provides an example of a language which has reshaped the conjunct order even further. Before discussing the Arapaho VTA paradigm, we provide some information on the VAI paradigm, which is necessary for understanding the changes in the VTA paradigm. We must warn the reader that the drastic sound changes in Arapaho (see Goddard 1974) have rendered the cognate forms barely recognizable. We cannot provide here a detailed account of Arapaho historical phonology, and refer the reader to Goddard's works for an in-depth presentation of this topic. Arapaho data used in this section is taken from Salzmann (1967) and Cowell & Moss (2006).

The Arapaho VAI conjunct order paradigm, as shown by Goddard (1965, 16–17; 2015), regularly derives from the proto-Algonquian conjunct order participle (for the SAP forms, it could also originate from the corresponding indicative forms). Had it originated from the indicative conjunct order forms, the third person forms would have been different: the third singular suffix, in particular, would have been ***-θ* < **-či*.

Table 17 shows the main allomorphs for the conjunct order suffixes in Arapaho and their Proto-Algonquian origins. The first plural exclusive *-'* originates from the indefinite third person form **-nki* (Goddard 1998), replacing the

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inherited 1PE ending, which would have been homophonous with that of the first singular.[5]

Table 17. The Arapaho VAI paradigm and its proto-algonquian origin

Person	Arapaho	Expected Arapaho	Proto-Algonquian
1SG	*-noo*		**-yân-*
1PE	*-ni'* / *-'*	***-noo*	**-yânk-*
1PI	*-no'*		**-yankw-*
2SG	*-n*		**-yan-*
2PL	*-nee*		**-yêkw-*
3SG	*-t* / *-'*		**-t-* / *-k-*
3′SG	*-niθ*		**-ričiri*
3PL	*-θi'*		**-čiki*
3′PL	*-niθi*		**-ricǐ hi*

In comparison with the VAI paradigm, which is almost entirely inherited from proto-Algonquian, the VTA paradigm presents considerable reshaping. The account proposed here as well as the Proto-Algonquian reconstructions are largely based on Goddard (1965, 19–24) (in combination with Goddard 2000 for some details of the Proto-Algonquian paradigms). Table 18 presents the regular endings of the VTA paradigm in Arapaho, taken from Cowell & Moss (2006, 487–490) and Cowell & Moss (2005, 448). The further obviative 3′→3′ direct and inverse forms are not included.

Table 18. The Arapaho VTA paradigm

	1SG	1PI	1PE	2SG	2PL	3SG	3PL	3′
1SG				*-éθen*	*-eθénee*	*-o'*	*-óú'u*	
1PI						*-**óó**-no'*		
1PE				*-een*	*-eenee*	*-éét*	*-ééθi'*	
2SG	*-iń* / *-ún*		*-ińee* / *-únee*			*-ót*	*-óti(i)*	
2PL	*-**éi**-'een*		*-**éi**-'éénee*			*-**óó**-nee*		
3SG	*-**éí**-noo*	*-**éí**-no'*	*-**éi**-'éét*	*-**éí**-n*	*-**éí**-nee*			*-**oo**-t*
3PL	*-iθi'* / *-uθi'*		*-**eí** -'eéθi'*	*-**eí**-nóni(i)*				*-**óó**-θi'*
3′						*-**éí**-t*	*-**éí**-θi'*	

5. The following sound laws apply here: **-y-* → *-n-*, **a* → *o*, **k* → θ, **nk* → *'*, **c* → *θ*, **r* → *n*; final vowels are always lost. In some cases, two final syllables can be lost, if they follow the pattern **–(V$_1$)C(y,w)V$_2$, where C is any of **n*, **m*, **r*, **y*, **w* and V$_1$ is a short vowel.

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Given the complexity of the paradigm in Table 18, we shall split the discussion in three parts, analyzing the direct, inverse and local configurations separately. The SAP→3PL and 3PL →SAP are only discussed in the case of the suffix 3PL→2SG-*iθi'*, since they otherwise follow the same patterns of refection as the corresponding SAP→3SG and 3SG→SAP configurations.

The direct forms of the VTA paradigm are compared with the corresponding reconstructed Proto-Algonquian forms in Table 19, in which the Arapaho forms that do not continue Proto-Algonquian ones are indicated in grey. This table shows that as in Plains Cree, while the singular direct forms are inherited, the SAP plural ones are reshaped by reanalyzing the third person ending *-oot* as *-oo-* + the VAI ending *-t* and generalizing this structure to the first and second person plural: *-óó-no'* 1PI and *-óó-nee* 2PL are built by combining the direct marker *-oo-* with the regular VAI endings.

The 1PE-*éét* probably does not originate from inherited **-akenta*. This form should have yielded either **-ooot* or **-eeet*. While it is not entirely impossible that vowel shortening would have happened, it is more satisfying to derive *-éét* from the unspecified form of the conjunct participle **-enta* (Goddard 1998, 4, see the X-3 form of the TA direct paradigm).

Table 19. The Arapaho VTA paradigm direct forms and their PA origins

Form	Arapaho	Expected Arapaho	Proto-Algonquian
1SG→3SG	*-o'*		**-ak-a*
1PE→3SG	*-éét*	***-eeet*	**-akent-a*
1PI→3SG	*-óó-no'*	***-o'*	**-ankw-a*
2SG→3SG	*-ót*		**-ata*
2PL→3SG	*-óó-nee*	***-ee*	**-êkw-a*
3SG→3′	*-oot*		**-ât-a*
3PL→3′	*-óóθi'*		**-âčiki*

By contrast with the direct paradigm, the inverse VTA paradigm is almost entirely remade, as in Parry Island Nishnaabemwin: only the third person forms are inherited, as can be seen in Table 20. As in the direct paradigm, the third person ending *-eít* was reanalyzed as *-ei-* + the VAI ending *-t* and all other forms were rebuilt on that model, replacing the inherited forms.[6] All inverse configurations follow this pattern, except the 3→1PE suffix, where **-éi'* would have been been obtained if *-ei*

6. Arapaho *-ei-* regularly derives from **-ekwe-*; **k* → θ and **we* → **o* → *i*.

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had been combined with the VAI 1PE ending -'. The attested 3→1PE form *-éi-'-éét* combines the expected form **-éi'* with the direct ending *-éét*.

The 3PL→1SG suffix *-iθi'* / *-uθi'* is the only suffix in the inverse configurations involving a SAP which was not renewed. It is all the more remarkable that the corresponding 3SG→1SG form is remade.

Table 20. The Arapaho VTA paradigm inverse forms and their PA origins

Person	Arapaho	Expected Arapaho	PA Conjunct
3SG→1SG	*-**éi**-noo*	***-it*	**-it-a*
3SG→1PE	*-**éi**-'-éét*	***-inobeet*	**-iyament-a*
3SG→1PI	*-**éi**-no'*	***-eθo'*	**-eθankw-a*
3PL→1SG	*-iθi' / -uθi'*		**-ičiki*
3SG→2SG	*-**éi**-n*	***-es*	**-eθk-i*
3SG→2PL	*-**éi**-nee*	***-eθoo*	**-eθâkw-a*
3'→3SG	*-**éi**-t*		**-ekwet-a*
3'→3PL	*-**éi**-θi'*		**-ekočik-i*

Just as the inverse paradigm, the local paradigm has also undergone considerable analogical reshaping with only the 2SG→1SG and 2PL→1SG being inherited.

Table 21. The Arapaho VTA paradigm local forms and their PA origins

Person	Arapaho	Expected Arapaho	PA Conjunct
1SG→2SG	*-éθen*	***-eθoo*	**-eθân-i*
1SG→2PL	*-eθénee*	***-eθou*	**-eθakokw-i*
1PE→2SG	*-één*	***-eθoo*	**-eθânk-i*
1PE→2PL	*-eenee*	***-eθoo*	**-eθânk-i*
2SG→1SG	*-ún / -iń*		**-iyani*
2SG→1PE	*-**éi**-'één*	***-inoo*	**-iyânkw-i*
2PL→1SG	*-únee / -ińee*		**-iyêkwe*
2PL→1PE	*-**éi**-'eenee*	***-inoo*	**-iyânkw-i*

Goddard (1965, 23) explains the forms 1PE→2SG*-één* and 3→1PE*-éi-'-één* by proportional analogy, after the reshaping of the inverse paradigm had taken place: As the forms in direct and inverse configurations were rebuilt by adding VAI endings to the first part of the third person endings *-oo-* and *-ei-* reanalyzed as direction

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markers, the final consonants *-t* and *-n* became respectively 3SG and 2SG markers not only for S, but also for P.

After that, even in forms where the *-t* was not a third person marker, in particular 1PE→3 *-éét* and 3→PE-*éiʾéét*, it became reanalyzed as such and the forms 1PE→2 *-één* and 2→1PE-*éiʾéén* were built by changing the final *-t* to *-n* on the model of the VAI and VTA inverse forms (see Table 22).

Table 22. Proportional analogy in the Arapaho local forms

Person	Form	Person	Form
VAI 3SG	*-t*	VAI 2SG	***-n***
3′→3SG	***-éí-t***	3→2SG	***-éí-n***
1PE→3	*-éé-t*	1PE→2SG	***-éé-n***
3→1PE	***-éi***-ʾéé-*t*	2SG→1PE	***-éi***-ʾéé-***n***

From there, the 1SG→2SG-*éθen* (instead of expected **eθoo*) is likely to have originated from the independent order 1SG→2SG ending *-éθ* < **-eθe* to which the second person suffix *-n* from the VAI paradigm was added.

The second plural forms 1SG→2PL-*eθénee*, 1PE→2PL-*eenee* and 2PL→1PE-*éiʾeenee* were built from the corresponding second singular forms by replacing the 2SG-*n* marker with the 2PL one *-nee*, as shown in Table 23.

Table 23. Proportional analogy in the Arapaho local forms – second plural

Person	Form	Person	Form
VAI 2SG	*-n*	VAI 2PL	*-nee*
3→2SG	***-éí-n***	3→2PL	***-éí-nee***
2SG→1SG	***-í-n***	2PL→1SG	***-í-nee***
1SG→2SG	*-éθe-n*	1SG→2PL	*-eθé-nee*
1PE→2SG	*-ee-n*	1PE→2PL	*-ee-nee*
2SG→1PE	***-éi***-ʾee-*n*	2PL→1PE	***-éi***-ʾee-*nee*

The restructuring that took place in the Arapaho conjunct order goes one step further than that observed in the Cree paradigms: While the extent of reshaping in the (mixed) direct paradigm is comparable, all inverse and local forms, except 2SG→1SG, have been remade. The direct *-oo-* and inverse *-eí-* theme signs, which originally were restricted to non-local configurations, were generalized to nearly all direct and inverse configurations in the mixed

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scenarios (only the 1SG→3SG, 2SG→3SG and 3PL→1SG endings remained unaffected by analogy), and the inverse one was even extended to the local 2→1PE forms.

Arapaho thus proves that a language can develop a near-canonical direct/inverse system from a partly accusative, partly tripartite one like that of proto-Algonquian (cf Table 6) by generalizing the direct and inverse markers of the non-local forms to the mixed and local ones.

3.6 The VTA conjunct order and its relationship to other paradigms

In the sections above, we have studied the effects of analogy in the VAI and VTA conjunct order paradigms largely in isolation from other paradigms. However, it is likely that some analogical patterns, in particular the innovative direct and inverse forms built by combining the direct or inverse theme signs with the VAI endings, are structurally modelled after forms from other more transparent paradigms. Indeed, the (perceived) identity of final *-t* in 3→3′ **-ât-* and 3′→3 **-ekwet-* forms with the VAI third person *-t* could have prompted the reanalysis of the preceding segment **-**â**-* and **-ekwe-* as a direction marker which was then productively combined with the corresponding VAI endings in order to obtain the direct and inverse forms in the rest of the paradigm.

Another potential model, in the case of inverse configurations especially, is the unspecified actor paradigm of the conjunct order. While in PA this paradigm had a special set of endings, (Goddard 1979, 88; Oxford 2014, 156–7), in Ojibwe and Cree, even in the most conservative dialects (and in nearly all Algonquian languages except Kickapoo, Maliseet and Miami), the forms are built by combining the theme sign *-igoo-* with the VAI person markers, except in the third person, where the inherited suffix *-ind* (Ojibwe)/*-iht* (Cree) < **-enta* is still preserved (cf. Table 24).

Table 24. The conjunct order of the unspecified actor paradigm in Cree and Ojibwe

Person	Cree	Ojibwe	Proto-Algonquian
X→1SG	*-ikawi-yân*	*-igoo-yaan*	**-i<n>k-i*
X→1PE	*-ikawi-yâhk*	*-igoo-yaang*	**-i<n>amenk-i*
X→1PI	*-ikawi-yahk*	*-igoo-yang*	**-eθ<en>ankw-i*
X→2SG	*-ikawi-yan*	*-igoo-yan*	**-eθ<en>k-i*
X→2PL	*-ikawi-yêk*	*-igoo-yeg*	**-eθ<en>âkw-i*
X→3SG	*-iht*	*-ind*	**-e<n>ta*

In Cree and Ojibwe texts, we find numerous examples where the unspecified actor forms is used alongside a 3→SAP form in the same sentence, with the unspecified

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actor corresponding to the same referent as the definite third person agent of the 3→SAP verb (see Examples (9) and (10) for Cree and Example (11) for Ojibwe).

(9) *"kîkwây ôm?" îtêw êkwa awa*
what DEM:INAN tell(VTA).3SG→3′ then DEM:ANIM
ni-kisêyinîm; "aya ôm", itik,
1POSS-old_man: POSS well DEM:INAN tell(VTA).3′→3SG
"this is three times stronger than beer," k-êt-ikawi-yâhk,
NMLZ-tell(VTA)-UNSPEC-1PL
*k-êt-**iko**-yâhk êkwa awa.*
NMLZ-tell(VTA)-INV-1PL then DEM:ANIM
"'What is this?" my husband said to him; "Oh this," the other replied to him, "this is three times stronger than beer," we were told, he then said to us.'
(Wolfart & Ahenakew, 2000, p. 57)

(10) *Akwa kayâs îy mistik â-wâpam-at*
and long_ago look! tree(NA) CNJ-see(VTA)-2SG→3SG:CNJ
awa pikwîta kî-ohtinam-wak kisî-ayak
DEM: ANIM wherever PST-take(VTI)-3PL old-person
â-kî-ohci-ntawih-ikawi-yâ. Isa piko
CNJ-PST-with_it-cure(VTA)-UNSPEC-1PL just
nîsta kîyâpic ôma
1SG:EMPH yet DEM:INAN
â-pimâtisi-yân â-kî-ntawihikawiyân.
CNJ-live(VAI)-1SG CNJ-PST-cure(VTA)-UNSPEC-1SG
'And long ago, when you saw a tree anywhere, the elders took it and used it to cure [us]. Even myself, in my lifetime, they cured me.'
(Westfall & Castel, 2006, p. 9)

(11) *Miish gaa-izhi-i-goo-yaan ingoji*
then PST:IC-thus-say(VTA)–X-1SG:CNJ approximately
naawakwe-g, n-ookomis
be.noon(VII)-1NAN.SG:CNJ 1POSS-grandmother
gaa-izhi-anoozh-id.
PST:IC-thus-commission.to.do(VTA)-3→1SG:CNJ
Around noon, I was told, I was told by my grandmother to get something.
(Kegg & Nichols 1993, 96)

It is thus possible that such constructions, rather than the VTA independent order, provided the model on which to shape the innovative inverse scenario forms by combining the inverse theme sign with the VAI endings as in Plains Cree and Parry island Ojibwe.

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Table 25. The conjunct order of the inanimate actor paradigm in Cree and Ojibwe

Person	Cree	Ojibwe	Proto-Algonquian
X→1SG	*-**iko**-yân*	*-**igo**-yaan*	**-i-k-i*
X→1PE	*-**iko**-yâhk*	*-**igo**-yaang*	**-iy-amenk-i*
X→1PI	*-**iko**-yahk*	*-**igo**-yang*	**-eθ-ankw-i*
X→2SG	*-**iko**-yan*	*-**igo**-yan*	**-eθ-k-i*
X→2PL	*-**iko**-yêk*	*-**igo**-yeg*	**-eθ-âkw-i*
X→3SG	*-**iko**-t*	*-**igo**-d*	**-ekw-ečˇ-i*

4. The directionality of analogy in polypersonal systems

The four cases studied presented in this work allow us to tentatively propose four generalizations concerning the directionality of analogy in polypersonal systems with a proximate/obviative distinction in the non-local forms.

First, analogy operates from 3′→3 to 3→SAP forms and from 3→3′ to all SAP→3 forms. This is a particular case of Watkins's law (Watkins 1962): Analogy starts out from the third person and extends to the other forms through a reanalysis of the third person ending as part of the verb stem.

Second, analogy can apply from SAP→3 forms to 3→SAP and local ones (as shown by the reshaping of 3→1PE and 3→2PL in Nishnaabemwin).

Third, analogy first applies to plural SAP forms before influencing singular SAP forms, both in the case of 3→SAP and SAP→3 paradigms. There is no evidence of a hierarchy between third singular and third plural, as we saw that the 3PL→1SG resisted analogy in Arapaho while its singular counterpart 3SG→1SG was remade.

Fourth, analogy first applies to 3→SAP forms before affecting SAP→3 forms. There appears to be no hierarchy between 3→SAP and local forms as to their sensitivity to analogy.

5. Conclusion

On the basis of the attested evolutions of the conjunct order paradigms in Algonquian languages, we have proposed several generalizations on the directionality of analogical levelling in polypersonal systems with proximate/obviative contrast in non-local scenarios.

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The generalizations proposed in this chapter must be thought of as heuristic principles, to be tested against data from other language families with direct/inverse systems. Future studies on language families such as Sino-Tibetan, in particular on Rgyalrong and Kiranti languages which have fully functional direct/inverse systems but no historical attestations (DeLancey, 1981; Sun & Shi 2002; Gong 2014 and Lai 2015), should make it possible to evaluate whether they remain valid when tested on a larger body of data.

The ultimate explanation for these generalizations may lie in the relative frequency of the forms: less frequent forms are more prone to undergo analogy on the model of more frequent forms.

Independently of any language, third person forms are generally more frequent in corpora than SAP forms for most verbs (see however Jacques 2016 for a marginal counterexample). This observation may contribute to explain why mixed domain forms (including 3→SAP and SAP→3) can be renewed on the model of non-local domain person forms (3′→3 and 3→3′ respectively) while the opposite is not attested.

Likewise, 3→SAP forms are markedly less common in corpora than SAP→3 ones, at least in some languages such as Japhug (Jacques 2010), and it is therefore expected that 3→SAP forms are modelled on the basis of either SAP→3 or intransitive forms, and not in the opposite direction.

The gradual development from a highly syncretic person indexation system like that of the proto-Algonquian conjunct order into a direct/inverse system can thus be accounted for without any reference to the notion of person hierarchy. This confirms the idea that while person hierarchies may be convenient ways of describing direct/inverse systems, they 'simply capture the outputs of independent diachronic processes' as pointed out by Cristofaro and Zúñiga (this volume), and should not be misunderstood as providing *explanations* for the linguistic patterns they intend to describe.

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Abbreviations

ANIM	animate	PI	plural inclusive
CNJ	conjunct order	PL	plural
DEM	demonstrative	POSS	possessive
DIR	direct	PRET	preterite
EMPH	emphatic	PROX	proximate
FUT	future	PST	past
IC	initial change	PURP	purposive
INAN	inanimate	SG	singular
INDEP	independent order	TH	theme sign
INTR	intansitive	TR	transitive
INV	inverse	UNSPEC	unspecified actor
INIT	initial change		(also indicated as X)
NEG	negation	VAI	intransitive animate verbs
NA	animate noun	VII	intransitive inanimate verbs
NI	inanimate noun	VTA	transitive animate verbs
NMLZ	nominalizer	VTI	transitive inanimate verbs
OBV	obviative	X	unspecified actor
PE	plural exclusive		(also indicated as UNSPEC)

Also, for language names:

PA Proto-Algonquian

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CHAPTER 8

Are the Tupi-Guarani hierarchical indexing systems really motivated by the person hierarchy?

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Tupi-Guarani languages are supposedly perfect examples of hierarchical indexing systems, where the relative ranking of A and P on the 1 > 2 > 3 person hierarchy determines the selection of the person markers. This chapter questions the relevance of the person hierarchy as a synchronic and diachronic explanation for such systems, with data from 28 languages. First, only SAP > 3 can really be posited in the actual languages, and second, it explains only part of the facts that it is supposed to account for in Proto-Tupi-Guarani. The chapter ends by suggesting that these systems do not result from the person hierarchy as a functional motivation. Instead, they may result from grammaticalization of pronominal paradigms lacking third-person forms.

1. Introduction

The Tupi-Guarani branch of the Tupi family is the best-known language group of South America. It comprises around forty languages that are morphosyntactically very similar (Jensen 1999). Their typologically most remarkable feature is their person indexing, which is supposedly a perfect example of a hierarchical system, where the relative ranking of A and P on the 1 > 2 > 3[1] person hierarchy determines the selection of the person markers. The person hierarchy is systematically used as an explanation of their indexing system in comparative studies (Monserrat & Soares 1983, Jensen 1998a), reconstruction work (Jensen 1990), and grammars

1. In this paper, as in the literature on hierarchical indexing systems in general, X > Y is used to schematize the privileged treatment of some element (X) as opposed to another (Y), rather than to refer to an implicational scale, as is often the case with typological hierarchies.

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of individual languages, as well as in typological studies (such as Payne 1994). The person hierarchy is also seen as an explanation for the supposed development of the Proto-Tupi-Guarani hierarchical system out of an ergative system by Jensen (1998a).

The present chapter questions the relevance of the person hierarchy as an explanation, both synchronic as well as diachronic, for the Tupi-Guarani indexing systems. Apparently valid functional explanations for synchronic facts may in reality be far from the actual diachronic motivation for the origin of these facts (Bybee 1988, Cristofaro 2013, Cristofaro and Zúñiga this volume). The patterns described by typological hierarchies, e.g. alignment of core arguments, or number marking patterns, stem in many individual languages from processes independent of the suggested explanations (Mithun 1996, this volume, Gildea 1998, DeLancey n.d., among others). In other words, this chapter questions the claim that the person hierarchy accounts for the synchronic Tupi-Guarani indexing systems, but also for the Proto-Tupi-Guarani indexing system and its diachronic development. It provides a new perspective on synchronic and diachronic data from the Tupi-Guarani group, based on a recent cross-linguistic survey and existing reconstructions (Jensen 1998a, Gildea 2002).

This chapter first argues that only the SAP > 3 stretch of the 1 > 2 > 3 person hierarchy can actually be confidently posited synchronically (this argument is developed in more details in Rose 2015). It then shows that this limited SAP > 3 hierarchy explains only part of the facts that it is supposed to account for in the historical stage reconstructed as Proto-Tupi-Guarani. The chapter ends by suggesting that the Tupi-Guarani indexing systems are not the product of such a hierarchy but result from various morphological processes involving the absence of a third-person pronoun at a previous historical stage. In brief, even though the person hierarchy has been used as a tool for describing the Tupi-Guarani hierarchical systems for quite a long time, it cannot be considered a good functional explanation for these systems in synchrony, nor the functional motivation for these systems in diachrony.

2. The person hierarchy and hierarchical indexing systems

Since Silverstein's (1976) pioneering work, it has been known that hierarchies of features can play a major role in argument-encoding systems.[2] This author highlighted the role of semantic properties of nominals on case-marking and agreement, more specifically in the domain of ergative or split-ergative systems. The different versions of this hierarchy, called 'empathy hierarchy' (Kuno & Kaburaki 1977, DeLancey 1981), 'animacy hierarchy' (Comrie 1981), 'saliency hierarchy' (Klaiman

2. See Haude & Witzlack-Makarevich (2016) for a short overview of the role of referential hierarchies in alignment.

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1991), 'referential or inherent topicality hierarchy' (Givón 1994), 'nominal hierarchy' (Dixon 1994) or 'indexability hierarchy' (Bickel & Nichols 2007), all imply that the more referential/topical/animate or semantically salient a participant is, the more likely it will be to have access to morphosyntactic slots. This hierarchy is usually explained by an economy principle, by which speakers use overt marking only for those conceptual situations that are less frequent and therefore more difficult to identify (Cristofaro & Zúñiga this volume). The different versions of this typological hierarchy all posit a person hierarchy that has been applied for decades to the description of Tupi-Guarani languages (at least since Monserrat & Soares 1983).

Most typological studies on person indexing postulate a universal hierarchy 1 > 2 > 3 (Dixon 1994, Givón 2001 for instance). The basis for this hierarchy is that speakers are optimally likely to encode a reference to themselves, then to their interlocutors, and then to any other person or object. Nevertheless, the 1 > 2 > 3 hierarchy appears to work reasonably well with mixed configurations (3 ↔ 1, 2) but less so for local configurations, when the two speech act participants (SAPs) are involved (1 ↔ 2) (Zúñiga 2006). As a consequence, the hierarchy between the SAPs and third person is universally accepted (SAP > 3) while the hierarchy between the two SAPs is debatable. Some authors say that first and second persons are not universally hierarchized, their relative order fluctuating from one language to the other (Silverstein 1976, DeLancey 1981). More rarely, other authors claim that the universal hierarchy is 2 > 1 (Junker 2011). From a functional perspective, the ranking of the SAPs on the hierarchy is far from obvious. Local configurations constitute a domain where pragmatic conventions play a major role. It is well-known that, in many languages, pragmatics constrains the use of transparent 1SG or 2SG pronominals (which are then replaced by impersonal, third-person or plural forms, such as French *vous*, Spanish *usted* or German *Sie*, instead of transparent 2SG pronominal *tu/tú/du*). In a study focusing on Native American languages, Heath (1998) notes that transparent indexing combinations with both first and second persons are avoided in many languages. His conclusion is that "1 ↔ 2 agreement combinations delight in messiness. Structures that make the most sense cognitively or formally are actually avoided when they denote pragmatically sensitive pronominal combinations." (Heath 1998: 102) The Tupi-Guarani data perfectly support these claims (Rose 2015).

A remarkable application of the person hierarchy in descriptive linguistics lies precisely in the explanation of hierarchical and inverse indexing systems (Nichols 1992, Zúñiga 2006). A first explicit definition of indexing systems entirely based on such hierarchies is found in Nichols (1992: 66): "Access to inflectional slots for subject and/or object is based on person, number, and/or animacy rather than (or no less than) on syntactic relations." In practice, this means that the participant that is higher on the hierarchy is favored over the one that ranks lower. Inverse systems (a special case of hierarchical systems) indicate specifically whether the direction of the action respects the hierarchy or not. They mark the difference between a situation

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where the agent is higher than the patient in the hierarchy, and one where the patient is higher. For Nichols, hierarchical systems are on a par with neutral, accusative, ergative, stative-active and three-way systems. Languages identified as displaying a hierarchical system are Cree, Tepehua, Mixe, Nunggubuyu, Kiowa (Nichols 1992), Tangut and some Tibeto-Burman languages (DeLancey 2001, n.d.), as well as Carib and Tupi-Guarani languages (Siewierska 2004: 55–56). The hierarchy that is generally postulated is 1 > 2 > 3, except for Algonquian languages, where 2 > 1 > 3 can be posited (Junker 2011), and for some Cariban languages, where SAP > 3 is posited (Siewierska 2004: 151). Most importantly, Tupi-Guarani languages are cited as perfect examples of a hierarchical indexing system, where the relative ranking of A and P on the 1 > 2 > 3 hierarchy determines the selection of the person markers (see e.g. Payne 1997). The inverse systems with a direction marker found in Algonquian languages are regarded as perfect examples of hierarchical systems.

With respect to diachrony, recent studies have shown that hierarchical systems may have various sources unrelated to a person hierarchy per se (Cristofaro 2013, Gildea & Zúñiga 2016). These sources can be the reanalysis of deictic verbal morphology, the reanalysis of third-person forms, a shift from passive to inverse, a shift from cleft constructions to hierarchical alignment, or a change in word order.

3. The Tupi-Guarani indexing systems in synchrony

This section is aimed at showing that actual Tupi-Guarani languages are not perfect examples of hierarchical indexing systems. If they were, the relative ranking of A and P on a 1 > 2 > 3 hierarchy would be sufficient to determine the selection of the person markers. Each indexing pattern would transparently refer to a particular combination of participants. A recent survey of 28 Tupi-Guarani indexing systems (Rose 2015) shows that this is far from being the case. This section summarizes the results of the survey, focusing on the 24 languages with some hierarchical indexing.

First, surprisingly, the survey shows that only two of the Tupi-Guarani languages (Ava-Canoeiro and Kayabí) can be said to follow perfectly the "model" of a hierarchical indexing system based on a 1 > 2 > 3 hierarchy as outlined above. The central point of these systems is that the participant that is higher on the 1 > 2 > 3 person hierarchy is the one that systematically gets access to the unique (obligatorily filled) index slot on the verb. There are two sets of person markers that qualify for this slot, called Set I and Set II after Jensen's work on comparative Tupi-Guarani.[3] When the A argument is the highest on the hierarchy, it is indexed

3. The person value of Set I and Set II forms on transitive verbs is unambiguously determined because of their use with intransitive and non-verbal roots.

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on the verb with Set I. This is illustrated in Example (1) for 1 → 3, Example (2) for 2 → 3, and Example (3) for 1 → 2. When the P argument is highest on the hierarchy, it is indexed on the verb with Set II. This is illustrated in Example (4) for 3 → 1, Example (5) for 3 → 2, and Example (6) for 2 → 1. Since this chapter deals with transitive verbs only, this intra-family terminology can be replaced by A for Set I and P for Set II in the glosses. The only configuration not taken into account by the hierarchy is when two third persons interact. Then only the third-person A argument is indexed on the verb (7). The pronominal forms (as reconstructed by Jensen (1998a)) are given in Table 1. The indexing system is summarized in Table 2, and the hierarchy on which it is based in Table 3.

Ava-Canoeiro (Borges 2006: 158–160)

(1) 1 → 3
***a**-pitɨm*
1SG.A-pinch
'I pinched him.'

(2) 2 → 3
ni=tõ jawaʁa-∅ ***e**-k^{w}aʁ*
PRO2=PART dog-CN **2SG.A**-hit
'You hit the dog'

(3) 1 → 2
ʧi=tõ ni=tõ ***a**-kutuk*
PRO1=PART PRO2=PART **1SG.A**-pierce
'I pierced you.'

(4) 3 → 1
juati-∅ ***ʧi**=kutuk*
thorn-CN **1SG.P**=pierce
'The thorn pierced me.'

(5) 3 → 2
***ni** = juka* *awatu-a*
2SG.P=kill thunder-CN
'The thunder will kill you!'

(6) 2 → 1
ni=tõ ***ʧi**=kutuk*
PRO2=PART **1SG.P**=pierce
'You pierced me.'

(7) 3 → 3
***o**-apɨk*
3.A-braid
'(S)he braided (her hair).'

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Table 1. Suggested reconstructions of some Proto-Tupi-Guarani pronominals (Jensen 1998a: 498)

	A Set	P Set	Portmanteau (with A1)	Free pronouns
1SG	*a-*	*čé*		*ičé*
1EXCL	*oro-*	*oré*		*oré*
1INCL	*ja-*	*jané*		*jané*
2SG	*ere-*	*né*	*oro-*	*eré*
2PL	*pe-*	*pé*	*opo-*	*pe…ẽ*
3	*o-*	*i-, c-, t-*		

Table 2. The indexing system of Ava-Canoeiro and Kayabí

	1P	2P	3P
1A		1A-	1A-
2A	1P-		2A-
3A	1P-	2P-	3A-

Table 3. The hierarchy in the indexing system of Ava-Canoeiro and Kayabí

	1P	2P	3P
1A	1 > 2 > 3	1 > 2 > 3	1 > 2 > 3
2A	1 > 2 > 3	1 > 2 > 3	1 > 2 > 3
3A	1 > 2 > 3	1 > 2 > 3	A > P

Second, the survey shows that, among the other hierarchical Tupi-Guarani systems, the great majority show a clear SAP > 3 hierarchy, as in Ava-Canoeiro and Kayabí, but with a more complex encoding of local configurations (SAP → SAP). The variation is considerable: there are five types of 2 → 1 encoding, and eight types of 1 → 2 encoding. Even considering this variation alone, it seems very speculative to reconstruct an indexing system based on a clear 1 > 2 > 3 hierarchy. In most of these languages, the hierarchy could be said to hold when 2 → 1, because the first-person P argument is then generally indexed on the verb, as in Ava-Canoeiro and Kayabí. But then the encoding of 1 → 2 does not match the hierarchy. In this chapter, three major cases are considered.

a. Most languages are described as having an opaque marking of the 1 → 2 configuration. It is said that a special set of markers is then used, consisting of portmanteau forms indexing the person value of both A and P. They are reconstructed as **oro-* 'first person acting on a second person singular' (8), and **opo-* 'first person acting on a second person plural' (9) as presented in Table 1.

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Kamaiurá (Seki 2000: 137–140)

(8) 1 → 2SG
***oro**-etsak*
1→2SG-see
'I/we see you (SG).'

(9) 1 → 2PL
***opo**-pyhyk*
1→2PL-catch
'I/we catch you all.'

It is completely unclear why the hierarchy between the speech act participants should be 1 > 2 in this type of system. In the 2 → 1 configuration, the first-person patient is in most languages marked on the verb, in line with the hierarchy 1 > 2. In the 1 → 2 configuration, it is hard to understand how the analysis of the person markers as portmanteaus fits any hierarchy. The fundamental idea behind a portmanteau analysis is that the form encodes a whole configuration (two arguments at the same time) and not one argument over the other. Consequently, portmanteau forms do not support any particular hierarchy that could determine the accessibility to a morphosyntactic slot. It can at best be stated that there is a partial preference for 1 > 2 in most languages of the family on the basis of the 2 → 1 configuration. I doubt whether positing a synchronic hierarchy is useful if its explanatory power is limited to only one configuration. This issue is independent from whether this hierarchy has been a diachronic functional motivation for the origin of the construction (this will be examined in Section 4). The value of using hierarchies as synchronic functional explanations is the role they may play in stating generalizations about the behavior of different types of semantic referents in different morphosyntactic environments. A hierarchy has no generalizing power if it applies to only one configuration out of two.

b. In other languages, P is the only argument that is systematically indexed in all local configurations. This can be described as following a P > A hierarchy. In four languages, this is straightforward: the P Set is used for P in both configurations, as in the Guajá Examples (10) and (11). In one of the sub-groups of the family (sub-group I), short forms of the aforementioned "portmanteau" forms used for 1 → 2 are analyzed as P markers. P markers are thus favored in both local configurations, as in the Jopara Examples (12) and (13).

Guajá (Magalhães 2007: 194–195)

(10) 1SG → 2SG
jahá ***ni**=n-ixá*
PRO.1SG **2SG.P**=REL-see
'I saw you (SG).'

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(11) 2SG → 1SG
nijã ***ha****=r-ixá*
PRO.2SG **1SG.P**=REL-see
'You saw me.'

Jopara (Kallfell 2010: 100)

(12) 1 → 2SG
che /ore ***ro****-hecha*
PRO.1SG/PL **2SG.P**-see
'I/we see you (SG).'

(13) 1 → 2PL
che / ore ***po****-hecha*
PRO.1SG/PL **2PL.P**-see
'I/we see you all. '

c. Finally, in two northern languages (Emérillon and Wayampi), the A argument is indexed in all local configurations. These configurations thus follow an A > P hierarchy, clearly contradicting the 1 > 2 hierarchy when 2→1 (see Rose 2009 for more details).

Emérillon

(14) 2 → 1
ere*-nũpã* *orone-kom*
2SG.A-hit 1EXCL-PL
'You (SG) hit us'

Furthermore, some variation is also attested in mixed configurations (SAP ↔ 3). Some languages show indexes for both A and P when SAP/3 → 3 as in (15). No person hierarchy is then needed for determining which argument is indexed on the verb.

Tupinambá (Rose 2009: 68)

(15) 1 → 3
a-i*-potár*
1SG.A-3.P-like
'I like it.'

Table 4 summarizes the indexing system of the Tupi-Guarani languages that follow the portmanteau analysis for the 1 → 2 configuration, which is the analysis most commonly found in the literature. This table minimizes variation by omitting divergent systems, such as those presented above in ii) and iii). The phenomena described in ii) and iii) are evidence against applying the hierarchy to such indexing systems. Table 4 repeats the most widespread presentation of the Tupi-Guarani indexing systems (Monserrat & Soares 1983, Jensen 1990, Payne 1994, Jensen 1998a), but actually accounts for only 12 languages out of the 28 languages of the survey.

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Table 4. The indexing systems of some Tupi-Guarani languages (under the portmanteau analysis)

	1SGP	1PLP	2SGP	2PLP	3P
1SGA			portmanteau	portmanteau	1SGA-(3P)-
1PLA			portmanteau	portmanteau	1PLA-(3P)-
2SGA	1SGP-	1PLP-			2SGA-(3P)-
2PLA	1SGP-	1PLP-			2PLA-(3P)-
3A	1SGP-	1PLP-	2SGP-	2PLP-	3A-(3P)-

Table 5 summarizes the possible hierarchies accounting for the indexing systems of some Tupi-Guarani languages under the portmanteau analysis. In this table, no hierarchy is considered to play a role whenever the two arguments are encoded (either with two indexes, or within a portmanteau), because the effect of hierarchies is commonly described as determining the selection of the argument to be indexed in the unique index slot. The possible explanation of parts of the systems in terms of a hierarchy of grammatical roles (like A > P or P > A) is indicated in the table but not discussed any further in this chapter, which focuses on the person hierarchy 1 > 2 > 3 as a usual explanation of Tupi-Guarani indexing systems. The conclusion of the survey is that most Tupi-Guarani languages can be said to follow a clear SAP > 3 hierarchy, but that most languages support the 1 > 2 hierarchy only in one of the local configurations. When taking all Tupi-Guarani languages into account, there are a few exceptions to 1 > 2 when 2 → 1 and many exceptions to it when 1 → 2. In the end, only the hierarchy SAP > 3 can be confidently posited for the Tupi-Guarani hierarchical systems in general. It is active in a straightforward way: the participant that is ranked higher is the one to be indexed on the verb. A close examination of Algonquian data led some authors (like Macaulay 2009) to the same conclusion, and an alternative explanation of the system was offered by Zúñiga (2008).

Table 5. Possible hierarchies accounting for the indexing systems of the majority of the Tupi-Guarani languages (under the portmanteau analysis)

	1SGP	1PLP	2SGP	2PLP	3P
1SGA			no hierarchy	no hierarchy	SAP > 3 or no hierarchy
1PLA					
2SGA	1 > 2 (or P > A)				
2PLA					
3A	SAP > 3	SAP > 3	SAP > 3	SAP > 3	A > P

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It was mentioned in Section 1 that the opacity of local configurations can be explained as avoidance of pragmatically sensitive combinations (resembling the common pragmatic restrictions on the use of transparent 2SG pronominals), the expression of which is interpretable as face-threatening acts (Brown & Levinson 1987, quoted in Siewierska 2004). Heath (1998) suggests that linguists have 'denying' reactions when faced with this opacity, for instance imposing hierarchies with artificial segmentation and labeling of surface morphemes.

> One way to defeat the messiness is […] to impose order on the 1 ↔ 2 subsystem by elaborating {1, 2} > 3… hierarchies […] often at the cost of artificial segmentation and labeling of surface morphemes in opaque 1 ↔ 2 combinations, and at considerable risk of missing the general point. (Heath 1998)

This may explain why most authors of Tupi-Guarani grammars use the artifact of a 1 > 2 > 3 person hierarchy, though the data do not support the hierarchy in a transparent fashion (especially regarding the presumed "portmanteau" forms).

To conclude, the person hierarchy does not provide a systematic explanation for the various person indexing patterns found in Tupi-Guarani languages (in synchrony). The relative ranking of A and P on a 1 > 2 > 3 hierarchy is not sufficient to determine the selection of the person markers in all configurations, except for Ava-Canoeiro and Kayabí.

4. The Tupi-Guarani indexing systems in diachrony

The person hierarchy has also been used as a functional explanation for the reconstructed hierarchical indexing system of Proto-Tupi-Guarani, and as a motivation for its origins. According to Jensen (1998a: 565), the hierarchical system would have developed from an ergative-absolutive system by the "redefinition of the extent of usage of first and second-person P prefixes in a person hierarchy rule in which hierarchically superior P is marked".[4] This section questions whether the person hierarchy has played a role in the development of Tupi-Guarani indexing systems. It first presents the Proto-Tupi-Guarani indexing system (4.1) and then discusses its genesis (4.2).

4. Another scenario also starts with an ergative-absolutive system, at the Proto-Tupi stage, with some branches (among which the Tupi-Guarani branch) later shifting to an accusative pattern and then to a hierarchical pattern (Birchall 2015).

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4.1 The Proto-Tupi-Guarani system

While the reconstructed system displays only few differences with respect to the present systems, these differences make it even more distant from the idealized hierarchical indexing system.

The greatest difference is that three configurations are actually reconstructed with two person index slots, undermining the supposed need for a hierarchy to select the argument to be indexed. Ever since Jensen (1998a), two person slots have been reconstructed for configurations with a third-person P: a slot for A, followed by a slot for P before the verb root. Both arguments are thus indexed when a speech act participant acts on a third person (16), or when a third person acts on another third person (17) in reconstructed Proto-Tupi-Guarani. The P marker has disappeared from these configurations in most of the daughter languages, but is still found in some.[5] More recently, one of the local configurations (i.e. 1 → 2PL) has also been reconstructed as initially involving two slots, in the same A-P order (Cabral 2001, see Rose (2015) for more information). The construction in (18) is the source for the great variability of some of the supposed "portmanteau" forms. No hierarchy can be invoked for the three configurations with two slots; they all offer an $_{\text{A-P-}}$V pattern.

Proto-Tupi-Guarani (Jensen 1998a: 518)

(16) SAP → 3
**a-i-potár*
1SG.**A-3.P**-like
'I like him/her/them/it.'

(17) 3 → 3
**o-i-potár*
3A-3.P-like
'He/she/they/it like(s) him/her/them/it.'

Proto-Tupi-Guarani (Cabral 2001: 131)

(18) 1 → 2PL
(icé)* ***a-poro-nupã*
PRO1 **1.A-generic.human.P**-hit
'I hit people. ' Extended use: 'I hit you all.'

The reconstruction of the other three configurations (3 → SAP, 2 → 1, 1 → 2 SG) does not differ much from their encoding in the majority of the daughter languages. In the configurations where P is the highest ranked argument (with either a third (19)

5. It is explicitly analyzed as a P marker only in Tupinambá and Mbyá. In the other languages it is described either as fused with the root, resulting in an allomorphic variant of the verb root, or as fused with the A markers.

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or a second-person A (20)), P is indexed. A suppletive pronoun is added after the verb for a second-person A, reconstructed by Jensen as **jepe* for 2 SG and **pejepe* for 2 PL.[6] This indexing of P is usually explained by the SAP > 3 and 1 > 2 hierarchies. For the configuration 1→2 SG (21), a recent comparative survey (Rose 2015) shows that the supposed portmanteau form **oro-* can be analyzed as the first-person exclusive A marker, since both markers are formally identical in the Proto-Tupi-Guarani reconstruction and in all languages making use of it. The encoding of this local configuration could be said to follow the 1 > 2 hierarchy, but is nevertheless a very opaque encoding (see Rose 2015 for more discussion on this non-transparent marking).

Proto-Tupi-Guarani (Jensen 1998a: 520)

(19) 3 → SAP
**če-potár*
1SG.P-like
'He/she likes me.'

Tupinambá (Jensen 1998a: 521)

(20) 2 → 1
***syé**-r-epyak* *epe*
1SG.P-REL-like PRO.2
'You like me.'

Proto-Tupi-Guarani (Jensen 1998a: 522, my glosses)

(21) 1 → 2SG
****oro**-potár*
1EXCL.A-like
'I/we like you.'

Table 6 summarizes the encoding of the various configurations in Proto-Tupi-Guarani.

Table 6. The indexing systems of the Proto-Tupi-Guarani languages

	1SGP	**1PLP**	**2SGP**	**2PLP**	**3P**
1SGA			1PLA-	1SGA-INDET-	1SGA-3P-
1PLA			1PLA-	1SGA-INDET-	1PLA-3P-
2SGA	1SGP-	1PLP-			2SGA-3P-
2PLA	1SGP-	1PLP-			2PLA-3P-
3A	1SGP-	1PLP-	2SGP-	2PLP-	3A-3P-

6. This pattern is quite frequent in the descendant languages, but the various forms of the free pronoun postposed to the verb do not clearly confirm the reconstructed forms.

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Table 7 summarizes the possible analysis of these configurations in terms of hierarchies. It is clear that the SAP > 3 and 1 > 2 hierarchies apply only very partially to the various configurations. Even if these hierarchies were considered to be at work, however, one should still explain why they are inactive in half of the configurations they are supposedly relevant for. If the effect of the hierarchies must be limited to specific configurations, the explanation they provide is neither an economic analysis nor a powerful functional explanation for the indexing system. It has even less explanatory value for Proto-Tupi-Guarani than for the descendant languages. In the end, the Proto-Tupi-Guarani system can hardly be described in hierarchical terms.

Table 7. Possible hierarchies accounting for the Proto-Tupi-Guarani indexing system

<table>
<tr><th></th><th>1SGP</th><th>1PLP</th><th>2SGP</th><th>2PLP</th><th>3P</th></tr>
<tr><td>1SGA</td><td rowspan="2" colspan="2"></td><td rowspan="2">1 > 2 or A > P</td><td rowspan="2">no hierarchy</td><td rowspan="2"></td></tr>
<tr><td>1PLA</td></tr>
<tr><td>2SGA</td><td rowspan="2" colspan="2">1 > 2 or P > A</td><td rowspan="2" colspan="2"></td><td rowspan="2">no hierarchy</td></tr>
<tr><td>2PLA</td></tr>
<tr><td>3A</td><td>SAP > 3</td><td>SAP > 3</td><td>SAP > 3</td><td>SAP > 3</td><td></td></tr>
</table>

Another important point is that the supposed hierarchical system explains the accessibility to the index slot only for transitive verbs. When considering both intransitive and transitive predicates, the overall Proto-Tupi-Guarani morphological alignment has been reconstructed as split-intransitive (or active-inactive system, see Jensen 1998a: 517). The syntactic alignment can be reconstructed as nominative-accusative, using as the main criterion the use of a Set III prefix in case of coreference with the main subject (either A, Sa or Sp, see Jensen 1998b). This means that the indexing on transitive verbs is completely independent from the alignment system (see Rose 2009 for further discussion). This distinction between indexing on the one hand and morphological and syntactic alignment on the other undermines the potentially explanatory power of the hierarchy as a deep functional explanation. It rather suggests that the indexing system is just a morphological phenomenon, probably resulting from historical morphological processes rather than from a strong functional motivation. This is described in the following section.

4.2 The genesis of the Proto-Tupi-Guarani indexing system

Several authors have recently discussed the genesis of hierarchical indexing systems (Cristofaro 2013, Gildea & Zúñiga 2016). In this domain, the genesis of

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the Proto-Tupi-Guarani system has not yet been satisfactorily explained (Gildea 2002). This section aims at pointing to one major factor that could have possibly led to the creation of the reconstructed system.

My first suggestion is that indexing systems based on an SAP > 3 hierarchy can logically result from the grammaticalization of pronominal paradigms lacking third-person forms (Figure 1). We know that third-person forms are often missing from paradigms of free pronouns. When such free pronoun paradigms become grammaticalized, the resulting index sets then include only first- and second-person markers. Such a process of pronominalization in a language lacking free third-person pronouns could easily lead to a hierarchical system in mixed configurations (SAP ↔ 3). In fact, only SAPs could be formally indexed, and third persons would have to be inferred. The resulting system is commonly explained, in synchrony, with an SAP > 3 hierarchy selecting access to the index slot.

Stage 1: Grammaticalization of first- and second-person pronouns for A and for P
when 3 → SAP: $_{1/2P}$-V
when SAP → 3: $_{1/2A}$-V

Result: Encoding of only SAP, when SAP ↔ 3, explainable by SAP > 3
$_{1/2P}$-V, $_{1/2A}$-V

Figure 1. Model of emergence of a hierarchical system from pronominal paradigms lacking third-person forms (arbitrarily starting with grammaticalization of P markers)

Gildea (2002) suggests a comparable scenario leading to the Proto-Tupi-Guarani indexing system (Figure 2). Two different waves of pronominalization, first prefixation of A and then cliticization of first- or second-person P, led to the Proto-Tupi-Guarani hierarchical system. This occurred on the vestige of a Pre-Proto-Tupi-Guarani unknown system visible only in the presence of an older *i*-third-person P prefix.

Pre-Proto-TG	Unknown system	$_{3P-}$V
	Prefixation of A (NOM/ACC)	$_{A-(3P-)}$V
Proto-TG	Cliticization of 1/2P	$_{1/2P=}$V

Figure 2. Development of Proto-TG hierarchical systems according to Gildea (2002)

My second suggestion is to complement Gildea's scenario by speculating that prefixation of A did not include a third-person form at first, but that the third-person A marker developed later. This left the possibility for grammaticalization of first- and second-person P indexes on roots lacking an A prefix (last stage in Figure 2). This hypothesis is sketched in Figure 3. As presented in the general model of Figure 1,

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the grammaticalization of these two sets of markers without third-person forms should lead to a perfect hierarchical system in mixed configurations. The retention of the ancient third-person P marker and the innovation of a third-person A marker in Proto-Tupi-Guarani have actually blurred this potentially perfect hierarchical system. For the actual hierarchical indexing system found in the mixed configurations of the descendant languages, a further step is necessary: the loss of the vestigial third-person P marker.

Stage 0. Pre-Hierarchical	
Remnants of a previous system	$_{3P\text{-}}V$
Prefixation of 1/2A	$_{1/2A\text{-}(3P\text{-})}V$
Stage 1. Some hierarchy (Proto-Tupi-Guarani stage)	
Cliticization of 1/2P	$_{1/2P=}V$
Rise of 3A prefix	$_{3A\text{-}(3P)\text{-}}V$
Stage 2. Hierarchical in mixed configurations (in most present-day Tupi-Guarani languages)	
Loss of 3P	$_{A\text{-}}V$

Figure 3. Development of Tupi-Guarani hierarchical systems

The hypothesis of the absence of third-person pronouns having led to the development of a hierarchical indexing system is supported by the fact that no third-person free pronouns have been reconstructed at the Tupi-Guarani level (Jensen 1998a) or even at the Tupi level (Rodrigues & Cabral 2012). Jensen's reconstruction of Proto-Tupi-Guarani free pronouns is limited to first and second persons, and these are obviously the source for the first- and second-person P clitics (see Table 1). Gildea (2002) shows that the *i-* third-person P marker is older than the other P markers: it is phonologically reduced, it is more bound (always analyzed as a prefix, while other P markers are analyzed as clitics in some languages), it does not show phrasal morphology,[7] and it has no cognate in the free pronouns, that could have been an historical source for it. It also shows lexically-conditioned allomorphic variation (see Table 1). Consequently, the third-person P marker must have grammaticalized before the other P markers. Now regarding the supposed free pronoun paradigm at the source for the A set, it is not attested anymore, so it cannot be said whether this paradigm contained a third-person form. To sum up, there is not one single reconstructed form of a third-person free pronoun that

7. A so-called relational morpheme is found throughout the family on a lexically defined class of roots when preceded by a P index or NP (Cabral 2000). It is never found after *i-*.

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could have been used as a source for third-person indexes in either set A or P of the Tupi-Guarani hierarchical systems. On this ground, it is difficult to imagine how third-person indexes could have developed. And again, the grammaticalization of two pronominal paradigms lacking third-person forms could have led to the development of the Tupi-Guarani indexing system that are often described as following a hierarchy (Figure 1), even though no hierarchical principle has actually been involved in the development of the system.

5. Conclusion

This chapter has revised the traditional view that Tupi-Guarani and Proto-Tupi-Guarani indexing systems could easily be explained by the 1 > 2 > 3 person hierarchy. This hierarchy is supposed to determine which of the two arguments of a transitive predicate is to be represented in the unique index slot of the predicate, resulting in what is usually called a 'hierarchical indexing system'. It was first shown, on the basis of a recent comparative study (Rose 2015), that only two Tupi-Guarani languages perfectly exemplify what a hierarchical indexing system is supposed to be. In the family in general, only the SAP > 3 hierarchy can be strongly posited. The 1 > 2 hierarchy applies only partially, sometimes in an opaque manner, and not in all Tupi-Guarani languages. Secondly, the SAP > 3 hierarchy only partially accounts for the reconstructed Proto-Tupi-Guarani indexing system (Jensen 1998a), that can hardly be called 'hierarchical'. Thirdly, it is argued that the person hierarchy has not been the functional motivation responsible for the creation of the hierarchical systems, but that the latter basically result from historical morphological processes. It is suggested that these systems originate from the indexing of pronominal paradigms lacking third-person forms. Thus, this chapter provides one more argument for clearly distinguishing the use of hierarchies as a tool for describing synchronic stages of languages, and their (much weaker) use as functional motivation of synchronic and diachronic facts.[8] Mithun (this volume) reaches very similar conclusions:

> Ultimately, hierarchies can be useful in organizing data as a first step toward understanding the kinds of processes that recur cross-linguistically. Close examination of individual systems, however, indicates that the hierarchies do not necessarily guide or even constrain the development of grammatical patterns.

8. Witzlack-Makarevich et al. have recently concluded that "hierarchical rankings of person are unlikely to have systematically shaped the evolution of agreement paradigms in Kiranti or Algonquian", two language families also known for displaying so-called hierarchical indexing systems.

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Abbreviations

1.A	first-person marker of the set that encodes A;	PL	plural
		PRO	pronoun
CN	nuclear case	REL	relational
EXCL	exclusive	SG	singular
PART	particle		

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CHAPTER 9

Incipient hierarchical alignment in four Central Salish languages from the Proto-Salish middle

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There are three distinct transitive constructions in four Coast Salish languages, Squamish, Halkomelem, Klallam and Lushootseed. In the V-TR construction, both A and P are unmarked for case; in the V-MID construction (often considered antipassive), A is unmarked and P marked; in the V-TR-MID construction (often considered passive), P is unmarked and A marked. Individually, none of these constructions is a hierarchical system, but in combination, asymmetries in their distribution are well on the way to creating a person-based hierarchical system. This paper discusses the diachronic development of each of these constructions, then describes their differential distribution into the four functional domains: LOCAL (SAP A → SAP P), DIRECT (SAP → 3P), NONLOCAL (3A → 3P), and INVERSE (3A → SAP P). While the distribution is not identical in each of the languages, the trend is clear: the etymologically passive V-TR-MID construction cannot occur in the DIRECT domain and has become the pragmatically unmarked construction in the INVERSE domain, whereas the etymologically antipassive V-MID construction cannot occur in the INVERSE domain. While it only occurs in the DIRECT and NONLOCAL domains, even there it is rare, giving the appearance that its function is still that of an antipassive. In combination, the result is that whenever the two core arguments of a clause are an SAP and a third person, regardless of grammatical role the SAP participant is always an unmarked core argument, whereas the third person is most often marked, leading to a situation where the oblique case in these languages is beginning to resemble the obviative case-marker of inverse languages.

1. Introduction

This paper presents a historical and synchronic analysis of the distribution of three constructions in four Central Salish (CS) languages: Squamish, Halkomelem,

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Klallam and Lushootseed.[1] The constructions are defined by the occurrence of modern reflexes of the ProtoSalish middle marker **m* 'MIDDLE' (MID) and one of the two transitivizers (TR), **t* 'CONTROL' (CTR) and **nəw* 'LIMITED CONTROL' (LC) (all reconstructed in Gerdts & Hukari 2006: 44). This paper examines three constructions, which each condition a different argument structure: V-TR conditions two unmarked (core) arguments, V-MID conditions an unmarked (core) A with an oblique P, and V-TR-MID conditions an unmarked (core) P with an oblique A. Previous analyses of these constructions differ as to the transitivity status of the V-MID and V-TR-MID constructions. Gerdts (2006) presents V-MID as an antipassive and V-TR-MID as a passive in Halkomelem, and Montler (2010) proposes that the Klallam V-TR-MID is a passive. Initial text counts in Lushootseed support the position that V-MID functions as an antipassive, but Hess (1993: 115) argues that V-TR-MID is not a passive, but rather, it is a transitive, active clause type that promotes the patient over the agent.

This paper does not dispute the antipassive functionality of V-MID, however, when we consider how the V-TR-MID construction is distributed in discourse, and particularly when different persons of agent and patient interact with each other, the function of this construction does not match that of traditional passive voice in any of the four languages. This is especially prominent in Klallam, where, when third person agents act on first or second person patients (3A→SAP P), the only construction available for coding these interactions is V-TR-MID. In both Squamish and Halkomelem, when 3A→SAP P, the only construction that can occur without restrictions is V-TR-MID. Even in Lushootseed, for which the fewest grammatical restrictions are attested, when 3A→SAP P, the V-TR-MID construction is more frequent than would be expected if it were functioning as a passive voice. Given this dominance of the V-TR-MID construction in 3A→SAP P for all four Coast Salish languages, the etymological passive has become the pragmatically unmarked option, i.e., it has the distribution expected of an active voice. Thus,

1. The ISO language codes set by the International Organization for Standardization for the four CS languages are: Squamish (SQU), Halkomelem (HUR), Klallam (a.k.a., Clallam) (CLM), and Lushootseed (LUT). The ISO mistakenly represents the Lushootseed and Southern Puget Sound Salish (SLH) as two different languages. This is not correct. Lushootseed consists of two primary dialects, Northern Lushootseed and Southern Lushootseed. Southern Puget Sound Salish is the Southern dialect of Lushootseed and is definitely not a separate language. Both dialects are well documented as clearly mutually intelligible (Hess 1978a), and I will therefore only use LUT to represent both dialects as one language, Lushootseed.

The Central Salish languages will be represented by CS and from henceforth, the term 'four CS languages' will refer to the four Central Salish languages covered in this paper Squamish, Halkomelem, Klallam and Lushootseed.

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these languages are well on the way to creating a person-based hierarchical system, an analysis inspired by Mithun (2007; 2012).

Before entering into the presentation of data and arguments, I introduce the languages in question.

The Salish language family is comprised of 23 North American languages that extend from Canada to Oregon and from the Pacific Ocean east into Montana. Figure 1 shows the Salish language tree. Although the exact division into subgroups varies across linguistic publications, here I use Kroeber's (1999: 3) classification. Major dialects are listed in italics under the language they belong to. ProtoSalish breaks into five groups: Bella Coola, Central Salish, Tsamosan, Tillamook and Interior Salish. Bella Coola, Central Salish, Tsamosan and Tillamook are on the

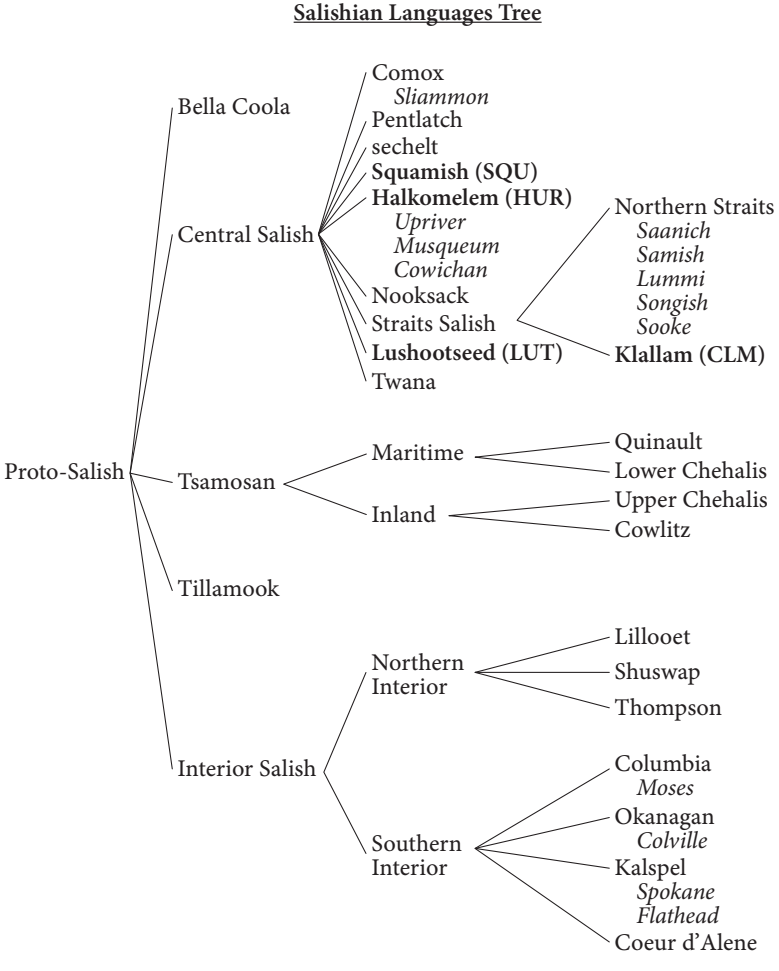

Figure 1.

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west side of the Cascade Mountain Range, which runs from Southern British Columbia, Canada, to Northern California. Interior Salish is on the east side of the Cascade Mountain Range, and breaks into 2 subdivisions; Northern and Southern Interior Salish. Northern Interior has 3 languages spoken in British Columbia. Southern Interior has 4 languages spoken in British Columbia and Washington. The four languages covered in this paper all belong to the Central Salish branch: Squamish is spoken in British Columbia, Halkomelem in British Columbia and part of Washington, and Klallam and Lushootseed in Washington (see Figure 2).

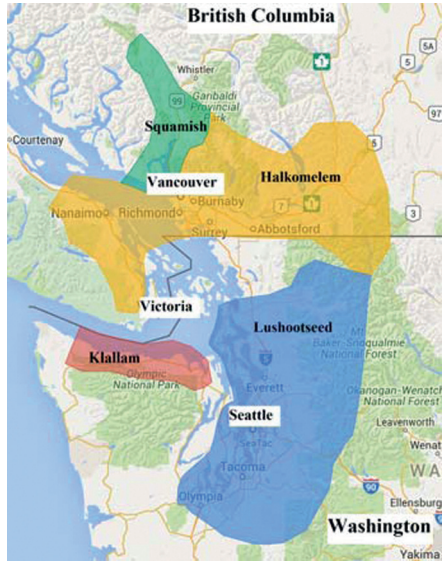

Figure 2.

The primary sources of the data for this paper are from works of the following scholars: Peter Jacobs for Squamish, Donna Gerdts for Halkomelem, Timothy Montler for Klallam, and Thom Hess for Lushootseed. Much of the Lushootseed material also includes my own research (see references) and is informed by my abilities as a speaker. Orthography is consistent between all of the languages except for Squamish, where I honor the orthography used by Peter Jacobs and the Squamish Nation. For IPA [ʃ] and [tʃ], respectively, Squamish uses the digraphs *sh* and *ch* where the other three CS languages use *š* and *č*. For IPA [ʔ] and [ə], respectively, Squamish uses *7* and *e*, where the other CS languages use ʔ and ə.

For all the data presented in the following sections, I use the asterisk (*) preceding phonemes and morphemes to indicate forms reconstructed to ProtoSalish. I use a dash (–) to indicate that a construction is not attested with a given combination of participants, and a question mark (?) to indicate that there is simply

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no data regarding a particular combination. Following Croft (2001: 136, 164), I categorize the semantic participants of a situation using the symbols S, A and P, where S indicates the single core argument of a one-participant situation clause (whether actor or undergoer), A indicates the agent or experiencer of a two-participant situation, and P indicates the other participant (patient or stimulus) of a two-participant situation. I do not address ditransitive situations. I use an arrow (→) to indicate 'acts on'. For example, SAP A → 3P is to be read 'a speech act participant A acts on a 3rd person P'.

Regarding the grammatical realization of the various participants, the grammar of these languages makes a distinction between pronominal enclitics, which can be used to express either A or P, depending upon the syntactic construction, and noun phrases, which can be either a noun or a noun preceded by a determiner. An unmarked noun phrase is one of the core arguments, S, A, or P. A noun phrase must be flagged with the oblique preposition ʔə 'OBL' in order to serve as the P of the V-MID construction (1a) or the A of the V-TR-MID construction (1b), both from Lushootseed.[2]

(1) a.

V		**A**			**P**
*ʔu-qʷəl-**b***	*tsi*	*sładayʔ*	*ʔə*	*tə*	*bayac.*
SB-bake-**MID**	DET	woman	**OBL**	DET	meat

'The woman baked the meat.' (LUT)

b.

V		**A**			**P**
*ləkʷ-**t-əb**-əxʷ*	*ʔə*	*tiił*	*dᶻəgʷəʔ*	*tiił*	*s-ʔəłəd*
eat.up-**CTR-MID**-BI	**OBL**	DET	monster	DET	NMLZ-eat

'The monster ate up the food.' (LUT) (Zahir forthcoming(a))

For this paper, I first illustrate the grammar of each construction in all four languages (Section 2). Then, in Section 3, I lay out the synchronic distribution of these three main clause constructions in terms of the different combinations of A and P. Following the terminology of Gildea & Zúñiga (2016), first developed in the tradition of Algonquian studies, I separate the argument combinations into four functional domains: in the LOCAL domain, both A and P are speech act participants (SAP); in the DIRECT domain, SAP A → 3P; in the INVERSE domain, 3A → SAP P; and in the NONLOCAL domain, 3A → 3P. In Section 4, I present my conclusions, including the future research that is motivated by these findings.

2. Example 1a, and all other Lushootseed examples with no citation to a source, were produced by the author, who is a speaker of the language.

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2. Introducing and reconstructing the three distinct constructions

2.1 The transitive (TR) construction

There are two transitivizers in Central Salish; *-*t* 'CTR' and *-*nxʷ* 'LC'. They contrast in manner: *-*t* expresses an action done with CONTROL (CTR) by the A, and *-*nxʷ* expresses LIMITED CONTROL (LC) by the A. For these morphemes, control means that A does the event with care and deliberateness, while limited control expresses the ability of A to complete the situation in question only with difficulty, or that the event is not done intentionally. The transitivizers, along with their cognates and variants, are listed in Table 1.

Table 1. Transitive suffixes

Language	Control	Not-control
Proto-Salish	*-*t*	*-*nxʷ*
SQU	*-n* ~ *-t*	*-nəxʷ*
HUR	*-t*	*-nəxʷ*
CLM	*-t*	*-nəxʷ*
LUT	*-d* ~ *-t*	*-dxʷ* ~ *-du*

In the V-TR construction, the SAP A may be expressed via a pronominal clitic (or a pronominal possessive prefix as in 2b, or a suffix as in 2e) or an unmarked free pronoun (2a, c, d, f, g). A third person P can be an unmarked full-noun (2a-c, e-h) or an anaphoric zero (2d).

(2) V-TR: *Control (CTL) versus Limited-Control (LC)*

a. Squamish (CTL)

A	**V**		**P**		t	
chen	*ts'u7-**n***	*ta*	*ts'isten*	*tina7*	*t-ta*	*s7ay'an*
1SG	pull-**CTR**	DET	nail	from	OBL-DET	wall

'I pulled the nail out from the wall.' (Jacobs 1994: 131)

b. Squamish (LC)

A		**V**		**P**
*7**n**-s-na*	*mn*	*k'wach-**nexw**-an*	*kwetsi*	*mixalh*
1SG.POS-NMLZ-AUX	PRT	see-**LC**-1SG	DET	bear

'Then I saw a bear.' (Kroeber 1999: 66)

c. Halkomelem (CTL)

	A	**V**		**P**	
ʔi	*cən*	*wəł*	*č̓əkʷx̌-**t***	*tᵉə*	*sməyəɵ.*
AUX	1SG	now	fry.IPFV-**CTR**	DET	deer

'I am frying the deer meat.' (Gerdts & Hukari 2006: 65)

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d. Halkomelem (LC)

		A	**V**	**P**			
ni	*ʔə*	*čxʷ*	*kʔʷe-kʔʷəc-**nəxʷ***	*Ø*	*ʔəɬ*	*mʔi-s*	*tecəl*
AUX	Q	2S.SUB	IPFV-see-**LC**	3PRS	whenever	come-3.CJ	arrive

'Do you see him when he comes?' (Kroeber 1999: 150)

e. Klallam (CTL)

V	**A**		**P**
*saʔ-**ət***	*caʔ-n*	*cə*	*nə-snəxʷɬ*
lift-**CTR**	FUT-1SG	DET	1SG.POS-canoe

'I'm going to lift my canoe.' (Montler 2005: Section 8.2)

f. Klallam (LC)

V		**A**		**P**
*kʷənaŋə-**nəxʷ***	*u*	*cxʷ*	*cə*	*ʔənʔ-sčaʔčaʔ*
help-**LC**	Q	2SG	DET	1SG.POS-friend

'Did you help your friend?' (Montler 2005: Section 7.2)

g. Lushootseed (CTL)

V	**A**		**P**
*ʔu-qʔʷəl-**d***	*čəd*	*ti*	*sčədadxʷ*
MOM-bake-**CTR**	1SG	DET	salmon

'I cooked the salmon.'

h. Lushootseed (LC)

V	**A**		**P**
*ʔəyʔ-**dxʷ**-əxʷ*	*Ø*	*tiił*	*yidad*
find-**LC**-BI	3PRS	DET	fish.trap

'He finds the fish trap.' (Zahir, 2012c)

When P is a SAP, the four CS languages employ a set of pronominal object markers that suffix onto the verb after the transitivizer. There is a distinct set of object markers for each transitivizer (see Table 2), a subset of which is illustrated in full sentence examples in (3).[3] Note that the object marker is a true pronoun, as indicated by the absence of a separate free pronoun P in these examples. As seen in all the examples in (2a-h), when a transitivizer is not followed by an object marker, this indicates that P is third person.

Table 2. Object pronominal suffixes (Kiyosawa & Gerdts 2010: 33)

	TR	**1SG**	**1PL**	**2SG**	**2PL**
SQU	CTR	*-s*	*-si*	*-umuɬ*	*-umi-(y)ap*
	LC	*-msh*	*-mi*	*-muɬ*	*-umi-(y)ap*

(*Continued*)

3. I did not encounter full sentence examples of either form in Squamish, nor of the LC form in Halkomelem.

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Table 2. (*Continued*)

	TR	1SG	1PL	2SG	2PL
HUR	CTR	*-θam̓š*	*-(ʔ)al'x^{w}*	*-θamə*	*-alə*
	LC	*-am'š*	*-(ʔ)al'xw*	*-amə*	*-alə*
CLM	CTR	*-s*	*-s*	*-uŋł*	*-s*
	LC	*-uŋəs*	*-uŋə*	*-uŋł*	*-uŋə*
LUT	CTR	*-s*	*-sid*	*-ubuł*	*-ubułəd*
	LC	*bš*	*-bicid*	*-buł*	*-bułəd*

(3) V-TR-OBJ

a. Halkomelem (CTL)

V	**A**	
*c'ew-**ət-alə***	*ct*	*ceʔ.*
help-**CTR-2PL.OBJ**	1PL	FUT

'We will help you (PL).' (Kiyosawa et al 2010: 35)

b. Klallam (CTL)

V	**A**
*k^{w}ənaŋə-**t-s***	*cx^{w}.*
help-**CTR-1SG.OBJ**	2SG

'You help me.' (Montler 2005: Section 7.1)

c. Klallam (LC)

V	**A**
*k^{w}ənaŋə-**n-uŋəs***	*cx^{w}.*
help-**LC-1SG.OBJ**	2SG

'You helped me.' (Montler 2005: Section 7.2)

d. Lushootseed (LC)

V	**A**
ʔəs-ləq-t-sid	*čəd.*
STAT-hear-**CTR-2SG.OBJ**	1SG

'I hear you.' (Hess 1978a: 129)

e. Lushootseed (CTL)

V	**A**	
ʔəs-laǩ-du-bš	*čəx^{w}*	*ʔu.*
STAT-rewmember-**LC-1SG.OBJ**	2SG	Q

'Do you remember me?' (Hess 1972: 119)

Uniquely when 3A→3P, all of the four CS languages have a construction in which a 3rd person subject marker is suffixed to the verb: *-s, -əs* or *-as* 'SM'. This construction allows both A and P to be core arguments, which can occur as unmarked nouns, although when the identity of either A or P is obvious from context it is

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more common for A and P to be absent (i.e., anaphoric zeros). In all but Squamish, the preferred word order is VAP, with other orders also possible (Kroeber 1999: 40). Without full restriction on word order, ambiguity sometimes occurs in deciphering which participant is A and which is P, which can result in some limitations on the orders of A and P.

For Squamish (Jacobs 1994: 123), when two unmarked nouns follow the verb marked with the subject marker (V-SM), the interpretation is always VAP (4), which clearly disambiguates A from P. However, it is rare for both A and P to occur as full nouns. More commonly, A is a continuing topic, and so is indicated only by the subject marker (5).

(4)

	V		**A**		**P**
na	*ch̓em̓'-t-**as***	*ta*	*Tam*	*ta*	*Pita*
RL	bite-CTR-**SM**	DET	Tom	DET	Peter

'Tom bit Peter.' (SQU) (Jacobs 1994: 123)

(5)

		V		**A**		**P**
na	*wa*	*tsiyl̓sen-t-**as***		*Ø*	*kwetsi*	*shaw'*
RL	DUR	sharpen-CTR-**SM**		3PRS	DET	bone

'He was sharpening a bone.' (SQU) (Jacobs 1994: 123)

In Halkomelem (Kiyosawa & Gerdts 2010: 34), when a transitive verb bears the subject marker A is restricted to being an animate participant (6).

(6)

	V		**A**		**P**
niʔ	*c̓ew-ət-**əs***	*θə*	*słeniʔ*	*tᶿə*	*swəy̓qeʔ.*
AUX	help-CTR-**SM**	DET	woman	DET	man

'The woman helped the man.' (HUR) (Kiyosawa, et al 2010: 34)

For Klallam (Montler 2001: 240–1), word order is generally restricted to VAP when both arguments are equal in animacy (7a). However, when A possesses P, as in (7b), the order can also be VPA.

(7) a.

	V		**A**		**P**
	*kʷ̓ən-t-**s***	*cə*	*swew̓əw̓əs*	*cə*	*cət-s*
	look.at-TR-**SM**	DET	boy	DET	father-3SG.POS

'The boy saw his father.' (CLA) (Montler 2001: 240)

b.

	V		**P**		**A**
	*kʷ̓ən-t-**s***	*cə*	*cət-s*	*cə*	*swew̓əw̓əs*
	look.at-TR-**SM**	DET	father-3SG.POS	DET	boy

'The boy saw his father.' (CLA) (Montler 2001: 241)

In Lushootseed, the V-TR-SM construction is limited to subordinate clause constructions (8) and is not possible in main clause predicates.

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(8) **V** **P**

*tu-gʷag*ʷ*-ə-d* *tiəʔ* *s-hay-dx*ʷ*-əs* *həlgʷəʔ*

PST-talk-LV-CTR DET NMLZ-know-LC-SM 3PL

'They talked about what they knew.'[4] (Zahir 2010: 23)

In all four CS languages, there are also causative and applicative verb stems that have the same argument structure as verb stems with the transitivizers: the causative and each applicative has its own set of object markers and they each can be followed by the subject marker suffix. Their functions do not conflict with the discussion of this paper and therefore will not be discussed beyond this point.

2.2 The reflexive > middle > antipassive construction

This section begins the discussion of the Proto-Salish -**m* morpheme, which has the modern reflexes *-m ~ -əm* for Squamish and Halkomelem, *-ŋ ~ -əŋ* for Klallam, and *-b ~ -əb* for Lushootseed. Based on Gerdts & Hukari (2006: 44), I refer to this morpheme as MIDDLE (MID). It is typologically common for a middle marker to have as its source a reflexive (Kemmer 1993), which I believe to be the case for Salish as well (Section 2.2.1). Once a middle is well-established (Section 2.2.2), it radiates out from there into different functions, one of which is an antipassive. While the focus of this paper is on the development of the combination of transitivizer suffix plus middle marker through a passive into a possible new active voice alignment construction, I begin with its solo development into an antipassive.

2.2.1 *Reflexive*

I first briefly discuss the semantic similarity and differences between the reflexive and the middle voice. The reflexive is the situation where there is typically an A and P, but the same participant takes both roles (Kemmer 1993: 42). While the middle also may have this interpretation, it also occurs in many cases where the two semantic participant roles themselves are conflated into one and their distinction is less discernable. In this case, it is more like an intransitive than a transitive construction. In terms of the four CS languages of this paper, I use the term middle-voice to describe functions that are between reflexive and passive. This means that the S may actively be part of an action, such as *wekənəm* 'go by wagon' (HUR), but in so doing, the S becomes an experiencer of that action and not an active agent acting upon itself. The verb can also be nonagentive, such as *c'ənəm* 'sneeze' (HUR), or a natural phenomenon, such as *šəxʷəb* 'blowing wind' (LUT). Figure 3 is a diagram from Kemmer (1993: 73) that gives a graphic view of the distinguishability between a transitive, reflexive, middle voice and an intransitive.

4. The story this example comes from was transcribed under a contract with the Sauk-Suiattle Tribe who requested that this story remain unpublished.

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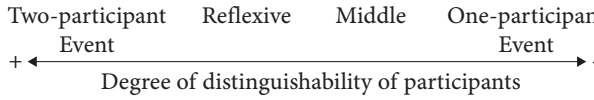

Figure 3.

There are verb stems that are transitive when suffixed with a transitivizer where two separate participants, A and P, are conditioned. However, when they are suffixed with MID, the interpretation is that the A acts upon itself as the P, giving a reflexive reading. Table 3 compares both the reflexive and transitive forms for roots in all four languages.

Table 3. MID-reflexive contrasted with the transitive form

Language	Reflexive	Transitive
SQU	*shukw'u-**m*** bathe-MID 'bathe self'	*shukw'u-**t*** bathe-CTR 'bathe him/her' (Squamish Nation Education Department 2011: 162)
HUR	*šakʷ-**əm*** bathe-MID 'bathe (self)'	*šakʷ-**ət*** bathe-CTR 'bathe him/her' (Gerdts & Hukari 2006: 59)
CLA	(a) *ƛ̓əm̓-**əɱ** cn* bump-MID 1.SG 'I bumped (myself).' (Montler 2005: Section 40.1)	*ƛ̓əmə-**t** cn* bump-CTR 1.SG 'I bumped it.' (Montler 2012: 240)
LUT	*hədiw'-**b*** inside.house-MID 'bring self inside a house/ building'	*hədiw'-**d*** inside.house-CTR 'bring someone/something inside a house/ building' (Bates, Hess & Hilbert 1994: 108)

Clothing nouns can also be used as verbs when suffixed with either a transitivizer or MID, changing the word-class from noun to verb. In both cases, the verbal form is the act of donning an article of clothing. The difference is, again, that with the transitivizer the A and P are distinct participants (i.e., A puts clothing on P), whereas with the MID suffix, A puts the clothing on him or herself (Table 4).

These cases of a reflexive reading for the middle suffix are not prototypical, but they do demonstrate that, despite the existence of an independent reflexive construction, the middle still has this function. I take this to be evidence of the etymological meaning of MID.

2.2.2 *Middle*

The middle voice also appears in some verbs that lack a corresponding root without the marker MID (cf. Table 5). Kemmer (1993: 22) terms these types of verbs

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Table 4. MID-reflexive and TR as transitivizers

Language	Noun	Reflexive	Transitive
SQU	*kapu* 'coat'	*kapu7-**m*** coat-**MID** 'put on one's coat'	*kapu7-**n*** coat-**TR** 'put coat on him/her' (Squamish 2011: 75)
HUR	*kəpu* 'coat'	*kəpuʔ-**əm** ~ kepu:-**m*** coat-**MID** 'put on one's coat'	*kəpuʔ-**ət** ~ kepu:-**t*** coat-**TR** 'put coat on him/her' (Gerdts, et al., 2006: 59)
CLA	*kapu* 'coat'	*kapu-**həŋ*** coat-**MID** 'put on one's coat' (Montler 2012: 166)	–
LUT	*kəpu* 'coat'	*kəpuu-**b*** coat-**MID** 'put on one's coat' (Bates, et al., 1994: 119)	*kəpuu-**d*** coat-**TR** 'put coat on him/her'

deponents. These verbs have fossilized into middle verbs, which are grammatically active but which only occur in the middle-voice (Table 5). Which verbs are deponents varies in the lexicons between the four CS languages, showing that this is a lexicalization process that is happening independently in each language. For example, in Halkomelem, the middle form is used for *qewə-m* 'rest', but in Lushootseed, there is a different, non-deponent root, *qaʔkʷ* 'rest'.

Table 5. Fossilized MID with deponents

Language	**MID middle-voice**
SQU	*xwiti-m* xwiti-MID 'jump' (Squamish 2011: 204)
HUR	*nəqə-**m*** nəqə-MID 'dive' (Gerdts & Hukari 2006: 45)
CLA	*xʷitə-**ŋ** cn* jump-MID 1.SG 'I jump.' (Montler 2005: Section 26.2)
LUT	*saxʷə-**b*** saxʷə-MID 'jump' (Bates, et al., 1994: 200)

In all four languages there are multiple examples of nonagentive verbs that always use the middle voice. See the examples from Halkomelem in Table 6 (Gerdts &

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Hukari 2006: 90), from Klallam in Table 7 (Montler 2012), from Squamish in Table 8 (Squamish Nation Education Department 2011), and from Lushootseed in Table 9.

Table 6. Halkomelem -MID for nonagentive verbs

Body processes	
*c'ən-**əm***	'tremble'
c'ən-**MID**	
*hes-**əm***	'sneeze'
hes-**MID**	
Motion verbs	
*p'il-**əm***	'overflow'
p'il- **MID**	
ƛ̓epəx̌-əm	'scatter'
ƛ̓epəx̌- **MID**	
Change of state	
*p̓əq'-**əm***	'bloom'
p̓əq'- **MID**	
liqʷ-əm	'get calm (water, weather)'
liqʷ-**MID**	
Verbs of emission	
pkʔʷ-əm	'emit a cloud of dust or a (very fine) splash of water'
pkʔʷ-**MID**	
ƛ̓eyəq'-əm	'smoke'
ƛ̓eyəq'-**MID**	

Table 7. Klallam -MID for nonagentive verbs

Body processes	
*č'ən-**əŋ***	'tremble'
č'ən-**MID**	
*hes-**əŋ***	'sneeze'
hes-**MID**	
Motion verbs	
*p'ux̌ʷ-**əŋ***	'overflow'
p'ux̌ʷ-**MID**	
Change of state	
*paq'-**əŋ***	'bloom'
paq'-**MID**	
Verbs of emission	
*pkʔʷ-**əŋ***	'smoke'
pkʔʷ-**MID**	

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Table 8. Squamish -MID for nonagentive verbs

Body processes	
*lhetx-**em***	'tremble (from fear or cold)'
lhetx-**MID**	
Motion verbs	
*p'ip'iy'-**em***	'overflow'
p'ip'iy'-**MID**	
Change of state	
*papk'-**am***	'bloom'
papk'-**MID**	
Verbs of emission	
*pepk'^{w}-**am***	'smoke'
pepk'^{w}-**MID**	

Table 9. Lushootseed -MID for nonagentive verbs

Body processes	
*č'əd-**əb***	'shiver (from cold or fear)'
č'əd-MID	
*has-**əb***	'sneeze'
has-MID	
Verbs of natural phenomena	
*x̌^{w}iq^{w}adiʔ-**b***	'thunder (verb)'
thunder-**MID**	
*ƛ̓əbx̌^{w}ilaʔ-**b***	'hail (verb)'
hail-**MID**	
*p'il-**əb***	'high tide (verb)'
flat-**MID**	
*šəx^{w}-**əb***	'wind blows'
swell-**MID**	
*du~d(u)k^{w}-**əb***	'bad weather'
DIM~bad-**MID**	

Finally, the verbalizing function of MID is also attested with a middle reading in Halkomelem and Lushootseed, as seen in the examples in Table 10.

This range of meanings is an important part of what motivates Gerdts and Hukari (2006) to consider the MID suffix to be a middle voice marker in Halkomelem; by extension, we are justified in using the same category label in the other three CS languages, where the cognate marker shows corresponding meanings.

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Table 10. MID verbalizer

Language	Noun	Verb
SQU	–	–
HUR	*wəkən* 'wagon'	*wekən-**əm*** wagon-**MID** 'go by wagon' (Gerdts & Hukari 2006: 46)
CLA	–	–
LUT	*stəqiw'* 'horse'	*təqiw'-**əb*** horse-**MID** 'to ride horseback' (Zahir forthcoming(b))

2.2.3 *Antipassive*

Finally, in all four CS languages, MID marks the verb in a semantically transitive construction, but with a single unmarked (core) argument, which is the A, expressing P as an oblique. There are no person restrictions on A in this construction, that is, A may be either a SAP or third person. However, the verb cannot bear an object marker or the subject marker; P can only be expressed via a full noun marked with the oblique (OBL) preposition, which, as seen in (9a-d), has as its modern reflexes *t-* (Squamish), *ʔə* (Halkomelem and Lushootseed), and *ʔəʔ* (Klallam).[5] This construction is defined as an antipassive by Gerdts & Hukari (2006: 44) and Krober (1999: 31–32).

(9) Antipassive MID

a. **V** **A** **[P]**
na *ip'a7-**im*** *alhi* *Qal'qalilh* ***t**-ta* *sukw'am*
RL hold-**MID** DET **Q.** (name) **OBL**-DET bark
'Q. had some cedar bark with her.' (SQU) (Jacobs 1994: 131)

b. **V** **A** **[** **P** **]**
niʔ *qʷəl-**əm*** *Ø* ***ʔə*** *tᵉə* *sce:łtən.*
AUX cook-**MID** 3PRS **OBL** DET salmon
'He cooked the salmon.' (HUR) (Gerdts & Hukari 2006: 64)

5. Based on the resemblance in Halkomelem, Lushootseed and Klallam, the oblique preposition seems clearly cognate, but the connection to the Squamish oblique is not as clear. More diachronic research is needed on the development of the Squamish oblique to substantiate that this element of the V-MID construction in Squamish derives from the same source construction.

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c. **V** **A** [**P**]
*ƛ̓əm̓-**əŋ*** *cn* ***ʔaʔ*** *cə* *snəxʷɬ.*
bump-**MID** 1SG **OBL** DET canoe
'I bumped the canoe.' (CLA) (Montler 2005: Section 40.2)

d. **V** **A** [**P**]
ʔu-qʾʷəl-b *tsi* *sładayʔ* *ʔə* *tə* *bayac.*
MOM-bake-**MID** DET woman **OBL** DET meat
'The woman baked the meat.' (LUT)

First, it is not a particularly surprising that the middle marker should also mark antipassive: multiple typological studies have noted synchronic polysemy between middles and antipassives (cf. Haspelmath 2003, who uses the term "deobjective" instead of the more common term, antipassive). Both Creissels (2006: 40) and Janic (2013: 238–257) argue that the direction of change is from reflexive and reciprocal to antipassive in multiple language families: Oceanic, Slavic, Romance, Western Mande, and arguably Turkic. Second, the antipassive is not necessarily the end of the development: Harris and Campbell (1995: 245–246) identify a well-documented case (Kartvelian) in which an antipassive has been reanalyzed as a main clause transitive construction with a new case-marking pattern. We will return to this question in Sections 3 and 4, after we examine the third construction, in which a transitivizer and the middle marker co-occur.

2.3 The transitive-reflexive > passive (-TR-MID) construction

The third construction of interest for this paper has as its nucleus a verb followed by a transitivizer, which is in turn followed by the middle marker. The construction is semantically transitive, in that there must be an A who is doing the action (whether with greater or lesser control). However, in this construction it is the P that occurs as the unmarked noun, whereas the A, if it occurs at all, must be marked with the same oblique preposition that we saw in (9a-d) marking the oblique P in the antipassive construction. The examples in (10a-d) have third person referents in both A and P roles, whereas the examples in (11a-d) have an oblique third person A acting on a SAP P, which is indicated by a free pronoun instead of via the object suffixes seen in Section 2.1.

(10) V-TR-MID, 3A → 3P

a. **V** [**A**] **P**
s-es *men* *lhich'-**it-em*** ***tl'a*** *T'it'ki7tsten* *kwetsi* *siten*
NOM-GEN just cut-**CTR-MID** **OBL/DET** T.(name) DET basket
'Then T. cut the basket.' (SQU) (Jacobs 1994: 124)

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b. **V** [**A**] **P**
*niʔ pas-**ət-əm** ʔə tᵊə swəy̓qeʔ tᵊə speʔəɵ*
AUX hit-**CTR-MID** **OBL** DET man DET bear
'The man hit the bear.' (HUR) (Gerdts & Hukari 2006: 63)

c. **V** **P** [**A**]
*ʔənʔa yaʔ kʷ̓ən-**t-əŋ** cə snəxʷɬ **ʔaʔ** cə swəy̓qaʔ*
come PST look.at-**CTR-MID** DET canoe **OBL** DET man
'The man came to look at the canoe.' (CLA) (Montler 2003: 128)

d. **V** [**A**] **P**
*ləkʷ̓-**t-əb-**əxʷ ʔə tiił ɬ̓əgʷəʔ tiił s-ʔəɬəd*
eat.up-**CTR-MID**-BI **OBL** DET monster DET NMLZ-eat
'The monster ate up the food.' (LUT) (Zahir 2000: 37)

(11) V-TR-MID, 3A → SAP P

a. **P** **V** [**A**]
*chexw ch̓aw-**at-em** **t**-ta a-men̓*
2SG help-**CTR-MID** **OBL**-DET 2SG.POS-son
'Your son helped you.' 'You were helped by your son.' (SQU)
Jacobs 1994: 127)

b. – (HUR)

c. **V** **P** [**A**]
*kʷ̓ənaŋə-**t-əŋ** u **cxʷ** **ʔaʔ** cə ʔən̓-sčaʔčaʔ.*
help-**CTR-MID** Q **2SG** **OBL** DET 2SG.POS-friend
'Did your friend help you?' (CLA) Montler 2005: Section 8.1)

d. **V** **P** [**A**]
*gʷ̓ə-qagʷ̓-ə-**t-əb** **čəd** ʔə š(ə) ad-bad*
SUBJ-scold-LV-**CTR-MID** **1SG** **OBL** DET 2SG.POS-father
'Your father would scold me.' (LUT) (Zahir, forthcoming(a))

This construction is defined as a passive in Halkomelem by Gerdts and Hukari (2006) and in Klallam by Montler (2010), an analysis implicitly endorsed by Mithun (2007). It is called an inverse in Squamish (Jacobs 1994) and in Lushootseed an active clause type that promotes the patient over the agent (Hess 1993). I postpone discussion of the latter two analyses for the moment, in order to focus on the reason that a transitivizer plus a middle marker should result in a passive constriction. First, the evolution of reflexive through a middle phase to a passive is even better-attested than the change to antipassive seen in Section 2.2: the claim is found in typological studies like Kemmer (1993); Haspelmath (1990; 2003), Givón (2001; 2009: 46); Heine (2002); Creissels (2006); and De Schepper (2010). However, these studies show that the middle source usually gives rise to a passive that cannot express the agent-phrase as

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an oblique, at least until quite late in the evolutionary sequence (see Givón 2009: 54–56; Heine 2002: 88–89). In any event, in the four CS languages, the middle alone has already become an antipassive, as seen in Section 2.2. Since all four CS languages can (and often do) express the agent in the oblique phrase, this suggests either that the construction has already passed through the agentless stage in all four languages, or perhaps that it already had the option of using an agent phrase in its earliest stages.

In considering why the V-TR-MID construction became a passive, I note two crucial differences between the V-MID and the V-TR-MID constructions. The first is the selection of which argument is unmarked. For V-MID, A is unmarked, and for V-TR-MID, P is unmarked. The second difference between the two constructions is that the V-TR-MID construction has an extra morpheme, the transitivizer. It is also interesting to note that the V-TR construction has the same argument structure properties as both V-causative and V-applicative verbs in CS languages (mentioned in passing at the end of Section 2.1), and that the likely origin of the middle suffix is a reflexive (as argued in Section 2.2). The combination of reflexive morphology with causative morphology is attested as a source of passives that have an oblique agent phrase right from the beginning: Haspelmath (1990: 36) mentions Modern Greek and Inuit, Givón (2009: 46) cites the case of the English GET-passive, and Gildea (2014) mentions Cariban languages Ye'kwana and Bakairi. If we think of the TR suffix as a kind of causative morpheme and the middle as a kind of a reflexive morpheme, this opens a new possibility for the evolution of the passive reading in the V-TR-MID construction, namely V-CAUS-REFL > V-PASS.

Now that we have seen each construction in its own terms and traced the history of the two constructions that have been analyzed as antipassive and passive voice, we are ready to see how the three interact to express different types of transitive constructions in the four CS languages.

3. Towards creating the hierarchy: The synchronic distribution of the three constructions

In this section, I characterize the distribution of each construction in terms of the person of A and P. In studies of hierarchical systems, it is usual to divide the types of interactions into four quadrants, called LOCAL, NONLOCAL, DIRECT, and INVERSE. As summarized in Figure 4, in the LOCAL, a SAP A acts on a SAP P (SAP A →SAP P); in the NON-LOCAL, a 3rd person A acts on a 3rd person P (3A → 3P); in the DIRECT, a SAP A acts on a 3rd person P (SAP A → 3P); and in the INVERSE, a 3rd person A acts on a SAP P (3A → SAP P).

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	SAP P	3P
SAP A	LOCAL	DIRECT
3A	INVERSE	NONLOCAL

Figure 4. Four functional domains (not syntactic or morphological forms)

I begin by observing that in most languages typologically, even though there may be stylistic preferences that lead to different frequencies of use, voice constructions are acceptable in any of the four quadrants (as argued in Gildea & Zúñiga 2016). For example, in English, it is possible to use either an active or a passive clause to express a situation from any of the four domains: in the LOCAL quadrant, one could say either *I saw you* or *you were seen by me*; in the NONLOCAL domain, *John saw the thief* or *the thief was seen by John*; in the DIRECT domain, *I saw John* or *John was seen by me*, and in the INVERSE domain, *John saw me* or *I was seen by John*. Since this kind of productivity is one of the properties of a voice construction, we would expect that in the CS languages, the active (V-TR), passive (V-TR-MID), and antipassive (V-MID) constructions would all three be acceptable in all four quadrants. However, this is not the case in these four CS languages, as I show in the following sections. I begin with the LOCAL quadrant, which has the most restricted choices.

3.1 The LOCAL quadrant

In the LOCAL quadrant, where SAP A → SAP P, only the V-TR construction is allowed – neither the V-TR-MID construction nor the V-MID construction can occur. This is documented for Squamish in the Squamish-English Dictionary (2011: 12), for Klallam in Montler (2005b: Section 7.1, cf. also Mithun 2007), for Lushootseed in Hess (1978a: 119–137), and for all Salishan languages in Kiyosawa et al. (2010: 31–34). Those who defend the voice analyses might argue that the absence of voice constructions in the LOCAL domain is an incidental effect of a more general restriction, namely that SAP participants cannot occur in the oblique role in either voice construction. However, this sort of prohibition is not characteristic of typical voice constructions, so it does raise questions.

3.2 The INVERSE quadrant

Turning to the INVERSE quadrant, where a 3rd person A acts on a SAP P, the (antipassive) V-MID construction is completely unacceptable, providing further evidence for the general prohibition on putting an SAP argument into the oblique role. The two expected constructions would then be the (active) V-TR construction, which marks the SAP P via the pronominal object markers and has an

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unmarked A (Section 2.1.1), and the (passive) V-TR-MID construction, where the P is the sole unmarked argument and the A occurs in the oblique phrase. In an ordinary opposition between an active and a passive clause, we would expect the active to be the unmarked construction, pragmatically more neutral and occurring with higher frequency in text. In my initial study of Lushootseed narratives, V-TR actually occurs with the higher frequency, which should mean that it is the pragmatically unmarked construction. However, the use of V-TR-MID in the Inverse quadrant is over 30%, somewhat beyond the 15–20% that would be expected for a passive. This suggests that it occurs in some situations that would normally call for an active voice construction, and indeed, in elicitation, V-TR-MID is sometimes preferred over the active V-TR for expressing an Inverse situation.

In contrast to Lushootseed, in Inverse situations in Squamish and Halkomelem, V-TR is marked and its occurrence is restricted, and in Klallam V-TR is no longer allowed at all in the Inverse quadrant. In each case where the V-TR construction has lost ground, the V-TR-MID construction has emerged in its place. Although the V-TR-MID construction arose diachronically from a passive, its use in these four languages is no longer consistent with the function of a passive: in three of the four CS languages it is the pragmatically unmarked way to express active inverse situations, in Squamish and Halkomelem it is obligatory when 3A → 2P, and in Klallam it is obligatory in all situations with a 3A acting on a 1P or 2P.

I illustrate these patterns beginning with Lushootseed, which I believe represents the more conservative situation. In Lushootseed, we find no grammatical restrictions for 3A → SAP P: we see the V-TR construction with 1P (12a) and 2P (12b), and the V-TR-MID construction for 1P (12c) and 2P (12d).

(12) V-TR-OBJ

a.

		V	**P**	**A**
ʔu	*x̌ʷul'*	*ʔu-gʷəlal-t-c*	*sə*	*kʷ̓uy.*
oh	just	SB-injure-CTR-1SG	DET	mother

'Oh! My mother just beat me.' (LUT) (Zahir 2000: 63)

b. V-TR-OBJ

V	**P**	**A**
x̌aʾƛ̓-du-bicid	*Ø*	
want-LC-2SG	3PRS	

'He wants you.' (LUT) (Zahir forthcoming(a): 4)

c. V-TR-MID

V	**P**	[	**A**	]
gʷə-qagʷ-a-t-əb	*čəd*	*ʔə*	*šə*	*ad-bad*
SUBJ-scold-LV-CTR-MID	1SG	OBL	DET	2SG.POS-father

'Your father would scold me.' (LUT) (Zahir 2000: 49)

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d. V-TR-MID

V	**P**	[	**A**	]
ǩaƛ̓̓-tu-b	*čəxʷ*	*ʔə*	*šə*	*ad-bad.*
want-CAUS-MID	2SG	OBL	DET	2SG.POS-father

'Your father wants you.' (LUT) (Zahir 2000: 17)

Once, while working with Lushootseed speaker, Earnest šidut (Barr Pc), I asked him how to say, 'A bee stung me'. His reply used the V-TR-MID construction (13a). When I asked if the V-TR construction (13b) would work, he said yes, but preferred the V-TR-MID construction in (13a).

(13) Example of Lushootseed V-TR-MID preferred over V-TR for 3P → SAP P

a. V-TR-MID, preferred

V	**P**			**A**
ʔu-tʼuc'-u-t-əb	*čəd*	*ʔə*	*tiił*	*səbəd.*
MOM-shoot-LV-CTR-MID	1SG	OBL	DET	bee

'The bee stung me.' (LUT) (Barr 1992)

b. V-TR, accepted but not preferred

V	**P**		**A**
ʔu-tʼuc'-u-t-s	*ti*	*səbəd.*	
MOM-shoot-LV-CTR-1SG	DET	bee	

'The bee stung me.' (LUT) (Barr 1992)

In both Halkomelem (Gerdts 1997: 317; Mithun 2007: 19) and Squamish (Jacobs 1994: 127), the V-TR construction can still occur when 3A → 1P, but not when 3A→2P. When 3A → 1P the transitivizer is followed by the first person object marker and then the subject marker (see Section 2.1); in this configuration, the 3A can occur as an unmarked free noun or pronoun (14a). In Squamish, the 3PL pronoun *-wit* cliticizes to the end of the verb (14b).

(14) V-TR, (3A → 1 P)

a.

	V	**A**
niʔ	*qʼʷaqʷ-**ət-θamʼš-əs***	*Ø*
AUX	club-**CTR-1SG-SM**	3PRS

' He clubbed me.' (HUR) (Gerdts 1997: 317)

b.

	V	**A**
na	*chʼaw-**at-umulh-as-wit***	
RL	help-**CTR-1PL-SM-3PL**	

'They helped us.' (SQA) (Jacobs 1994: 127)

In Squamish and Halkomelem, 3A → 2P can only be expressed using the V-TR-MID construction; this is illustrated for Squamish in (15a–b); note that A does not occur explicitly, and if it did, it would be in an oblique phrase.

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(15) V-TR-MID, (3A → 2 P)

a. **P** **V** **A**
chexw *kw'ach-t-em* *Ø.*
2SG look.at-CTR-MID 3PRS
'Someone/something looked at you.' (SQA) (Squamish 2011: 20)

b. **P** **V** **A**
chap *kw'ach-t-em* *Ø.*
2PL look.at-CTR-MID 3PRS
'Someone/something looked at you folks.' (SQA) (Squamish 2011: 20)

For Klallam, V-TR is not allowed at all for 3A→ SAP P (Montler 2010: 118), leaving V-TR-MID as the only possible construction to code an inverse situation (16a–b).

(16) a. **V** **P** **A**
kʷənaŋə-t-əŋ *cn* *ʔaʔ* *cə* *nə-tan.*
help-CTR-MID 1SG OBL DET 1SG.POS-mother
'My mother helped me.' (CLA) (Montler 2005: Section 27.1)

b. **V** **P** **A**
kʷənaŋə-t-əŋ *u* *cxʷ* *ʔaʔ* *cə* *ʔənˀ-sčaʔčaʔ.*
help-CTR-MID Q 2SG OBL DET 2SG.POS-friend
'Did your friend help you?' (CLA) (Montler 2005: Section 8.1)

These patterns show that there is a trend towards expanding the use of the V-TR-MID construction and restricting the use of the V-TR construction when 3A → SAP P. This trend is modeled in Figure 5, which shows that Lushootseed has no restrictions, Halkomelem and Squamish now prohibit V-TR from 3A → 2P, and Klallam prohibits V-TR from the entire INVERSE quadrant.

Figure 5. Distribution of V-TR-MID in the inverse quadrant

Language	3A1P	3A2P
LUT	V-TR V-TR-MID	V-TR V-TR-MID
HUR	V-TR V-TR-MID	– V-TR-MID
SQU	V-TR V-TR-MID	– V-TR-MID
CLA	– V-TR-MID	– V-TR-MID

Alongside this reduction in the use of the V-TR construction, the distinctiveness of the object markers in that construction is also eroding (Table 2 is repeated below for convenience). In Lushootseed, there is still a robust contrast between all

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the object markers following both of the transitivizers (CTR, LC), but in the other three languages, there has been a reduction in the number of distinctions coded in the object markers. In Klallam, three of the four control object markers have the same form, *-s* '1SG/1PL/2PL', and two of the limited control object markers are the same form, *-uŋə* '1PL/2PL'. Squamish and Halkomelem show a similar proclivity, although not as severe: for Squamish, the control object markers *-s* '1SG' and *-si* '1PL' have become more similar and for Halkomelem, the control and limited control markers are no longer distinct for 1PL (both *-(ʔ)al'xʷ*) and 2PL (both *-alə*). The conflation of object markers in these languages creates ambiguity in identifying the person of P. In contrast, when SAP A → SAP P, there is no question as to the person for P because the person and number of A is clearly marked by a free pronoun, thereby eliminating at least one of the possible referents.

Table 2. Object pronominal suffixes (Kiyosawa & Gerdts 2010: 33)

	TR	1SG	1PL	2SG	2PL
SQU	CTR	*-s*	*-si*	*-umuł*	*-umi-(y)ap*
	LC	*-msh*	*-mi*	*-muł*	*-umi-(y)ap*
HUR	CTR	*-θam̓š*	*-(ʔ)al'xʷ*	*-θamə*	*-alə*
	LC	*-am'š*	*-(ʔ)al'xw*	*-amə*	*-alə*
CLM	CTR	*-s*	*-s*	*-uŋł*	***-s***
	LC	*-uŋəs*	*-uŋə*	*-uŋł*	***-uŋə***
LUT	CTR	*-s*	*-sid*	*-ubuł*	*-ubułəd*
	LC	*bš*	*-bicid*	*-buł*	*-bułəd*

These reductions in the semantic distinctiveness of the object markers further minimize the communicative effectiveness of the V-TR construction. At this point, it is not clear whether these changes are linked to the lowered frequency of the V-TR construction, in particular whether either has caused the other, but it is clear that both indicate changes in the same direction. Although V-TR is not completely gone from the Inverse quadrant (except in Klallam), V-TR-MID is clearly emerging as the dominant construction there.

3.3 The DIRECT quadrant

Looking now at the DIRECT quadrant, where SAP A acts on 3P, the (passive) V-TR-MID construction is completely unacceptable, serving as the final piece of evidence for the general prohibition on putting an SAP argument into the oblique role. The two remaining constructions are the (active) V-TR construction and the (anti-passive) V-MID construction: in both, the SAP A is expressed as an unmarked pronoun (sometimes cliticized to other elements in the clause), but they differ in

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treatment of the 3P: in the V-TR construction, the 3P is an unmarked noun or pronoun (if overt) and in the V-MID construction, the 3P only occurs in the oblique phrase. Because of the oblique role that P plays, the V-MID construction is defined as an antipassive in Halkomelem by Gerdts & Hukari (2006: 45), and in general for all Salishan languages by Kroeber (1999: 31).

In an ordinary opposition between an active and an antipassive clause, we would expect the active to be the statistically unmarked construction, pragmatically more neutral and occurring with higher frequency in text. Initial research in Lushootseed and Halkomelem, as well as research on Squamish by Jacobs (1994: 136), indicates that the V-MID construction is infrequent, at 5–6%, which is consistent with a marked voice like antipassive. This is also consistent with the contrast as described by Hess (1993), who suggests that the V-TR construction promotes the 3P, while the V-MID construction demotes the P in an oblique phrase, allowing for alternating focuses between A and P. Unlike the INVERSE domain where V-TR-MID is pragmatically unmarked (except in Lushootseed), V-MID is clearly the marked construction in the DIRECT domain.

3.4 The NONLOCAL quadrant

Finally, in the NONLOCAL quadrant when 3A → 3P, all three constructions are available. This means that the NONLOCAL quadrant is the most robust functional domain as far as giving speakers the option of choosing between the different constructions for their own communicative purposes. Initial text analysis for Lushootseed and Halkomelem, as well as research by Jacobs for Squamish (1994: 136) shows that the V-TR construction is still dominant, but shares the quadrant with the other two constructions, which allows the speaker to be oriented towards both arguments or a single core argument, whether A or P. However, even in this domain, the V-TR has restrictions: in Halkomelem it can only occur when the A is animate (leaving V-TR-MID as the only construction available when A is inanimate) and in Squamish and Klallam, the NP order must be VAP.

4. Discussion

In looking at typological studies of voice (e.g. Givón 1994), the prototype active, passive, and antipassive clauses should be able to occur freely in all quadrants of interaction between different persons of A and P, but the prototype active clause should be pragmatically neutral, the expected construction for just talking about ongoing sequences of events. In contrast, the prototype passive and antipassive clauses should be relatively rare (15% and 5% respectively in Givón's 1994

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summary of the text counts in his collection), and their primary function should be to draw the listener's attention to the relative importance of the patient vis-à-vis the agent: a passive construction is used when the agent is nontopical, and its grammar generally removes the agent altogether (or demotes it to a peripheral grammatical role), leaving the patient as the grammatical subject; an antipassive construction is used when the patient is nontopical, and its grammar generally removes the patient altogether (or demotes it to a peripheral role). Key to a prototypical voice construction is that the grammar and the function work in harmony. As such, we expect the agent of a passive to be relatively infrequent (a maximum of 20% in Givón's 1994 counts), and the same should arguably be true of the patient of an antipassive.

However, in looking at studies of grammatical change, we know that speakers can extend the functions of passive constructions, so that they are used even in situations when the agent is higher in topical continuity through the discourse. Such "expanded passives" begin to occur in contexts where the prior active clause would have been used, creating a kind of competition for expression of those situations. In some cases, this competition results in the former passive voice replacing the active altogether in some domains (e.g. resultative aspect), becoming active main clauses with ergative alignment (Givón 1994: 32–34). This competition often is limited to the domain of aspect and tense, resulting in tense-aspect-based split ergativity (Gildea 1997; 2004; Dahl 2016). However, in some cases the competition takes place in the domain of deixis, specifically interactions between different persons. In these cases, the former passive voice can become the only construction allowed when 3A → SAP P (i.e., in the INVERSE quadrant), thereby creating a hierarchical system of alignment (Mithun 2007; 2012; Gildea & Zúñiga 2016). This process of change has already happened in Klallam, and appears to be well underway in the other three CS languages studied here.

Similarly, we know that speakers can extend the functions of antipassive constructions, so that they are used even in situations when the patient is higher in topicality. Such "expanded antipassives" begin to compete with simple active clauses in the tense-aspect domain, ending up as a new active imperfective clause type with accusative alignment. In the case of the CS languages studied here, the competition appears to be taking place in the domain of interactions between different persons, which could logically lead to a situation where the antipassive becomes the favored construction when SAP A → 3P. To my knowledge, there are no studies in the typological literature where an antipassive has taken over the DIRECT quadrant to create (or reinforce) a hierarchical alignment system, and this has not happened (yet) in any of the CS languages.

Although such a change has not happened in the CS languages, it is worth exploring what such a change would look like were the V-MID construction to

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become obligatory in the DIRECT quadrant alongside the V-TR-MID construction in the INVERSE quadrant. The first result would be that the four quadrants would each have different choices available: in the LOCAL, only the V-TR construction would be available, with both SAP participants expressed as core arguments; in the INVERSE, only the V-TR-MID construction would be available, with the SAP P unmarked and the 3A expressed as an oblique; in the DIRECT, only the V-MID construction would be available, with the SAP A unmarked and the 3P expressed as an oblique, but crucially, as the same oblique used for the 3A in the INVERSE quadrant. The result would be a three-way split in the grammar of main clauses, such that the SAP would always be the grammatically unmarked, like the proximate argument in a prototype inverse system, and the third person interacting with the SAP would always be expressed as the same oblique argument, like the obviative argument in a prototype inverse system. None of these constructions would be truly intransitive, so we would need to adjust our definition of "core argument" to include the oblique-marked 3rd person argument.

To complete this hypothetical scenario, the NONLOCAL quadrant would also be unique among the four quadrants, not because it has its own dedicated construction, but rather because it would allow speakers a choice between all three of the prior constructions. In this domain, the V-TR-MID and the V-MID constructions would potentially still look like intransitive voice constructions in opposition to the clearly transitive V-TR construction. However, it does create something of an analytical problem (at least for linguists), because it is not automatic to have two different analyses for the same construction in the two different functional domains. That is, two constructions would be clearly used to code active transitive interactions in the INVERSE and DIRECT quadrants, while each would still be considered intransitive voice constructions in the NONLOCAL domain.

At the moment, this scenario remains hypothetical, and given the dire social situation of each language,[6] it is possible that changes currently in progress might continue to evolve in unpredictable ways. However, the reasoning is already applicable to the V-TR-MID construction in three of these languages: in Klallam, it is the only way to express an INVERSE situation, and in Halkomelem and Squamish, it is the only way to express a subset of the INVERSE situations, namely

6. All four of these languages are highly endangered, as they stopped being transmitted to children as a first language in the home some decades ago. However, there are active language education programs in all four, and at least some members of each speech community are deeply committed to revitalization activities that may result in their reintroduction in the home.

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3A → 2P. This creates a situation in which an erstwhile passive construction is obligatory for coding certain clearly transitive speech situations. Within the Salish linguistic tradition, the most common approach has been to continue to use the label "passive" for every use of the construction, which puts the linguist in the unenviable position of claiming that these languages simply have some transitive situations where speakers must use an "obligatory passive". This is the approach taken by Gerdts & Hukari (2006) for Halkomelem, by Montler (2010) for Klallam, and it is the analysis used by Mithun (2007) when she describes this sort of functional shift as the areal spread of the obligatory use of passive in certain speech situations.

In contrast, for Squamish, Jacobs (1994) explores the discourse distribution of the V-TR-MID construction (which he calls the "de-transitive(DT) clause"), and then carefully does not make a commitment as to whether it is better analyzed as an (intransitive) passive or as a (transitive) inverse:

> If the DT-clause in Squamish is to be considered an inverse, as functionally it clearly seems to be, it is typologically a **promotional inverse**, in which the patient assumes more grammatical subject properties […] By the central tendencies, the DT clause of Squamish is functionally very *compatible* with a patient-promoting inverse, *much less* compatible with an agent-demoting passive.
>
> (Jacobs 1994: 141–142)

It is worth pointing out that this conclusion follows from the Givónian text counting methodology, which explicitly excludes all clauses with a speech act participant as either agent or patient, and so it speaks only to the use of these constructions in the NONLOCAL quadrant, the domain where I argue that the functional shift of this former voice construction is likely to be the least advanced.

For Lushootseed, in the midst of his brilliant analysis of verbs stems, Hess (1993: 115–117) adds two relevant comments in footnotes. Referring to what I here call the V-TR-MID construction, Hess (p. 115, note 4) observes "In most descriptions this cognate sequence, /-t-m/, etc., is called a PASSIVE construction. In Lushootseed it is not passive." After some exposition in which he contrasts the referential functions of the V-TR construction and the V-TR-MID construction, he adds (p. 117) "…it makes little sense to talk about transitivity." He expands on this thought in footnote 5, which he concludes by asserting that "For Lushootseed it is more meaningful to speak of verbs that are either patient oriented [V-TR-MID] or agent oriented [V-TR]."

It is not the purpose of this paper to resolve questions of synchronic analysis in the individual CS languages for either the V-TR-MID construction or for the V-MID construction. But given the findings of Jacobs' (1994) analysis of Squamish discourse, and given the categorical statements by Hess (1993) – which also

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match my intuitions as a speaker – about the irrelevance of "transitivity" to these constructions in Lushootseed, there is certainly a need to do further analysis of actual speech patterns by native speakers using these languages as a tool of communication. To further understand the distribution of the alignment structures, we conducted initial text counts on short discourses in Halkomelem and Lushootseed. The most tokens were gathered from Lushootseed texts for a total of 308 tokens. 244 tokens were analyzed from stories, 45 were from audio messages between speakers, and 19 were from a recorded conversation between three speakers.[7] These tokens were distributed between the four functional domains (see Table 11): 13 were of the LOCAL domain, 49 were of the DIRECT, 215 were of the NONLOCAL, and 31 were of the INVERSE. The data includes three constructions, V(A), V(P) and V(2core), that have not been mentioned in this paper. They take only core verbs, meaning they are not inflected with TR or MID, however, each patterns with one of the three constructions described in this paper. Like V-MID, for V(A), A is core and P has the oblique preposition; like V-TR-MID, for V(P) P is core and A has the oblique preposition; like V-TR, for V(2core), both A and P are core. These constructions are lexically driven, meaning that which argument is core must be specified in the lexicon rather than morphologically. These are small counts, and only from Lushootseed, but their distribution aligns with one of the precepts of this paper, namely, V(A), where A is core distributes within the DIRECT and NONLOCAL domains, and V(P) distributes within the INVERSE and NONLOCAL domains. V(2core) distributes within the DIRECT and NONLOCAL domains (and should be possible in the LOCAL domain as well).

In this initial analysis, V-TR dominates all four quadrants. V-TR is the only attested construction in the LOCAL domain. For the DIRECT domain, 42 tokens are V-TR, six are V(A), and one is V(2core); neither V-TR-MID nor V-MID occur, but the latter is attested in other texts and in elicitation. In the INVERSE, V-TR is the most frequent construction with 20 tokens, followed by V-TR-MID with nine and V(P) with 2. The NONLOCAL domain contains the most tokens: V-TR dominates with 112 tokens (plus eight tokens of V(2core)), followed by V-TR-MID at 69 (plus nine tokens of V(P)), and V-MID has eight tokens (plus nine tokens of V(A)).

These counts in Lushootseed support our position for the V-TR-MID construction. Its high frequency in the NONLOCAL (32%) and INVERSE (29%) domains

7. Similar data was gathered for Klallam, but the lack of texts available for text counts limited the text analysis to only 25 tokens, which are not enough to establish any existence of syntactical construction distribution patterns and, therefore, will not be part of this discussion. No text counts were collected for Squamish.

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Table 11. Functional domain distribution of Lushootseed text count tokens

Total tokens = 308					
Local	**Total**	**% of Local**	**Direct**	**Total**	**% of Direct**
V-TR	13	100%	V-TR	42	86%
V-TR-MID	0	0%	V-TR-MID	0	0%
V-MID	0	0%	V-MID	0	0%
V (A)	0	0%	V (A)	6	12%
V (P)	0	0%	V (P)	0	0%
V (2core)	0	0%	V (2core)	1	2%
Total % of tokens	**13**		**Total % of tokens**	**49**	
	4%			**16%**	
Inverse	**Total**	**% of Inverse**	**Nonlocal**	**Total**	**% of Nonlocal**
V-TR	20	65%	V-TR	112	52%
V-TR-MID	9	29%	V-TR-MID	69	32%
V-MID	0	0%	V-MID	8	4%
V (A)	0	0%	V (A)	9	4%
V (P)	2	6%	V (P)	9	4%
V (2core)	0	0%	V (2core)	8	4%
Total	**31**		**Total**	**215**	

verifies that this historically passive construction has moved towards becoming an active voice. To the extent that V-TR-MID is seen as transitive, the function of the oblique preposition for the A must be seen as ergative case-marking. Conversely, where one might expect the same progression for the oblique marker to become an accusative case marking for the P within the historically antipassive V-MID construction, this transition has yet to occur. V-MID occurs only 4% of the time within the NONLOCAL and there or are no tokens within the DIRECT. Its very low frequency and use with limited predicate forms means its voice is inactive and still functions as an antipassive.

Turning to Halkomelem, 99 tokens were gathered from one text story (see Table 12). The distributions of V-TR, V-MID and V-TR-MID are similar to Lushootseed, with V-TR dominant except in the NONLOCAL domain. In this case, the V-TR-MID is more dominant for Halkomelem than Lushootseed with 43 tokens (65%). Only 19 are V-TR (29%), three are V-MID (5%) and one is V(A) (2%). In the INVERSE, there are four V-TR tokens and no V-TR-MID tokens. This lack of distribution of V-TR-MID within the INVERSE domain is most likely due to the low text

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count of tokens gathered and the nature of a story discourse where most transitive events mentioned are 3A → 3P.

Table 12. Halkomelem data

Total tokens = 99					
		% of			**% of**
Local	**Total**	**Local**	**Direct**	**Total**	**Direct**
V-TR	9	100%	V-TR	20	100%
V-TR-MID	0	0%	V-TR-MID	0	0%
V-MID	0	0%	V-MID	0	0%
V (A)	0	0%	V (A)	0	0%
V (P)	0	0%	V (P)	0	0%
V (2core)	0	0%	V (2core)	0	0%
Total	**9**		**Total**	**20**	
% of tokens	**9%**		**% of tokens**	**20%**	
% of					**% of**
Inverse	**Total**	**Inverse**	**Nonlocal**	**Total**	**Nonlocal**
V-TR	4	100%	V-TR	19	29%
V-TR-MID	0	0%	V-TR-MID	43	65%
V-MID	0	0%	V-MID	3	5%
V (A)	0	0%	V (A)	1	2%
V (P)	0	0%	V (P)	0	0%
V (2core)	0	0%	V (2core)	0	0%
Total	**4**		**Total**	**66**	
% of tokens	**4%**		**% of tokens**	**67%**	

In comparison with Lushootseed, the higher frequency of the Halkomelem V-TR-MID construction within the NONLOCAL domain suggests that it is becoming still more of an active transitive, providing another example where a historically passive voice is becoming something new. Just as in the Lushootseed, though, in Halkomelem the V-MID construction occurs only 5% of the time within the NONLOCAL, and is therefore, still functioning as an antipassive.

We still need to study the distribution of these constructions in more discourse data, ideally in at least narrative texts and recorded conversations. Further, future studies need to go beyond the text counting methodology in

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Givón (1994), which excludes SAP participants, as the most striking patterns in the CS languages are actually found precisely in the interactions between SAP and third person participants. Even in those languages where it is still possible to use the V-TR construction in INVERSE situations, other than Lushootseed, I predict that they will be quite rare, and that instead the vast majority of these situations will be expressed using the V-TR-MID construction. In contrast, I cannot make a similarly strong prediction about how speakers will express DIRECT situations – V-MID does not dominate V-TR, nor is there any evidence that this trend is occurring, but further text counts analysis will confirm this initial finding for V-MID.

In conclusion, I have argued that the CS languages have taken important steps towards creating a hierarchical argument marking system, using the Proto-Salish V-TR-MID passive construction disproportionally in INVERSE situations, with the prospect of the Proto-Salish V-MID antipassive construction someday moving towards a transitive voice in DIRECT situations. The shift from passive to inverse (already identified in Mithun 2007) is more advanced: in Klallam, the former passive is now the only construction allowed to express INVERSE situations, in both Halkomelem and Squamish, it is the only construction allowed to express 3A → 2P situations, and even in the INVERSE situations where it is not obligatory (that is, the 3A → 1P situations in Halkomelem and Squamish, and both 3A → 1P and 3A → 2P in Lushootseed), it is the default construction that speakers turn to unless the A is the discourse topic. The possibility of a shift from antipassive to direct has not been discussed before in the typological literature, and if such a shift is actually in progress in the CS languages, it has not yet resulted in any situation where the V-MID construction has become grammatically obligatory. If such a functional shift is underway, it will only be detected by careful analysis of text data, which I believe is an urgent consideration for future research.

Abbreviations

AUX	auxiliary	FUT	future
BEN	benefactive	GEN	genitive
CAUS	causative	IPFV	imperfective
CTR	control	LC	limited control
DET	determiner	LOC	locative
DIM	diminutive	LV	linking vowel
DUR	durative	MID	middle
DT	de-transitive	NMLZ	nominalizer

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OBJ	object	RL	realis
OM	object marker	REFL	reflexive
PASS	passive	SB	space builder
PI	precondition information	SG	singular
PL	plural	SM	subject marker
POS	possessive	STAT	stative
PRO	pronoun	SUBJ	subjunctive
PST	past	TR	transitive
Q	interrogative		

Also, for language names:

CLM	Klallam	LUT	Lushootseed
CS	Central Salish	SQU	Squamish
HUR	Halkomelem		

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PART IV

Conflicting hierarchical patterns and how to deal with them

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CHAPTER 10

Deictic and sociopragmatic effects in Tibeto-Burman SAP indexation

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The study of hierarchical argument indexation systems shows that while the ranking of both 1st and 2nd person over other arguments is robust and reliable, it is impossible to find any compelling crosslinguistic evidence for one or the other ranking of the two Speech Act Participants, and rare to find a consistent ranking even within a single language. This paper assembles and reviews historical changes in the indexation of the "local" categories (1→2 and 2→1) in a number of Tibeto-Burman languages. We see that the fundamental deictic ranking SAP > 3 is conservative, and inverse marking to emphasize that ranking has been reinvented several times in the family. Changes in the marking of local categories are more diverse, but two phenomena recur independently in different languages and branches: a tendency for the 1→2 form to be uniquely marked, sometimes with forms which are not synchronically relatable to anything else in the paradigm, and a contrasting tendency for the 2→1 form to merge with the marking of 3→1. I propose that these tendencies reflect what I call SOCIOPRAGMATIC effects, i.e. the socially delicate nature of any and all natural utterances involving both the speaker and the addressee.

1. Introduction

The term HIERARCHICAL INDEXATION (or AGREEMENT) is used to refer to argument indexation paradigms in which the choice of which argument of the verb in a transitive clause is indexed is determined not by the grammatical role of the two arguments, but by their relative position on a person hierarchy. The characteristic feature of a hierarchical paradigm is that if one argument is a SPEECH ACT PARTICIPANT (SAP) and the other is not, the SAP is indexed, regardless of its grammatical role. An example is Khroskyabs (also called Lavrung), a Rgyalrongic (Tibeto-Burman) language of Sichuan (Lai 2015):

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(1) *ŋó æ-vò-ŋ*
I DIR-go-1SG
'I go up.'

(2) *ŋó ætà næ-vdá-ŋ*
I s/he AOR-see$_2$-1SG
'I saw him.'

(3) *ætà ɣə ŋó næ-u-vdá-ŋ*
s/he ERG I AOR-INV-see$_2$-1SG
'He saw me.'

The *-ŋ* suffix indexes the 1SG S argument in (1), the 1SG A argument in (2), and the 1SG O argument in (3).[1] A 3rd person argument is never indexed in Khroskyabs. Example (3) also illustrates INVERSE marking, indicating that the indexed argument is the O; forms where the A is indexed lack such DIRECTION marking, as in (2). Hierarchical indexation in this sense is found in a number of Tibeto-Burman (TB) languages.

The term "hierarchical" reflects the idea that this kind of paradigm reflects a universal hierarchy of referent types, as suggested by Silverstein (1976) or DeLancey (1981a). This notion of a referential hierarchy was introduced at a time when split ergative "alignment" was first being recognized as a typologically significant pattern, and inverse marking and hierarchical indexation were still thought of as rare and exotic. But in the intervening years, and especially the last decade or so, these phenomena have been the subject of considerable research and discussion. Recent attention has focused particularly on the "irregularity" of hierarchical paradigms, i.e. forms in a paradigm which cannot be predicted on the basis of a simple person hierarchy. Certain specific kinds of unpredictability are characteristic of hierarchical systems, and pose problems for the idea of a hierarchy of person as an explanatory model for supposedly hierarchical patterns. (For reviews of the literature see Filimonova 2005; Zúñiga 2006; Lockwood & Macaulay 2012).

The basic deictic distinction between SAP's and 3rd persons, as exemplified in Examples (2)–(3), has proven to be robust, although complicated by unexplained effects of number.[2] But any ranking of the two SAP's ends up being applicable only

1. These are obviously elicited examples; in Khroskyabs (Gyu Lha, personal communication) and, as far as I know, all other languages discussed in this paper, independent pronouns tend to occur in connected discourse only in emphatic or contrastive function.

2. It is likely that some of these effects may be explainable in the same kind of sociopragmatic terms developed here.

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language by language, and often only construction by construction (Macaulay 2009; Zúñiga 2006; 2008). Indeed in many languages we can find specific constructions which give us ambiguous indications of ranking of 1st and 2nd person. The category of problem which I will deal with in this paper centers around the treatment in many languages of the LOCAL scenarios, i.e. transitive forms with one SAP as A and the other as O. While the behavior of the SAP's relative to 3rd person is consistent cross-linguistically, languages, and constructions within the same language, show a bewildering range of treatment of the local categories, such that it is often difficult or impossible to rank 1st vs. 2nd even within a particular language (see Gildea & Jansen, this volume).

These problems are insoluble in the most popular version of the hierarchy, 1 > 2 > 3. They are not quite so immediately devastating for a SAP > 3 ranking in which neither SAP intrinsically outranks the other (DeLancey 1981a; Zúñiga 2006); in fact just this kind of problem was the original motivation for the claim that there is no universal ranking of the SAP's. But while the 1 = 2 > 3 ranking, unlike 1 > 2 > 3, is not automatically refuted by the unpredictable behaviors of the local categories, it fails to offer any explanation for them, and to that extent is inadequate as an account of hierarchical indexation patterns. The purpose of this paper is to present some patterns of indexation of the local categories across Tibeto-Burman and an interpretation of them in terms of SOCIOPRAGMATIC considerations, i.e. issues of social interaction which automatically exist between two individuals who are talking to one another.

Hierarchical indexation, sometimes with explicit inverse marking, is found in many TB languages (Caughley 1978; 1982; DeLancey 1981a; b; 2010; 2011b; Ebert 1987; 1990; 1991; 1994; Watters 2002; Sun & Shi 2002; Bickel 2008; LaPolla 2010; Witzlack-Makarevich et al. 2016; Jacques 2010; 2012; Jacques et al. 2012; Boro 2017; Bickell et al. 2013; Gong 2014; Lai 2015; Sun & Tian 2013, inter alia). There is still no generally-accepted classification of the Tibeto-Burman languages. We will be dealing with languages of four groups whose status as clades is uncontroversial: Rgyalrongic, Northern Naga, Kiranti, and Nungish. Since our concern here is with innovative rather than archaic constructions, problems of higher-order relations among these groups and others are not important.

In Section 2 I will outline the issues which will be discussed in the remainder of the paper. Sections 3 and 4 will present comparative evidence showing that distinct processes of analogy and grammaticalization, in different subgroups, conspire to produce particular paradigmatic patterns. Unsurprisingly, we will see in Section 3 clear evidence for the persistent effect of the deictic SAP>3 ranking. But the main point of the paper is to show that applying the same kind of reasoning to anomalous patterns of marking the local categories helps to discern the

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underlying logic behind this kind of cross-linguistically common "irregularity". Section 4 will show the recurrent independent development of two phenomena: a tendency for the 1→2 form to be uniquely marked, sometimes with forms which are not synchronically relatable to anything else in the paradigm, and a contrasting tendency for the 2→1 form to merge with the marking of 3→1. In Section 5 I will argue that these tendencies can be interpreted as reflecting a tendency to draw attention to the 2nd person argument in a 1→2 scenario, and to deflect attention from the 2nd person argument in 2→1, and suggest that this tendency is best explained in sociopragmatic terms.

2. Problems of hierarchy

2.1 The structure of hierarchical paradigms

The defining characteristic of a hierarchical indexation system is that the choice of which argument(s) to index is at least sometimes determined by the intrinsic nature of the referent rather than by the nature of its participation in the situation denoted by the clause. Both DIRECT (SAP→3) and INVERSE (3→SAP) verb forms index the SAP in preference to the non-SAP argument, as illustrated in Examples (2)–(3). But languages show considerable variation in the marking of the local categories. The idea of a hierarchy implies that a hierarchical system will always select one local category to be direct and the other inverse, but things are often not that simple. A hypothesis of universal hierarchy predicts not only that all languages will treat one local category as direct and the other as inverse, but also that all languages will make the same selection.

In other words, the problem with the idea of "hierarchical" indexation is that any universal account of the relevant hierarchy predicts a single answer to the question of the relative ranking of the SAP's, and there is no such single answer. The issue arises from patterns of marking of the LOCAL scenarios 1→2 and 2→1. A consistent 1 > 2 ranking would require 1st person indexation for both local scenarios:

Table 1. Indexation following a 1 > 2 > 3 hierarchy

O			
A	**1SG**	**2SG**	**3SG**
1SG		1	1
2SG	1		2
3SG	1	2	

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A consistent 2 > 1 ranking would require 2nd person in both:

Table 2. Indexation following a 2 > 1 > 3 hierarchy

	O		
A	**1SG**	**2SG**	**3SG**
1SG		2	1
2SG	2		2
3SG	1	2	

Both these patterns are rare in Tibeto-Burman. Much more common is the pattern in Table 3, where the O argument is indexed in both local forms:

Table 3. The typical TB indexation pattern

	O		
A	**1SG**	**2SG**	**3SG**
1SG		2	1
2SG	1		2
3SG	1	2	

Here indexation in the direct and inverse forms is hierarchical, but in the local forms it is apparently determined by the role of the argument rather than rank, that is, by syntax rather than by hierarchy. In Section 5 I will suggest that this apparent intrusion of syntactic factors is illusory. The motivation for this pattern has nothing to do with argument structure or grammatical role; rather it is about emphasizing the participation of the addressee in a typical 1→2 event and minimizing their involvement in 2→1.

2.2 Problems of local indexation

Let us examine a relatively simple example of the problem. The paradigm of Wobzi Khroskyabs (with singular arguments only) looks like this (Lai 2015):[3]

3. In this paper I will consider, and show, only forms with all singular arguments. Number distinctions are often a complicating factor in "hierarchical" paradigms (Bickel 2008); TB languages show extra complexities, since number indexation is often partially separate from the person paradigm – so that, for example, in some languages, a verb may agree in person with one argument, and in addition show non-personal dual or plural marking if it is applicable to either argument.

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Table 4. Indexation of singular arguments in Wobzi Khroskyabs

	O			
S	**A**	**1SG**	**2SG**	**3SG**
Σ-ŋ	**1SG**		Σ-n	Σ-ŋ
Σ-n	**2SG**	u-Σ-ŋ		Σ-n
–	**3SG**	u-Σ-ŋ	u-Σ-n	u-Σ

Note that a SAP argument is always indexed in preference to a 3rd person, which is the essential characteristic of a hierarchical system. The inverse prefix *u-* occurs in every form in which the O argument outranks the A on a 1 > 2 > 3 hierarchy. (The obligatory inverse marking of 3→3 is a recent result of simplification of the paradigm, see Section 3.1). However, the pattern is not purely hierarchical. A consistent 1 > 2 ranking would predict 1st person indexation in the 1→2 form, but instead we find the 2nd person O argument indexed. This is the commonest pattern in Tibeto-Burman, and is usually described in syntactic terms, by saying that scenarios involving a SAP and a 3rd person argument are indexed hierarchically, while the local forms index the O. But then it is not clear what we are saying about the overall "alignment" of the system – is it hierarchical, or split between hierarchical and ergative, or what? And more importantly, why?

Wobzi gives us a very simple and transparent example of the basic problem with explaining these indexation patterns in terms of a hierarchy: the ranking of SAP's is not consistent even within the same language. (This is not unique to Tibeto-Burman, see Macaulay 2009). Many TB languages show the rest of the problem – in many languages the marking of the local categories is not only unexpected, but morphologically irregular. Compare the Wobzi with another Rgyalrongic language, Zbu Rgyalrong (Gong 2014):

Table 5. Indexation of singular arguments in Zbu Rgyalrong

	O			
S	**A**	**1SG**	**2SG**	**3SG**
Σ-aŋ	**1SG**		tɐ-Σ	Σ-aŋ
tə-Σ	**2SG**	tə-wə-Σ-aŋ		tə-Σ
–	**3SG**	wə-Σ-aŋ	tə-wə-Σ	ɐ-Σ ~ u-Σ

Again SAP arguments are indexed in preference to 3rd person, and the distribution of the inverse prefix *wə-* (cognate to Khroskyabs *u-*) reflects a hierarchy of 1 > 2 > 3. And like its cousin Khroskyabs, Rgyalrong indexes the 2nd person O

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argument in 1→2, and the 1st person O in 2→1. But the 2→1 form also has the 2nd person prefix, and thus, uniquely in the paradigm, indexes both the A and O arguments in the same form. The Zbu paradigm also illustrates a third variety of non-hierarchical marking of a local category, in the irregular vocalism of the 2nd person prefix in the 1→2 form. We find a more striking example in Japhug Rgyalrong (Jacques 2004; 2012):

Table 6. Indexation of singular arguments in Japhug Rgyalrong

	O			
S	**A**	**1SG**	**2SG**	**3SG**
Σ-a	**1SG**		ta-Σ	Σ-a
tɯ-Σ	**2SG**	kɯ-Σ-a		tɯ-Σ
–	**3SG**	ɣ-Σ-a	tɯ-ɣ-Σ	Σ ~ ɣ-Σ

Japhug, like Zbu, has anomalous vocalism in the 2nd person index in the 1→2 form. It also has a different prefix instead of the regular 2nd person form in 2→1. This form cannot be synchronically explained in terms of other elements of the paradigm, and thus cannot easily be interpreted in terms of a notion of "hierarchy". It is not at all clear that the unique marking of the two local categories reflects any ranking of 1st and 2nd person. In fact it seems that the local categories are marked as standing outside of the hierarchy which determines the indexation of direct and inverse forms.

The other essential question posed by these paradigms is, where does the distinct marking of the local categories come from? Jacques (this volume) proposes that both unsystematic local forms in Rgyalrong derive from agent-suppression constructions: the 2→1 form in *ku-* derives from a generic person construction, and the anomalous vowel in the 1→2 from an agentless passive.[4] Here we have a first clue to the mysteries of anomalous local category indexation: the language appears to want to avoid direct reference to an SAP A argument acting on the other SAP. This suggests that the pan-TB pattern of O indexation in local forms is sociopragmatically rather than syntactically motivated – it is not about "alignment", but about avoiding reference to the A.

The Rgyalrongic languages show the normal situation across Tibeto-Burman, where we rarely find consistent hierarchical patterns of indexation. The SAP > 3

4. Jacques is cautiously tentative about both proposals, but both are plausible, and the hypothesis that the 2→1 form derives from an impersonal construction is well-supported (see J. Sun 2014).

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ranking is supported by most of the available data, though even that is complicated by examples of extra 3O indexation which will not be dealt with here. But the strong tendency in the family is that paradigms which consistently reflect the deictic ranking in direct and inverse forms have some kind of anomalous marking in one or both local scenarios. A consideration of a range of different patterns of local marking in TB languages will show two very consistent tendencies: the 1→2 form is always different from 1→3, and usually different from 3→2; in contrast, while the 2→1 form is always different from 2→3, there is a strong tendency for it to not be distinguished from 3→1.

2.3 Accounts of hierarchy

There are three broad approaches to accounting for hierarchical phenomena: a formal interpretation in terms of markedness (Kuryłowicz 1964; Silverstein 1976), a cognitive interpretation in terms of deixis and perspective (DeLancey 1981a; Zúñiga 2006), and a functional interpretation in terms of topicality (Thompson 1990; Givón 1994; Gildea 1994; Payne 1994). This is not the place to discuss the relative merits of these approaches; all that is relevant to my present argument is that none of them offer a satisfactory account of the problems of local category indexation. In its favor, the deictic approach has the advantage of making no predictions about marking of local categories, while any hypothesis involving a ranking of the two SAP's makes predictions which turn out to be incorrect. Thus the kinds of data discussed here explicitly disconfirm the interpretation in terms of topicality; indeed, it is quite dubious that the notion of "topicality" can appropriately be applied to the SAP's at all, especially in conversational discourse (see Section 5.2). But if my own earlier work is less inadequate than other proposals, it is still not adequate to the problems of local indexation. To make no predictions is to offer no explanation, so more needs to be said about local marking, and that is my purpose in this paper.

Heath (1991; 1998) offers a very different perspective on the local categories. In two important papers he surveys languages of Australia and the Americas with complex argument indexation systems, and demonstrates a strong crosslinguistic tendency that in indexation systems where both (or either) S and O arguments can be indexed, the indexation of one or both local categories shows conspicuous irregularity, suppletion, or paradigmatic unpredictability. That is, it is not only that these forms tend to not be predictable in terms of any fixed hierarchy, they tend not to be synchronically predictable at all from the rest of the paradigm. This kind of variation is simply not predictable in terms of any universal functional or formal principles. Heath suggests, instead, that the chaotic patterns which emerge in this kind of typological survey need to be considered in terms of "social pragmatic" imperatives:

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> I would stress the pragmatic delicacy and dangerousness of using first and second person pronouns (particularly singulars), and the particular delicacy of combining them in a noun phrase or sentence in a manner overtly specifying their relationship to each other. (Heath 1991: 78)

Reference to interaction between 1st and 2nd person is fraught with social peril. It is because languages devise means to avoid these delicate problems that "hierarchical" paradigms are not as paradigmatic as we wish they would be. If we think for a moment about real life rather than paradigms and artificial examples, there is a limited set of likely speech act types involving the two SAP's in a transitive scenario. These forms do not usually occur in narrative: we do not often have occasion to tell others about past events in which they were involved, whether as A or O. In actual interaction between human beings, a 1→2 scenario is likely be a promise or a threat (King 2002), and 2→1 is the realm of requests, demands and accusations.

Heath presents a list of manifestations of specialness found in local category marking in Australian and New World languages (Heath 1998: 85–86), and notes:

> The assorted mechanisms … have in common the fact that they obscure the "objective" relationship between speaker and addressee.
>
> Thus, they are entirely comparable to the numerous ways in which personal pronouns, bad news, imperatives, and other delicate or dangerous phenomena are masked in everyday speech, being hinted at rather than overtly uttered. (Heath 1991: 86)

Many of Heath's types of disguise are attested somewhere in TB. For example, the distinct vocalism of the 2nd person prefix in the 1→2 form in Zbu and Japhug (Tables 5 and 6) is an example of Heath's "marker disguised by partial phonological distortion", and the special 2→1 prefix in Japhug of his "one of the two markers expressed by isolated suppletive allomorph".

2.4 Sociopragmatic effects in Tibeto-Burman morphological change

There is a good deal of comparative evidence showing that avoidance strategies (in the sense of Frajzyngier and Jirsa 2006) for 1st or 2nd person reference are persistent sources for new paradigmatic forms in TB. The most conspicuous is the fact that we have to reconstruct two different 2nd person verb forms for PTB; a regular suffix **-n*, consistent in pronominal origin and syntagmatic position with the rest of the indexation paradigm, and a mysterious **t-* prefix, which must have originated as a sociopragmatically motivated substitute for the regular form (DeLancey 2014). (We see the regular **-n* in the Khroskyabs paradigm in Table 4 in Section 2.2 above, and the **t-* in the Rgyalrong paradigms in Tables 5 and 6). There is also evidence, though less systematic, for a third form used for 2nd person reference, with still discernable roots in an irrealis construction.

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In another manifestation of sociopragmatic determination of analogical shift, we often find 1SG or 2SG, pronouns or verbal indices which appear to be reanalyses of PTB 1st plural inclusive **i*. For example, consider the independent pronominal forms for Northwest, Northern, and Central Kuki-Chin languages (Moyon data from Kongkham 2010; Tedim from Henderson 1965; Bawm from Reichle 1981; Mizo from Chhangte 1993):

Table 7. Independent 1st and 2nd person pronouns in N, NW and C Kuki-Chin

		1SG	1PL.EXCL	1PL.INCL	2SG	2PL
NWKC	**Moyon**	ki	ken-no	in-no	nəŋ	nen-no
NKC	**Tedim**	kei	ka:	i:	naŋ	
CKC	**Bawm**	kei	kan-nih		nang	nang-nih
	Mizo	kéy	kéy-maʔ		naŋ	naŋ-maʔ

The inclusive and exclusive forms in the N and NW branches match those of Kiranti (Bauman 1975), and thus are inherited. So we see that the Central KC languages have collapsed the inclusive/exclusive distinction, retaining the original exclusive form for both functions. Now consider the possessive/subject index clitics in the same languages:[5]

Table 8. 1st and 2nd person possessive/subject proclitics in N, NW and C Kuki-Chin

		1SG	1PL.EXCL	1PL.INCL	2SG	2PL
NWKC	**Moyon**	kə-	ken-	in-	nə-	nen-
NKC	**Tedim**	ka-		i-	nə-	
CKC	**Bawm**	ka-	ka-n-		na-	na-n-
	Mizo	ka-	ká-n-		i-	í-n-

We see the same pattern, but Mizo has an anomalous 2SG proclitic *i-*. It is hard to imagine any source for this form other than the erstwhile 1PL.INC, which we know from testimony of the other branches to have been inherited into PKC. Note that we cannot suppose that the inclusive form was lost in PCKC, and then re-introduced in Mizo. Rather, we must suppose that at least as far back as PKC, the inclusive form was sometimes used with 2SG reference, a cross-linguistically common phenomenon.

5. The Kuki-Chin languages inherited a hierarchical indexation system derived from the PTB paradigm, and innovated a prefixal subject-indexation paradigm consisting of possessive proclitics attached to the verb.

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In the remainder of this paper I will present data from a number of Tibeto-Burman languages illustrating recurrent diachronic patterns which conspire to create paradigms characterized by three persistent patterns. We will see that TB languages consistently respect the SAP>3 split, and regularly innovate constructions which emphasize it. This, of course, is hardly surprising, but it is important to establish this deictic background for two other recurrent tendencies, which can be related to special, socially-motivated attention to the role of 2nd person. These can be illustrated by the patterns of merger in a typical paradigm of each of the four subgroups that we will look at – Khroskyabs (Rgyalrongic), Nocte (Northern Naga), Sunwar (Kiranti), and Trung (Nung):

Table 9. Indexation of scenarios involving 1st person

	1→2	**1SG & 1→3**	**3→1 & 2→1**
Wobzi	Σ-n	Σ-ŋ	u-Σ-ŋ
Nocte	Σ ^{1}ɛ	Σ ^{1}ʌŋ	Σ ^{1}h-ʌŋ
Sunwar	Σ-n	Σ-ŋ	Σ-yi
Trung	Σ-ŋ	Σ-ŋ	nɯ-Σ-ŋ

All three patterns of interest are evident here. First, note that intransitive 1SG and direct 1→3 always have the same form, consistent with SAP>3. Second, in all these languages the 2→1 form is marked identically to 3→1. In contrast, the other local form, 1→2, is always distinct from all others except in Trung; this is our third pattern of interest. (The Nungish languages have a more strictly hierarchical paradigm than any other branch; see Morse 1965; LaPolla 2010 for a detailed analysis of Rawang).

A similar arrangement of 2nd person forms (here with Zbu Rgyalrong substituted for Khroskyabs; both these paradigms will be discussed below) shows the same direct-intransitive merger, in keeping with SAP>3, and confirms the uniqueness of 1→2 marking. (Note that the further elaboration of the 2nd person category in Sunwar still leaves the unique 1→2 form):

Table 10. Indexation of scenarios involving 2nd person

	1→2	**2→3**	**2SG**	**3→2**	**2→1**
Zbu	Σ-n	Σ-ŋ	tə-Σ	tə-wə-Σ	u-Σ-ŋ
Nocte	Σ ^{1}ɛ	Σ ɔʔ	Σ ɔʔ	Σ h-ɔʔ	Σ ^{1}h-ʌŋ
Sunwar	Σ-n	Σ-yi	Σ-yi	Σ-yi	Σ-yi
Trung	Σ-ŋ	nɯ-Σ	nɯ-Σ	nɯ-Σ	nɯ-Σ

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In Sections 3 and 4 I will show, by comparison of these languages with other near relatives, that at least two inverse constructions, and most or all of the examples of the other two patterns, are secondary developments, and further, that unique 1→2 forms have developed by four different diachronic paths, and merged 1O forms by at least three. These historical facts and observable tendencies are evidence from which we can try to infer the principles which underlie the phenomena of local indexation noted by Heath. In Section 5 I will follow Heath in suggesting sociopragmatic directions of explanation for these phenomena.

3. Deictic effects in hierarchical systems

Explicit inverse marking is attested in Rgyalrongic (DeLancey 1981b; Sun & Shi 2002; Jacques 2010; 2012; Gong 2014; Lai 2015); Chepang (Caughley 1978; 1982; Thompson 1990), and Northern Naga (DeLancey 1981a; 2011b; Morey 2016; Boro 2017), and vestigially and/or incipiently in Kiranti (Ebert 1990; 1991; Jacques 2012, inter alia). None of these languages have the same inverse form, and thus at most one of them can be original, and all others are secondary innovations – showing that TB languages have a recurrent tendency to find ways to mark this category. We will look at examples from Rgyalrongic, where something like the original PTB system is preserved, and Northern Naga, where we will find a system which is sufficiently new that we can identify its origin.

3.1 The original inverse in Rgyalrongic

The Rgyalrongic languages of western Sichuan preserve the original PTB inverse form, though the striking transparency and regularity of the Rgyalrongic paradigms suggests some secondary regularization in Proto-Rgyalrongic. Consider again the paradigms of Wobzi Khroskyabs and Zbu Rgyalrong, repeated here:

Table 11. Indexation of singular arguments in Wobzi Khroskyabs

	O			
S	**A**	**1SG**	**2SG**	**3SG**
Σ-ŋ	**1SG**		Σ-n	Σ-ŋ
Σ-n	**2SG**	u-Σ-ŋ		Σ-n
–	**3SG**	u-Σ-ŋ	u-Σ-n	u-Σ

The *u- / wə-* prefix shows a canonical inverse distribution in Zbu; Wobzi has simplified the original (at least Proto-Rgyalrongic, probably PTB) opposition between

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Table 12. Indexation of singular arguments in Zbu Rgyalrong

	O			
S	**A**	**1SG**	**2SG**	**3SG**
Σ-aŋ	**1SG**		tɐ-Σ	Σ-aŋ
tə-Σ	**2SG**	tə-wə-Σ-aŋ		tə-Σ
–	**3SG**	wə-Σ-aŋ	tə-wə-Σ	ɐ-Σ ~ u-Σ

inverse marking and its absence in 3→3 forms, reflecting the relative topicality of the two 3rd person arguments. This inverse prefix and its very canonical distribution in the paradigm can be reconstructed for Proto-Rgyalrongic; the form, at least, traces back to PTB. The Zbu paradigm shows some extra complexities stemming from its incorporation of forms with the #*t*-prefix[6] in place of the 2nd person #-*n* suffix. (The #*t*- prefix was originally something other than a person index (DeLancey 2014), and the form was not otherwise inflected; the Rgyalrong paradigm originated with the addition of this #*t*-, reanalyzed as a polite 2nd person index, to all the forms of a paradigm originally resembling that of Khroskyabs).

It is tempting to imagine that the original PTB system must have been something like this, and much of the variation which we find across the archaic languages can be explained in terms of this simple model. Of course, we see strong tendencies against this kind of systematicity, and it is entirely possible that we will need to attribute some similarly motivated unsystematicity to the proto-language (see Jacques & Antonov, this volume). Heath, who extensively documents that the local categories are inherently prone to irregularity, warns:

> One way to defeat the messiness is to set up idealized, transparent, and symmetrical underlying forms … A similar intellectual comfort can be achieved by reconstructing a "golden age" proto-language, where the transparency and symmetry were visible on the surface … before undergoing sound changes or restructurings. One also encounters efforts to impose order on the 1←→2 subsystem by elaborating {1,2} > 3 … hierarchies as either 1 > 2 > 3 … or 2 > 1 > 3 … – whichever works better for a given language – but often at the cost of artificial segmentation and labeling of surface morphemes in opaque 1←→2 combinations, and at considerable risk of missing the general point. (Heath 1998: 102)

On the other hand, we have evidence from innovative systems for the naturalness of the regular canonical inverse pattern, which we find re-invented twice in

6. A form marked by # represents a morph whose general form and function can be inferred, but which has not been formally reconstructed.

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the Northern Naga languages. In fact we will have to reconstruct for the proto-language an ordinary language with an array of polite locutions and circumlocutions, many of them continued into some daughter languages, and re-invented in others, differentially grammaticalized in different modern languages.

3.2 Innovative inverses in Northern Naga

The Northern Naga languages (also called "Konyak") are a thinly-documented group spoken in Northeast India and adjacent parts of Burma. Several of these languages (Wancho, Chang, Konyak, and others) lack argument indexation altogether; others, generally listed under the imprecise headings "Nocte", "Tangsa", and "Tutsa", have inherited agreement paradigms. These languages show a range of different paradigmatic configurations (Morey 2016); the most conservative have hierarchical indexation and a morphologically-conditioned alternation between nasal and stop forms of the person-number indices, both shared with the more distantly-related Jinghpaw (DeLancey 2011b). The Northern Naga languages also have innovative inverse marking, which Jinghpaw lacks. In fact in two languages, Nocte and Hakhun Tangsa, we can see the fading of one innovative inverse construction and the inception of another.

The paradigm of Nocte with singular arguments is given in Table 13. (Forms are from unpublished materials of Alfons Weidert; see also Weidert 1985). Forms with *t-* and the stop forms of the suffixes are past, the non-past forms show the nasal indices:

Table 13. Indexation of singular arguments in Nocte

	O			
S	**A**	**1SG**	**2SG**	**3SG**
¹ʌŋ t-ʌk	**1SG**		¹ɛ t- iʔ	¹ʌŋ t-ʌk
ɔʔ t- ɔʔ	**2SG**	¹h-ʌŋ ¹th- ʌŋ		ɔʔ t- ɔʔ
–	**3SG**	¹h-ʌŋ ¹th- ʌŋ	h-ɔʔ th-ɔʔ	¹a t-aʔ

For the argument in this section, the points to notice are the form of the inverse marker – |h-| in the non-past, and aspiration of the |t| past tense morpheme in the past – and its distribution, marking both basic inverse scenarios plus 2→1. Thus we have a form which cannot plausibly be cognate with the Rgyalrongic inverse marker, but with the same distribution as that marker has in Zbu. So we see that Nocte has lost the original PTB inverse marking and replaced it with an innovative

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form with exactly the same function. Note also the index $^{1}\varepsilon \sim i\eta$ in the 1→2 form, unique in the singular paradigm. This is originally the 1PL form, which is attested in other languages as a source for exceptional local marking (Heath 1998, and Section 4.1 below).

Hakhun Tangsa (Boro 2017), very closely related to Nocte,[7] also has inverse marking, but has innovated a new inverse form:

Table 14. Indexation of singular arguments in Hakhun Tangsa

	O			
S	**A**	**1SG**	**2SG**	**3SG**
ŋ t-ŋʔ	**1SG**		ŋʔ t-ŋʔ	ŋ t-ŋʔ
oʔ t- oʔ	**2SG**	r-ŋ th-ŋ		oʔ t-oʔ
–	**3SG**	r-ŋ th-ŋ	r-u th-uʔ	^{1}a t-aʔ

Comparing the Hakhun paradigm with Nocte, we see that they share the same inverse marking in the past tense. In the non-past, however, Nocte |h-| is replaced in Hakhun by |r-|. This is easily recognizable as a cislocative form, widely-attested across the family as a motion verb **ra* and frequently as a grammaticalized cislocative (DeLancey 1985). It occurs as a cislocative throughout Jinghpaw and Northern Naga (DeLancey 2011b; Boro 2017), but in Nocte (at least as far as we know) it has not yet acquired the more grammaticalized inverse function which it has in Hakhun. The functional shift cislocative > inverse is attested elsewhere as well (Jacques and Antonov 2014), which underlines the fundamentally deictic nature of this category.

Thus in three different languages, two of them very closely related, we find three different canonical inverse paradigms. The Rgyalrongic inverse is probably old, and that is enough to show that the Nocte inverse must be a later innovation, probably replacing the original prefix.[8] At present I have no suggestion as to the source construction from which it grammaticalized. The Hakhun non-past inverse is transparently innovative, and thus represents a tertiary re-invention of the same category. (We might speculate that this reanalysis of the cislocative might

7. Hakhun /-ŋ/ < *-*aŋ*.

8. There is a strong tendency across the southern branches of the family to lose prefixal morphology.

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have been spurred by the phonetic indistinctness of an intervocalic [h]). So even in the very small Northern Naga microcosm we see a persistent tendency to recreate the canonical inverse pattern.

4. Sociopragmatic effects in hierarchical indexation systems

Though the indexation systems of Rgyalrong, Northern Naga, Nung, and Kiranti are cognate, there is great divergence among and within these groups in the morphological and paradigmatic structure of the systems. Across this formal divergence, however, we can see a number of recurrent patterns which bear on the question of local category indexation. In this section we will see evidence for two tendencies which recur frequently in diachronic developments in TB indexation paradigms. There is a strong tendency, especially in Kiranti, to have unique, sometimes opaque marking for 1→2. It is rare, and in Kiranti unattested, for this form to have completely identical marking to 1→3. In contrast, the languages strive for the 2→1 form to be identical with 3→1, usually by generalizing the original 2→1 form to also mark 3→1, transforming it into a 1O index.

4.1 Merger of 1O forms in Kiranti

In Section 3.1 we looked at three different inverse-marking paradigms, in closely-related Nocte and Hakhun and more distantly-related Rgyalrongic. One thing that all three paradigms have in common is that the 2→1 and 3→1 forms are identical, both having 1st person indexation and inverse marking. Since the 1SG index is the same in all three languages, we can take it to represent shared inheritance. Since the inverse marker is different in each language, we have evidence of independent innovation. A second point to note is that in Khroskyabs and Nocte the 1→2 and 1→3 forms are distinguished. In Khroskyabs, in 1→3 the 1st person is indexed, as we would expect, but the 1→2 form has 2nd person indexation. In Nocte, 1→3 again has 1st person indexed, but 1→2 has a special mark, originally a 1PL suffix. Again, since the distinguishing mark of 1→2 is different in Khroskyabs (Table 4) and Nocte (Table 13), we see that the languages have developed this pattern independently. In this section we will look at further evidence from Kiranti languages which shows a recurrent tendency to conflate the 2→1 and 3→1 forms, and to distinguish 1→2 from 1→3 by some special marking.

Let us now look at three very closely-related languages, all from the Western subbranch of Kiranti, where we see several different variations on this same theme. First consider the paradigm of Wambule (Opgenort 2004):

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Table 15. Indexation of singular arguments in Wambule

	O			
S	**A**	**1SG**	**2SG**	**3SG**
Σ-ŋu	**1SG**		Σ-ni	Σ-ŋu
Σ-nu	**2SG**	Σ-ŋi		Σ-nu
–	**3SG**	Σ-ŋati	Σ-nati	Σ-u

The broad parameters of the paradigm are familiar. We see a hierarchical pattern, with the 1→3, 3→1, and 2→1 forms all showing the |ŋ| which indexes 1st person, and 1→2, 2→3, and 3→2 all with |n| forms indexing 2. (Both of these are cognate to the corresponding morphemes in Rgyalrongic). We see incipient inverse marking once again in the *-ti* suffix in the 3→1 and 3→2 forms, but in contrast to what we saw in Khroskyabs and Northern Naga, here this incipient inverse form does not occur in either local form, and thus does not indicate any hierarchicization of the two SAP's. The point of particular interest in Wambule is the uniqueness of the two local forms; each has a form which seems to index the object, but with distinct vocalism. The shared vocalism of the two forms is coincidental. The *-ni* marking 1→2 is apparently the ancient 2PL form, which occurs in this slot in other Kiranti languages as well. The 3→1 index is a combination of the 1SG *-ŋa* and 1PL.INC-*i*.[9]

Table 16. Indexation of singular arguments in Thulung (non-past)

	O			
S	**A**	**1SG**	**2SG**	**3SG**
Σ-ŋu	**1SG**		Σ-ni	Σ-u
Σ-na	**2SG**	Σ-ŋi	Σ-na	
–	**3SG**	Σ-ŋi	Σ-na	Σ-y

One way in which the Wambule paradigm differs from anything we have seen before is in the distinct marking of the 2→1 and 3→1 forms. In every language that we have looked at except for Zbu Rgyalrong, a single form marks both these configurations. In Zbu the forms are the same except for an added 2nd person

9. 1PL.INC *-*i* is reconstructible at both the Proto-Kiranti and PTB levels; in Wambule it remains as an independent form only in the 1PL.INC→3 form, elsewhere having merged with *-*ka* 1PL.EXC in an innovative 1st person non-singular *-ki*. This may also be involved in the 2PL *-*ni* form (van Driem 1993), but if so it is probably at a pre-PTB, and definitely at some pre-Proto-Kiranti level.

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index in 2→1. But in Wambule each form has a distinctive mark, the anomalous vowel in 2→1 and the incipient inverse *-ti* in 3→1. Now compare the Wambule paradigm with Thulung (Lahaussois 2003):

The close relation of the Thulung paradigm to Wambule is evident. (And, among other things, attests to the novelty of the inverse *-ti* suffix in Wambule). Again, as we have seen in several other languages, the 1→2 form is unique, though clearly related to the other 2nd person index, and sharing unexpected vocalism with the 1OBJ forms. The most striking difference between Thulung and Wambule is the 3→1 form. Thulung has returned to the pattern which we see in the other languages, with a single index for both 1O forms, and it has done so by extending what was originally a very specifically local construction into the inverse domain. The 1PL origin of the *-i* element makes sense, and is typologically plausible, as a local 2→1 index,[10] but makes less (if any) sense as a source for 3→1 marking. Thus the motivation for this shift in paradigmatic structure can only be the desirability of having the same marking for both forms. What is striking about this shift is that, as we can see by comparison with Wambule, it is the presumably more marked 2→1 form which has spread, and the original 3→1 form which has disappeared. This conclusion is sufficiently counterintuitive that the reader may feel compelled to doubt the comparative argument, but in Section 4.2 we will see other examples of exactly the same thing occurring independently in other languages.

In both Wambule and Thulung the 1→2 form has a unique index, but in both it is easily relatable to other 2nd person indices in the paradigm. The importance of special marking for this configuration is underlined by a further development in one more Western Kiranti language, Sunwar (Genetti 1988):

Table 17. Indexation of singular arguments in Sunwar

	O			
S	**A**	**1SG**	**2SG**	**3SG**
Σ-ŋ	**1SG**		Σ-n	Σ-ŋ
Σ-ye	**2SG**	Σ-yi		Σ-yi
–	**3SG**	Σ-yi	Σ-ye	Σ-u

Sunwar has an innovative 2nd person suffix *-ye*, but the *-yi* in the 1O forms is probably derived from the *-ŋi* which we saw in Wambule and Thulung. The spread

10. The use of a 1PL form for one or the other of the local categories is attested elsewhere in and outside of Tibeto-Burman; we have already seen the cognate 1PL form in Nocte used to uniquely mark the 1→2 form (Table 13).

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of *-yi* to the 2→3 form seems to represent further reanalysis, probably facilitated by the resemblance of the two originally distinct 2nd person indices. The main point to note in the Sunwar paradigm is that the original 2nd person *-n* remains unreplaced and unchanged in the 1→2 form, which as a result is strikingly distinct from any other form in the paradigm.

4.2 The "marked scenario"

We see more evidence for a tendency to conflate the 2→1 and 3→1 forms in the "marked scenario" indexation pattern in Nungish and a few Kiranti languages. The transitive paradigm of Trung[11] (Nungish; Sun 1982; 1983: 25–6; see also Lo 1945) is as follows:

Table 18. Indexation of singular arguments in Trung

	O			
S	**A**	**1SG**	**2SG**	**3SG**
Σ-ŋ	**1SG**		Σ-ŋ	Σ-ŋ
nɯ-Σ	**2SG**	nɯ-Σ-ŋ		nɯ-Σ
–	**3SG**	nɯ-Σ-ŋ	nɯ-Σ	

Note that we have here our first truly hierarchical paradigm, in that the 1st person suffix *-ŋ* occurs on any verb with a 1st person argument, with no exception. Thus the 1→2 and 1→3 forms are identical, a rare pattern in TB, and one which is contrary to the general tendency to uniquely distinguish 1→2 from everything else. But this pattern is consistent with our preconceptions about hierarchical systems, and thus not surprising in a broader typological context. More noteworthy in this paradigm is distribution of the prefix *nɯ-*, which occurs on intransitive 2nd person subject verbs, and in all transitive forms with a 2nd person argument except for the 1→2 form. The synchronic identification of this prefix as a 2nd person index is complicated by its occurrence in the 3→1 form, which has no 2nd person argument; we will return to this directly. Taking this as a 2nd person form for the moment, we then see that 2→1 is doubly indexed, almost exactly as in Zbu Rgyalrong.

We find prefixes with the same distribution throughout Nungish and in at least two Kiranti languages: Dumi *a-* (van Driem 1988; 1993; cp. Bynon 1998),

11. I take this spelling from Lo (1945), the first published report. The language is often referred to as Dulong, a transliteration of the Chinese version of the name. In previous publications I have also used Tarong, which represents the native pronunciation.

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and Khaling *ɲi-* (Toba 1979; Jacques et al. 2012). This distribution constitutes a descriptive and analytical problem for every scholar who has addressed it. LaPolla (2010), labels the equivalent prefix in Rawang, a very close cousin of Trung, the "non-first person actor" marker, and describes it as used whenever either SAP is mentioned in the clause, but the A is not 1st person. As a description of a grammatical category this seems a bit forced, but it is difficult to come up with any unified description which is not. Van Driem simply calls the Dumi equivalent the "marked scenario" form, which is simply giving up – all of these scenarios marked by the prefix are, by definition, marked; the question is why?

There is no question that the "marked scenario" pattern represents an analogical extension of what was originally 2nd person indexation. In Trung (H. Sun 1984), Dumi (van Driem 1993) and Khaling (Toba 1979) the prefix is identical to the 2nd person possessive prefix; Rawang apparently lacks possessive pronominal forms (Barnard 1934: 8), but the "non-first person actor" prefix *è-* can plausibly be associated with an original 1PL.INC index reanalyzed as a 2nd person form (DeLancey 2011a; we have seen a cognate 1PL.INC*i-* in Kuki-Chin in Section 2.4). Thus in each case – and presumably at least twice, and perhaps more, independently – the "marked scenario" distribution represents a secondary extension of a 2nd person form to index 3→1. The idea of 2nd person indexation as the analogical basis for 3rd is counterintuitive, and so this pattern has caused some distress (Bynon 1998). But there is no other explanation for what we see in these languages. And we have already seen, in the previous section, a similar shift that can be accounted for no other way.

It seems likely that this shift was facilitated by the fact that the 3→1 form previously had a distinct prefix, the inverse **u-* (Ebert 1990; 1991; DeLancey 2011a; Jacques 2012). We noted the similarity of the indexation pattern of Trung to that of Zbu Rgyalrong, but they are not quite identical; recall that in Zbu 3→1 has the inverse prefix, and 2→1 has both inverse and 2nd person prefixes:

Table 19. 1O forms in Zbu Rgyalrong and Trung

	Zbu Rgyalrong	**Trung**
2→1	tə-wə-Σ-aŋ	nɯ-Σ-ŋ
3→1	wə-Σ-aŋ	nɯ-Σ-ŋ

Other comparative data supporting this hypothesis with respect to the analogous patterns in Kiranti are presented by Ebert (1991) and Jacques (2012):

> In the Bantawa dialect the distinction between inverse and 2nd prefix is blurred: *ɯ-* sometimes corresponds to inverse *u-* and sometimes to 2nd *a-* in some

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> neighboring languages. This may be a first step toward a generalization of one prefix to all inverse and 2nd configurations (except 1>2), as found in Dumi and Khaling. (Ebert 1991: 83)

These similar developments in Trung and some Kiranti languages are not necessarily exactly either "shared" or "parallel" innovations. Presumably in PTB, as in any other language, there was a range of delicate locutions used for 2nd person or as humilific or self-effacing workarounds for 1st, probably including generic constructions, and other such avoidance strategies such that many different verb forms might in some circumstances be used in something other than their "literal" paradigmatic sense. If both Khaling and Nungish have an old 1PL.INC form functioning synchronically as 2SG, it is not that they both "innovated" a "shift", but rather that in both languages the same original polite locution has become the default.

5. Deictic and sociopragmatic effects

We have looked at three recurrent paradigmatic patterns – canonical inverse marking, unique marking of 1→2, and conflation of 2→1 and 3→1 – developing independently, by distinct paths, in several different TB languages. The prevalence of inverse constructions reflects familiar factors, but the patterns which we have observed in the marking of the local categories require explanation.

5.1 Reviewing the evidence

The special status of the SAP's relative to all other referents is reflected in many different grammatical developments in TB languages. For example, several languages and branches with secondary subject indexation paradigms have independently innovated a form which indexes both 1st and 2nd person objects (DeLancey 2013; Konnerth 2015), as in Purum, a Northwestern Kuki-Chin language (Sharma & Singh 2011), where an innovative *-nə-* prefix occurs in all 1/2 O forms:

Table 20. Indexation of singular arguments in Purum

	O			
S	**A**	**1SG**	**2SG**	**3SG**
kə-	1SG		kə-nə-	kə-
nə-	2SG	nə-nə-		nə-
ə-	3SG	ə-nə-	ə-nə-	ə-

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In Section 3.1 we noted a persistent tendency in Nocte and Tangsa to reinvent canonical inverse marking, in at least one case from a cislocative motion construction. This tells us that the deictic ranking of SAP>3 is a persistent factor in diachronic change in these languages.

We have also seen several examples of innovation resulting in distinctive marking for the 1→2 category, distinguishing it from all other forms. In Rgyalrong this form has distinctive vocalism, perhaps reflecting an older passive prefix. In Nocte this form has 1PL indexation. Throughout Kiranti it has a distinctive index which originates as a 2 or 2PL marker; in Sunwar and many other Kiranti languages this form remains even when subsequent developments involve replacement of the older 2nd person index by a distinct index in all other forms (DeLancey 2014).

In Section 4 we saw several different paths by which TB languages collapse the indexation of the local 2→1 and the inverse 3→1 form. Most of these involve extension of an original 2→1 form to also index 3→1. The most unusual and intriguing manifestation of this tendency is the "marked scenario" system of Nungish and a few Kiranti languages in which an original general 2nd person S/A/O index comes to mark the 3→1 form as well.

One last tendency, which we have remarked in passing, deserves more attention at this point: the tendency for one or both local categories to be indexed by a form which is originally an agent-suppressing construction, either a passive or an impersonal. There is a particularly strong tendency in TB languages to use an impersonal form for the 2→1 scenario. Since this form also tends to be identical with 3→1, this often results in impersonal marking of all 1O forms:

> Most SE Kiranti languages have impersonal forms for some or all 1st patient configurations, either grammaticized and integrated into the paradigm … or as an optional variant. (Ebert 1994: 28)

(See also Bickel & Gaenszle 2015). But this is not always the case; recall that in the Rgyalrong languages it is only 2→1 which has the originally impersonal *k-* form (Section 2.2). And in general we have seen that unified 1O marking usually originates in the 2→1 form, so it is likely that in paradigms where unified 1O marking derives from an impersonal construction, it has done so through an intermediate stage like that which we see in Rgyalrong.

5.2 Typology, genre, and person

Explanations of hierarchical effects in terms of topicality and reference management take for granted that 1st and 2nd person are simply two more referents, to be tracked through a discourse like any other. This assumption has not been, and probably cannot be, justified. As Mühlhäusler and Harré (1990) argue, 1st and 2nd person pronouns are very different in function from other nominals. NP's are

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referential, and 3rd person pronouns anaphoric, but SAP pronouns are neither. Rather, their function is indexical, invoking one or the other of the two selves which constitute the speech act situation. Other referents are necessarily contingent, but the speaker and hearer are intrinsic to the speech situation. They are not "participants" in the speech situation, they are the defining constituents of it. If these two referents are part of the system of information management at all, they must represent a distinct subsystem within it.

One problem with topicality approach to hierarchy is that most serious studies of topicality are based on the study of connected narrative. Dahl (2000) points out that SAP's are vanishingly rare in this genre, but extremely common in conversation. It seems likely that claims about topicality made on the basis of patterns found in narrative may be valid for "allophoric", i.e. 3rd person, reference, but not for "egophoric" reference to SAP's:

> [T]he "topicality" of egophoric expressions is rather different from that of third-person pronouns … Thus "topicality" cannot be used as a general explanatory notion; at best, it is a cover term for a number of different phenomena which tend to cluster, but only partially." (Dahl 2000: 66–67)

Since studies of topic continuity and referential management in the literature are based on tracking allophoric referents through narrative, any claims made about SAP's in this literature are at best speculative.

In fact it is likely that these two genres of speech are cognitively quite different, in ways which are directly relevant to the issues of hierarchical indexation. At one extreme, fictional narrative – the basis of most grammatical description – takes place in a conceptual space which the addressee must construct, on grammatically- and lexically-coded instructions from the speaker, and then move 3rd person referents around in as the narrative progresses. In this context, rather than a "shared" conceptual space or universe of discourse, we are really talking about a conceptual space built up by the addressee, hopefully approximating that which the speaker has in mind. At the other, face-to-face conversation, we have a literally shared space, mutually maintained by the two interlocutors, each of which is, in turn, speaker and then addressee. Notions of "topicality" in these two contexts cannot be the same, and may not even be commensurable.

5.3 Patterns

The ranking SAP > 3 is universal by definition of the notion SAP – that is simply how the speech situation is. In contrast, any specific marking which distinguishes the SAP's is a choice among different possibilities, expressing one particular view of the speech situation out of a number of possibilities. Various strategies of local

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marking may emphasize one or another of these. Heath interprets these different strategies as avoidance strategies:

> Such irregular and problematic combinations are more, not less, highly-valued than regularized alternatives would be; the latter would make life easier for grammarians, but more difficult for flesh-and-blood native speakers engaged in actual communicative acts. (Heath 1991: 86)

But we cannot explain the data in purely negative terms – we need to be able to describe a particular strategy in terms of what it accomplishes as well as what it avoids. We do not need to discuss further the persistent effect of SAP>3, which is easily explained in all of the current approaches. We do need to find a new way to think about local indexation, and in particular the tendency of TB languages to emphasize the uniqueness of the 1→2 category and to downplay or eliminate the uniqueness of 2→1.

We have seen that diachronic tendencies in TB languages do not follow any consistent "ranking" of 1st and 2nd person. The tendency to uniquely mark 1→2, often with an originally 2nd person index, could be interpreted as ranking 2 above 1, while the tendency to merge 2→1 and 3→1 could be interpreted as treating 2→1 as inverse, and thus ranking 1 above 2. Since most of the languages which we have looked at show both tendencies, we see that neither ranking is consistent. It is clear that the two SAP's do not have the same status in TB languages – different factors are revealed in changes relevant to the two persons – but these differences are not manifested as a hierarchical ordering comparable to the SAP > 3 ranking. So what we have is not really hierarchical agreement in any meaningful sense. Rather than trying to fit the two SAP's on some kind of a hierarchy, we should think in terms of the unique role which each plays in constituting the speech situation.

First consider the tendency to distinguish the indexation of 1→2 from any other form. In Rgyalrong and Kiranti this is a special 2nd person index which is distinct from any other 2nd person form. The Rgyalrong languages accomplish this by adding a mark, Kiranti languages in general by exempting this form from analogical or phonological shifts which change the form of all other 2nd person indices. Both strategies can be interpreted as means of drawing special attention to the addressee's role in the event. (In Kiranti these relict 2nd person suffixes are often synchronically opaque, so that they are often referred to as portmanteau forms in linguistic descriptions). Northern Naga has accomplished the same paradigmatic configuration by replacing the original 2nd person index with a form which originally indexed 1PL.INC. Northern Naga has replaced the original 2nd person index throughout the paradigm, but in all other forms the innovative form is a suffix #-*o*, probably arising through sociopragmatically-motivated circumlocution from a potentialis construction (DeLancey 2014). In contrast to

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developments in Rgyalrongic and Kiranti, Northern Naga ensures the uniqueness of the 1→2 form by using a construction which originally avoided direct reference to 2nd person rather than emphasizing it.

Since the 1→2 form is unique and irregular in the substantial majority of TB languages with hierarchical systems, and since we have seen several different routes to this paradigmatic state, we may consider it a relatively stable phenomenon. I will suggest below that this is because it in some way makes speakers' communicative lives easier, but the basic claim here is empirical, not speculative – the tendency for TB languages to evolve to this state, by whatever means are available, is considerably greater than any tendency which they might have (such as, for example, instantiating a 1>2 hierarchical ranking) which would lead to convergence of this form with any other.

Next consider the conflation of 2→1 with 3→1. In Rgyalrongic and Northern Naga this results from the analysis of both forms as inverse, a path which is not inconsistent with an explanation in terms of a 1>2 ranking. But in Kiranti and Nungish it results from extension of an originally 2nd person form into the 3→1, something which even in the small set of languages discussed here we see happening independently at least three different times, from at least two different source constructions. This kind of analogy is less easily interpretable in terms of hierarchy, although we could perhaps argue that eliminating a distinction between 2A and 3A amounts to putting them at the same hierarchical rank. On the other hand, by whatever pathway it develops, the resultant paradigm is one with an explicit 1O index, which highlights the speaker's involvement while directing attention away from the addressee's.

Note the difference between the reference made to the two SAP's in these forms. Both the local forms tend to index the O argument, but, while it has been standard in TB studies to characterize this pattern as consistent object agreement, we can see that functionally what is happening in the two forms is quite different. In the 1→2 form, the O argument is emphasized, but the uniqueness of the form makes clear that this situation – one in which I am the instigator and you the recipient or victim – is different from any other. The speaker may not be explicitly indexed as the instigator, but since these forms are distinct from 3→2, it is explicit that the instigator is not someone outside the speech situation. In the 2→1 form, on the other hand, the O argument is emphasized in a way that avoids any implication of the identity of the instigator – the form gives no basis for any inference. Recall Jacques' suggested sources for the irregular local forms in Japhug (Section 2.2, Table 6). The 1→2 form is traced to a passive, that is, a form which implies an A argument but does not identify it, while the 2→1 form derives from an impersonal construction, i.e. one which makes no reference to agency at all.

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5.4 Sociopragmatic just-so stories: It's always about you

While the gross fact that both local categories tend to index the O argument suggests that they are being treated in the same way, we have seen that a closer examination shows something quite different. While no tendency is maintained in every language that we have looked at, the broad tendency is to mark the 1→2 category in a way that emphasizes the addressee's participation, and the uniqueness of this kind of situation, while the 2→1 category is generally treated as something happening to the speaker, with no indication that the addressee is involved, or that the situation is in any way unique. That is, languages conspire to emphasize reference to the addressee in 1→2 events, and eliminate any such reference in 2→1. Thus both of the tendencies which we have tracked across the family are fundamentally about managing reference to the addressee's role in an event.

Obviously any explanation of this kind for diachronic changes inferred through morphological comparison is in the nature of a just-so story. The differential treatment of the two SAP's and the two local categories is an empirical claim, inferred from patterns in data, and testable by confrontation with more data. Hypotheses about why these categories are different are necessarily more speculative. But we have good reasons for thinking about the problem in sociopragmatic terms. Dahl (2000) notes that in his European language corpus SAP reference is rare in narrative but ubiquitous in conversation. This is hardly surprising. While there are circumstances in which I might inflict on you a tale of my own activities or complaints, the only sort of narrative that I might tell in which you would appear would be shared reminiscence. (Other marginal exceptions which come to mind – for example, someone telling you the morning after about your drunken behavior the night before – are even more dangerous). With this exception – and even this is potentially socially hazardous[12] – any reference to the addressee, and in particular to transitive events involving one SAP as A and the other as O, is the realm of bickering and badinage, of promises, threats, requests and cajolery, negotiations, offers and rejections. These are all matters which, in any culture, have to be done carefully, and every culture and language has indirect means which serve these purposes.

I have certainly not proven in this paper that sociopragmatics is the only possible direction in which to seek explanations for the common phenomenon or irregular and a-hierarchical marking of local categories in otherwise hierarchical paradigms. But I have provided a more detailed and nuanced account of the problem, and shown patterns which do seem to ask for sociopragmatic interpretation.

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12. Imagine (or use Google) the kinds of things that might follow the sequence "Remember that time you …".

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Abbreviations

AOR	aorist
DIR	direct
ERG	ergative
EXCL	exclusive
INCL	inclusive
INV	inverse
SG	singular

Also, for language names

TB	Tibeto-Burman

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CHAPTER 11

Morphosyntactic coding of proper names and its implications for the Animacy Hierarchy

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The Animacy Hierarchy (AH) is an important construct employed for the description and explanation of variation and splits in case marking and agreement in various grammatical domains. The AH is a scale that combines person, definiteness and semantic animacy and is used to state clear preferences of certain morphosyntactic coding types over others. One assumption of the AH is that proper names (PNs) occupy an intermediate place between personal pronouns and common nouns. Despite the large body of research since its first extensive formulation in Silverstein (1976), it is astonishing that there has been almost no empirical evidence published for this claim. Since the AH has been formulated mostly on the basis of case marking and agreement phenomena in languages with split ergativity or hierarchical alignment, we compiled a sample of more than 30 such languages in order to find data on the morphosyntactic coding of PNs. While there are only a very few instances that confirm the claim, there are more instances that contradict it. We concluded that PNs should be removed from the AH, since their assumed position has no predictive value for typological generalizations.

1. Introduction

1.1 The Animacy Hierarchy

Some of the most important generalizations in linguistic typology employ the Animacy Hierarchy (AH), which represents a complex but unified concept that controls grammatical phenomena in diverse grammatical domains. The following list gives a short overview of the types of phenomena that are at stake here:

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(1) Animacy-controlled grammatical phenomena:
   a. categorical differences in 3rd person pronouns (human vs. non-human);
   b. distinctions in questions words (human vs. non-human);
   c. obligatory plural marking in nominal expressions ("plurality split"; cf. Smith-Stark 1974);
   d. differential object marking (DOM; cf. Bossong 1985, and many others);
   e. split ergative case marking (cf. Silverstein 1976; Dixon 1979; 1994, and many others);
   f. verb agreement, in particular with languages that have hierarchical marking systems (e.g. Tangut, cf. Kepping 1979; DeLancey 1981: 631; Cree, cf. Wolfart 1973, and other Algonquian languages);
   g. obligatory passive and antipassive constructions (e.g. Southern Tiwa, cf. Allan & Frantz 1978, and Chukchee, cf. Comrie 1979a);
   h. fourth person (e.g. Navajo, cf. Frishberg 1972; Hale 1973);

The AH is a scale of different classes of referential expressions (NP types), which are ordered hierarchically from more animate to less animate, cf. (2):

(2) The Animacy Hierarchy
1st, 2nd person pronouns > 3rd person pronouns > proper names / kin terms > human > non-human > inanimate common nouns (cf. Dixon 1979: 85)

It is obvious that the notion of animacy in this hierarchy has to be interpreted in a rather broad manner. In fact, this hierarchy combines three separate hierarchies that are functionally related; cf. (3)a-c. Only the third of these hierarchies deals with animacy in the strict sense (cf. Comrie 1989: 190f; Croft 2003: 130).

(3) a. Person:
1/2 > 3
   b. Definiteness:
pronoun > proper name > common noun
   c. Animacy (proper): human > animate > inanimate (common noun)

Animacy is a semantic notion that is conceptualized in a scalar manner in this hierarchy, from more animate to less animate to inanimate. Thus, NPs referring to humans are more animate than NP referring to animals, for instance. However, according to this hierarchy, pronouns are more animate than PNs, although both refer to humans. So, in (3)b, it is rather definiteness and the degree of individuation that distinguishes these word classes, and in (3)a, it is the distinction between speech act participants (SAP) and non-SAPs.[1]

1. Since it is difficult to find a common denominator for the AH, it is no surprise that this hierarchy has been interpreted in different ways in the literature. The different names assigned

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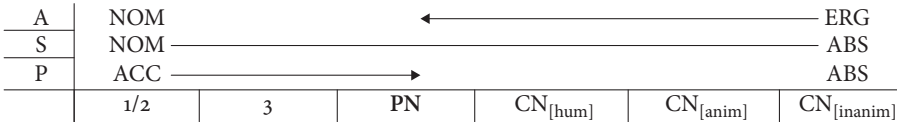
The most detailed and most explicit formulation of the AH as given in (2) emerged out of the study of splits in the case marking patterns of the central participants in transitive and intransitive clauses in so-called ergative languages. The first explicit formulation of the AH based on these phenomena can be found in Silverstein (1976). The basic observation with regard to split ergative marking patterns is that NP types that are high on the AH tend to be accusative-marked if they appear in P function in transitive clauses. On the other hand, NP types that are low on the AH tend to be ergative marked if they appear in A function (cf. Table 1).

Table 1. Case marking patterns in split ergative systems (cf. Dixon 1994)



Sometimes there is also an overlap zone with regard to both marking patterns. In this case, the NP types mostly in the middle part of the AH may be ergative case marked if in A function and accusative case marked if in P function. We speak of a **tripartite marking pattern** because each NP in S (= NOM/ABS), A (= ERG), P (= ACC) function is marked differently.

The AH does not describe the case marking patterns of an individual language but generalizes the observation that languages differ with regard to the cut-off point (where accusative marking ends and ergative marking begins). What the AH claims is that if there is a cut-off point somewhere on this hierarchy, then all NP types to the left are accusative-marked if in P function, and all NP types to the right are ergative-marked if in A function. In almost all versions of the AH, PNs and/or kinship terms are claimed to occupy an intermediate place between personal pronouns and common nouns. This is, in fact, a hypothesis rather than an empirical generalization, as will be shown later in this chapter. The middle position of PNs in the AH predicts several things:

to the AH in the literature reflect different functional interpretations: "lexical hierarchy" (Silverstein 1976), "Nominal Hierarchy" (Dixon 1979; 1994), "Animacy Hierarchy" (Comrie 1981a), "Empathy Hierarchy" (Kuno & Kaburaki 1977; DeLancey 1981), "hierarchy of reference" (Zwicky 1977), "prominence hierarchy" (Aissen 1999), "topic-worthiness hierarchy"; "agentivity hierarchy", and "referential hierarchy" (Bickel 2008; Phillips 2013).

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a. there should be cut-off points directly to the right or to the left of PNs on the AH;
b. with regard to case marking, PNs sometimes pattern with pronouns and sometimes with common nouns, or with subcategories of both of them;
c. PNs are frequently part of a zone of tripartite marking, i.e. a kind of overlap area of the accusative and the ergative patterns. However, cut-off points should be found to the right or to the left of PNs on the AH nonetheless.

These predictions are empirically testable and are the topic of our investigation.

1.2 The problem and the research question

Despite the large body of research on the AH since Silverstein (1976), it is astonishing that there is almost no empirical evidence for the claim a) that PNs are part of the AH and b) that they really occupy the position in its middle part.

Silverstein (1976) discusses a couple of Australian languages with split ergativity, but does not give a single fully convincing example to demonstrate the position of PNs on the AH. The example that should illustrate the position of PN on the AH is Gumbaynggir (Pama-Nyungan). Silverstein's analysis is as summarized in Table 2.

Table 2. Split case marking in Gumbaynggir (Silverstein 1976: 128–9)

A	NOM	ERG	ERG
S	NOM	NOM/ABS	ABS
P	ACC	ACC	ABS
	1.INCL.DU 2SG/DU	1SG 1INCL.PL 1EXCL.DU/PL 2PL **PN/ kin terms**	3 pronouns common nouns

According to this analysis, PNs show a tripartite marking pattern, i.e., they receive ergative case in A function and accusative case in P function. This split marking pattern would be a clear confirmation of the hypothesis if all pronouns appeared in the column left of the PNs representing the accusative marking pattern and if all common nouns appeared in the right column representing the ergative marking pattern. This, however, is not the case. PNs share the marking pattern with most of the 1st and 2nd person pronouns, while 3rd person pronouns pattern with common nouns. Silverstein's analysis of the case marking patterns in Gumbaynggir differs in some details from the grammatical description published by

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Eades (1979: 271–297), but the overall picture is the same. What is remarkable, however, about the marking splits in Gumbaynggir is that PNs and kin terms pattern with personal pronouns and unlike common nouns. In most of the languages in our sample, PNs pattern with common nouns with regard to case marking. This is probably the reason why Silverstein took this language as a proof for his hypothesis, at least with respect to PNs; see also Comrie (cf. 1989: 182), who follows Silverstein's interpretation. In addition, it should be stressed that the tripartite alignment of the first person pronouns in this language is strong counterevidence against the person hierarchy being the top end of the AH. This point will be taken up again below.

Another example found in the literature is Nhanda. Blake (1994: 138) mentions this language as a split marking language that codes all pronouns, PNs and kin terms accusatively when in P function, but without giving any examples or mentioning specific sources. A more recent grammatical description of Nhanda states that Nhanda is a split ergative language where all pronouns are marked accusatively when in P function and all nominals ergatively when in A function (cf. Blevins 2001: 49). In addition, it mentions that the pronominal accusative marker *-nha* optionally appears with definite and specific nominal direct objects thus creating an tripartite marking pattern under this condition. There is no mention of a split between PNs and common nouns when in P function. PN are hence treated like definite and specific nominals in P function.

Dixon (1994: 83–93) provides a wide range of examples illustrating the different kinds of splits one finds in ergative languages with an NP type dependent split case marking. None of them is a clear case in the sense formulated above, but two of them (Yidin^{y} and Arabana) come close; they will be discussed in Sections 2.1.1.1 and 2.1.2. It should also be mentioned that the articles in the recently published *Oxford Handbook of Case* (Malchukov & Spencer (eds) 2009) do not treat case marking of PNs at all.

The goal of this investigation is to give an answer to the question whether the morphosyntactic coding of PNs in the languages of the world confirms or falsifies their hypothesized position within the AH. The following points specify the conditions for data by which the hypothesis would be confirmed:

1. PNs are distinguished from other referential expressions (pronouns, common nouns) by differences with regard to morphosyntactic coding – either case marking or cross-referencing on the verb.
2. These differences fit the predictions of the AH such that they can be interpreted as splits on the left or on the right side of PNs on the hierarchy. The languages of our sample should show

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a. splits between 3rd person pronouns and PNs on the one hand and between PNs and human or animate common nouns on the other;
b. all referential expressions to the left of these splits should show accusative marking for NPs in P function, and
c. all referential expressions to the right of these splits should show ergative marking for NPs in A function.

The next question is: what kind of evidence would falsify the hypothesis? The answer would be: if the languages of our sample do not distinguish PNs as a special class of referential expressions morphosyntactically, and if we do not find the splits as well as the marking patterns mentioned above, then the hypothesis of PNs as part of the AH in a middle position has little predictive value and should be abandoned. And this is in fact what we found. The evidence for a separate class of NP types (proper names) with a proper position in the AH is so weak that the predictive power of this part of the AH is close to zero. But note that we do not claim that proper names and common nouns are alike grammatically. On the contrary, these two types of expressions are grammatically very distinct, but this is a different question, which certainly merits a large-scale typological investigation. We only claim that their grammatical behavior with regard to alignment types is not as distinct as was claimed in the older literature. The results of our research are preliminary in two respects:

1. We restricted our investigation to languages that have been claimed to have a split-ergative case marking pattern or show some kind of hierarchical marking pattern also known as hierarchical alignment;
2. The number of data sets we collected so far is probably too low. There are two reasons for this:
   a. There are numerous descriptive grammars that do not cover the question of coding of PNs in various argument positions in the target language (or do so only insufficiently).
   b. The usage of PNs – not only of deceased people – is often tabooed. These naming taboos are widespread among e.g. North American and Australian indigenous peoples. If these referential expressions are avoided they do not occur in texts, an important data source for descriptive linguists. On the other hand, it is common that small-scale societies more often use kinship terms for address and reference than people in Western societies. In more familiar European languages, kin terms designating a close kin relation such as *father, daddy, uncle* etc. are used like PN in the communication within the family. This happens to a much higher degree in small-scale communities, which makes perfectly sense, since people are

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mostly aware of the kin relations of the other members of the community. For instance, in Hoocąk, a Siouan language of North America, people refer to other members of the tribe by means of kin terms all the time (see the recent study on this by Heidenkummer & Helmbrecht 2017). This is certainly true for the two areas just mentioned. Therefore, we included the coding of kinship terms in our survey.

1.3 A note on sampling

Ergative languages with a split marking pattern dependent on the type of NP played an important role in the formulation and validation of the AH. Therefore, we decided to compile a sample with languages that are reported to have exactly these properties. In a second step, we enlarged this sample of languages with some that exhibit a hierarchical marking system (also called hierarchical alignment or direct/inverse marking system). The marking patterns for S, A and P arguments in these languages are considered to be controlled by the AH. Languages with a hierarchical alignment are controlled not by the entire AH, but by the person hierarchy which is a part of the AH. So, even if these languages do not have morphological case marking of NPs, the marking patterns (almost exclusively indexing of arguments on the verb) could provide evidence for the form of the AH, especially with regard to PNs. It is intuitively clear that a language sample that is biased towards these properties (split marking of S, A, and P dependent of NP type) is much more efficient with regard to the data that are needed to falsify or to confirm the hypothesis outlined above.

The results of this investigation rest on a sample of about 30 split-ergative languages from different continents, but mostly from Australia; for a list of these languages and the data sources, see the Appendix Section. In addition, we compiled and investigated a small sample of about 7 languages that have some kind of hierarchical marking.

2. Analysis and results

First, we look at languages with split ergativity (cf. § 2.1) in order to find the kinds of splits that confirm the hypothesis that PN are part of the AH. In particular, we will examine separately the case marking of P arguments (cf. § 2.1.1.1) as part of an accusative or ergative alignment type, the case marking of A arguments (cf. 2.1.1.2) likewise as part of an accusative or ergative alignment type. Of particular importance for our question is the overlap zone where so-called tripartite patterns (cf. 2.1.1.3) may emerge. Next, we briefly summarize the splits in our sample that represent counterevidence against the AH (cf. § 2.1.2). Even if these cases

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contradict the predictions of the AH with regard to a specific segment of the hierarchy, they may also be revealing with regard to our research question. In Section 2.2, we will take a look at a few languages with a hierarchical marking pattern in order to find evidence for PNs as part of the AH.

2.1 Languages with a split ergative marking system

2.1.1 *Split marking patterns that are in accordance with the AH*

2.1.1.1 Case marking of P arguments. Table 3 lists all languages of our sample that obey the AH with regard to the case marking of P arguments. The rows present all marking splits that are possible with regard to the accusative marking of P arguments in split-ergative languages.

Table 3. Accusative marking of NPs in P function

Accusative marking of NPs in P function						Language
1/2						Yasin-Burushaski, Dyirbal, Ngiyambaa, Squamish
1/2	3					Cashinawa, Diyari/Dhiari, Bidjara/ Gungabula, Kashibo-Kakataibo, Kuku-Yalanij, Pitjantjatjara, Shiriana,
1/2	3	**PN**				(Arabana), (Yidin^{y})
1/2	3	**PN**	$CN_{[hum]}$			Waga-Waga
1/2	3	**PN**	$CN_{[hum]}$	$CN_{[anim]}$		(Manipuri), (Dhankute Tamang), (Thakali[3]),
1/2	3	**PN**	$CN_{[hum]}$	$CN_{[anim]}$	$CN_{[inanim]}$	Ø

The first line from top represents a split of 1st/2nd person pronouns vs. rest, i.e. only first and second person pronouns are marked accusatively as P arguments in a transitive clause. All other NP-types such as 3rd person pronouns, proper names, and common nouns are marked absolutive. The transition from gray shaded to white indicates the place of the case marking split on the hierarchy. The split marking pattern that is shown in this first line can be found in – at least – four languages of our sample, namely in Yasin-Burushaski, Dyirbal, Ngiyambaa, and Squamish. The second line from top represents a split between personal pronouns (1st, 2nd,

2. Case marking (here DAT) of P is not obligatory, but occurs regularly with animate P (cf. Georg 1996: 88).

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and 3rd person) of all person/number values vs. proper names, and common nouns. The personal pronouns in these languages are accusative case marked in P function, while the other NP-types receive absolutive case in P function. The third line represents a marking split between PN and common nouns, the fourth line a split between human common nouns and animate common nouns and so on. Note that all languages in Table 3 that are given in round brackets are languages with a tripartite marking pattern. Since tripartite marking patterns always comprise a split between accusative and absolutive marking of P arguments, they are included here in Table 3.

Some of the splits that are listed in Table 3 resemble what is known in the literature as differential object marking (often abbreviated as DOM). Differential object marking is widespread. P arguments are differentially coded depending on semantic or pragmatic properties of the referent. Animacy and definiteness are frequent properties that trigger a different coding of the P argument (see for instance Aissen 2003; Iemmolo 2010; and for a recent more comprehensive account, Dalrymple & Nikolaeva 2011). Languages with DOM do not have a split ergative marking and all of the languages in our sample have this kind of split.

How can these case marking pattern be interpreted with regard to the implicit hypothesis of the AH that is under scrutiny here? A few of the languages – just four – show a split between first and second versus 3rd person (see Table 3 first row above); this marking split does not say anything about the position of PNs on the AH, because PN are morphosyntactically treated like 3rd person pronouns and common nouns of different semantic classes. They do not represent a specific distinguishable morphosyntactic category (see condition (1) above), nor do they show a marking split vis-à-vis 3rd person pronouns and/or vis-à-vis common nouns (see condition (2a)).

A clear majority of the languages of our sample shows a marking split between personal pronouns and PNs, such that the personal pronouns in P function are accusatively marked (cf. second row of Table 3 above). This is not surprising, since personal pronouns are universally a clearly distinct word class. These languages fulfill the first part of condition (2a) but not the second, and they do not treat PNs as a specific morphosyntactic category (condition (1)): PNs are treated like common nouns.

The third line in Table 3 represents a split between PN and common nouns. There are only two languages, Yidin^{y} and Arabana, that could be analyzed as having such splits. They are put in brackets, because they have a tripartite marking pattern. In Arabana, human common nouns receive optionally accusative case, if they are in P function, cf. the example in (4)a. PN and all personal pronouns receive obligatorily accusative case, if they are in P function, cf. the illustrating example in (4)b.

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(4) Arabana (Hercus 1994: 67, 286)

a. *Ama-* ***nha*** *waRawa-rna.*
mother-ACC follow-IPFV
'They follow their mother.'

b. *Mathapurda-**nha*** *Ngatu-thakali-**nha*** *nhanhi-ka*
old.man- ACC Ngatu-thakali-ACC see-PST
'He saw old man Ngatu-thakali.'

Arabana represents a rare case, where PN pattern with personal pronouns. However, this identity of coding is not complete. There is a marking split among the personal pronouns in A function; see Table 4.

Table 4. Split case marking in Arabana (cf. Hercus 1994: 106)

A	NOM	ERG	ERG	ERG
S	NOM	NOM/ABS	NOM/ABS	ABS
P	ACC	ACC	(ACC)	ABS
	1DU/PL 2PL	1/2/3SG 2DU 3DU/PL PN	CN[hum]	CN[non-hum

Note that the split case marking in Arabana resembles the one in Gunbaynggir given above in Table 2 in several respects. A clear accusative alignment is given with a subset of pronominal categories, interestingly the plural categories of the first and second persons. The other subset of first and second persons pattern with PN exhibiting a tripartite alignment. In the Yidin^{y} case, PNs may optionally receive accusative case when in P function. In this case, they pattern with all personal pronouns, as allowed by the AH; cf. Table 5.

Table 5. Split case marking in Yidin^{y} (cf. Dixon 1994: 87)

A	NOM	ERG	ERG	ERG
S	NOM	NOM/ABS	NOM/ABS	ABS
P	ACC	ACC	(ACC)	ABS
	1/2 person	3 person demonstratives[hum]	Demonstratives [inan] PN Kin terms	CN

Both languages will be treated in Section 2.1.1.3 again, since they represent instances of the tripartite marking pattern.

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There are four languages (Waga-Waga, Manipuri, Tamang, and Thakali) that show splits between different semantic classes of common nouns, such as between human nouns vs. others, or between animate vs. inanimate nouns (cf. the fourth and fifth rows in Table 3). These splits are evidence in favor of the AH, but they do not allow any conclusions with regard to PNs, since the latter pattern together with personal pronouns and common nouns of different semantic classes.

The first conclusion is that it is easy to find languages in our sample that exhibit a split-ergative pattern between personal pronouns and PNs. However, there are only two languages that have a split between PNs and common nouns with regard to accusative marking of P arguments; it seems that PNs are almost always treated like other common nouns.

2.1.1.2 Case marking of A arguments. Table 6 lists all languages of our sample that obey the AH with regard to the ergative marking of the NP in A function. Ergative case marking is found in Table 6 always to the right of the hierarchy, i.e. beginning with the shaded area in the various lines of the table. The transition from white to gray indicates the split marking. The first row shows that there is no language in our sample that has a marking split with regard to ergative case between inanimate and animate common nouns in A function. The second row states the same result for the split between human common nouns versus animate and inanimate common nouns.[3] Most importantly for our research question, there are no languages that have an ergative marking split between common nouns and PNs.

The majority of our languages show, however, a split between personal pronouns and nouns, including PNs. Some languages show a split between 1st/2nd and 3rd person pronouns, and some languages extend ergative marking to all arguments in A function.

The second conclusion is that there are many languages that have a split between personal pronouns and PNs, but there are no splits between PNs and common nouns with regard to ergative marking; this means that we have still only very few data in favor of the split between PNs and common nouns claimed by the AH.

3. However, such splits in ergative marking exist; see, for instance, Garrett 1990, and McGregor 2006. We are grateful to the editors of this volume having brought these references to our attention.

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Table 6. Ergative marking of NPs in A function

Ergative marking of NPs in A function						Language
					$CN_{[inanim]}$	Ø
				$CN_{[anim]}$	$CN_{[inanim]}$	Ø
			$CN_{[hum]}$	$CN_{[anim]}$	$CN_{[inanim]}$	Ø
		PN	$CN_{[hum]}$	$CN_{[anim]}$	$CN_{[inanim]}$	Cashinawa, Diyari/Dhiari, Bidjara/ Gungabula, Kashibo-Kakataibo, Kuku-Yalanij, Pitjantjatjara, Shiriana,
	3	**PN**	$CN_{[hum]}$	$CN_{[anim]}$	$CN_{[inanim]}$	Yasin-Burushaski, Dyirbal, Ngiyambaa, Squamish
1/2	3	**PN**	$CN_{[hum]}$	$CN_{[anim]}$	$CN_{[inanim]}$	Waga-Waga, Manipuri, Dhakute Tamang, Thakali

2.1.1.3 Tripartite marking pattern. The tripartite marking pattern is taken as a separate structural category in this survey, since NPs that show this pattern have distributional properties that are distinct from NPs that show a purely ergative marking pattern, or from NPs that show a purely accusative marking pattern. Of course, the tripartite marking pattern can be described as an overlap zone on the AH where NOM-ACC marking and ERG-ABS marking merge, but this overlap zone creates NPs with specific case marking properties, which may provide evidence for or against the AH. In Table 7, we summarize all those tripartite marking patterns in our sample that are in accordance with the AH.

Table 7 gives those referential expressions showing a tripartite marking pattern that indeed constitute an overlap zone (accusative marking to the left and ergative marking to the right) in the languages of our sample. These cases do not give a clear picture with respect to the AH hypothesis. PNs sometimes pattern with different subsets of personal pronouns, or with all personal pronouns, and sometimes they pattern, in addition, with common nouns. The latter cases seem to be an areal trait of the split ergative languages in Nepal.

2.1.2 *Split marking patterns that contradict the AH*

Recent publications (Filimonova 2005; Bickel 2008; and Phillips 2013) have drawn attention to the various kinds of marking patterns (case marking as well as verb agreement) that contradict the predictions of the AH. These publications focus mainly on the hierarchical ordering of the person categories in systems of argument indexing on the verb. None of these publications investigates the question of PNs within the AH. Before we have a look in languages with a hierarchical marking system, we will briefly summarize some findings in our sample that contradict

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Table 7. Tripartite marking patterns in accordance with the AH

Tripartite marking patterns A = ERG and P = ACC	**Language**	**Comments**
1/2/3SG 2DU 3DU/PL PN (CN[hum])	Arabana	subset of personal pronouns pattern with PN; most non-singular personal pronouns show an accusative marking pattern
3 DEM[hum] PN	Yidin^{y}	3rd person pronouns, human demonstratives, and PNs show a tripartite marking pattern between 1/2 pronouns (NOM-ACC) and all other CNs (ERG-ABS);
personal pronouns PN CN[hum/anim]	Manipuri	all referential expressions (personal pronouns, PNs, and human/animate CNs) except inanimate CNs show a tripartite marking pattern;
personal pronouns PN CN[hum/anim]	Dhankute Tamang	same as Manipuri;
personal pronouns PN CN[hum/anim]	Thakali	same as Manipuri;

the AH as it is proposed in the literature. If one takes only the language-specific case marking of the different NP types in different syntactic functions as evidence, these languages have very different and specific hierarchies. In Table 8, the language-specific hierarchies are derived from the case marking patterns in these languages.

Table 8. Split marking patterns that contradict the AH

Languages	**Segments of a language-specific hierarchy**
Alyawarra	3 > 1/2 singular pronouns
Mparntwe Arrernte;	personal pronouns > 1 singular pronoun
Kalaw Lagaw Ya	**PNs / kinship** > singular pronouns
Gumbaynggir	**PNs / kinship**/ 1/2 pronouns > 3 person pronouns
Dyirbal	1/2 personal pronouns / **PNs** > 3 person pronouns

The first two languages in Table 8 (Alyawarra and Western Arrernte) show strong and idiosyncratic deviations from the person hierarchy that is part of the AH. These results strengthen the skepticism that was formulated with regard to the validity of the AH in the literature mentioned above. Other segments of the AH

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are concerned in the subsequent three languages. In Kalaw Lagaw Ya, PNs and kinship terms precede singular pronouns in that they show a consistent accusative marking, while the singular pronouns show a tripartite marking pattern. As shown in Table 2, Gumbaynggir treats PNs and certain personal pronouns alike (tripartite marking pattern), while 3rd person pronouns and common nouns consistently receive ergative marking. Dyirbal is included in Table 8, because Dixon (1994: 85 footnote 13) mentioned that PNs and some human CNs are optionally marked with the accusative when in P function, which would lead to a different hierarchy in Dyirbal (i.e., one in which the PNs and some human CNs would pattern together with the 1st and 2nd person pronouns). It has to be concluded from the facts in Table 8 that it is doubtful whether PNs are part of the AH and whether they have a middle position between personal pronouns and common nouns.

2.2 Languages with hierarchical marking systems

The defining property of languages with hierarchical marking patterns is that the cross- reference of the A and P arguments on the verbal predicate is dependent on a language specific version of the AH. The rationale for this marking pattern is roughly as follows: if the A of a transitive verb is higher on the AH than the P, we have a certain marking pattern called DIRECT; on the other hand, if the P in a transitive clause is higher on the AH than the A, we have a different marking pattern, called INVERSE. The principal direct-inverse scenarios that can be derived from the AH are given in Table 9.

Table 9. Direct-inverse scenarios in transitive clauses

Direct		**Inverse**	
A	P	A	P
1/2 →	3, PN, CN	3 →	1/2
3 →	PN, CN	PN →	3, 1/2
PN →	CN	CN →	PN, 3, 1/2

The actual coding properties of direct and inverse clauses vary significantly in languages of this type. The system can be illustrated with examples from Tlahuitoltepec Mixe (Mixe-Zoquean, Mexico). The hierarchical marking of the two arguments in a transitive clause in this language is reflected in the word order of the A and P NPs and the person marking on the verb. The following rules apply:

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a. In a transitive clause, the NP higher on the AH precedes the NP lower on the AH, no matter whether it is the A or the P argument.
b. For direct transitive clauses: if the A NP is higher on the AH than the P NP in a transitive clause, then the former is cross-referenced with a pronominal prefix on the verb; there is a special set of pronominal prefixes for these cases (3SG*t*-; 2SG*s*-; 1SG*n*-).
c. For inverse transitive clauses: if the P is higher on the AH than A, the former is cross-referenced on the verb with another set of pronominal prefixes (3SG*w*-; 2SG*m*-; 1SG*š*-).

Compare the data from Lyon (1967: 27) in (5a–e) for direct transitive clauses and (6a–e) for inverse transitive clauses that illustrate these rules. For instance, in (5a) the actor is *paat* 'Peter' a PN, and the undergoer is *həyuhk* 'animal' (an animate CN). The actor is higher on the AH and therefore indexed on the verb; in addition, the actor precedes the undergoer. Now, compare the clause in (6a). Since the undergoer 'Peter' is higher on the AH than the actor 'animal', it is indexed on the verb and occupies the first position in the constituent order. Given these coding rules that are dependent on the relative position of the NPs on the AH, one can easily reconstruct the language-specific hierarchy, which in the case of Tlahuitoltepec Mixe almost completely is identical with the general AH.

(5) Tlahuitoltepec Mixe (Lyon 1967: 27)
a. *Tə* ***paat*** *ha* ***həyuhk*** *t-wopy*.
PST Peter ART animal 3ACT-hit
'Peter hit the animal.'
b. *Tə* ***paat*** *ha* ***hɔɔʔy*** *t-wopy*.
PST Peter ART person 3ACT-hit
'Peter hit the person.'
c. *Tə mehc ha hɔɔʔy s-wopy*.
PST you ART person 2ACT-hit
'You hit the person.'
d. *Tə əhc ha hɔɔʔy n-wopy*.
PST I ART person 1ACT-hit
'I hit the person.'
e. *Tə əhc mehc n-coky*.
PST I you 1ACT-want
'I want you.'

(6) Tlahuitoltepec Mixe (Lyon 1967: 27)
a. *Tə* ***paat*** *ha* ***həyuhk*** *w-[y]opy-ə*.
PST Peter ART animal 3U-hit-INV
'The animal hit Peter. '

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b. *Tə* ***paat*** *ha* ***h***ɔɔʔ***y*** *w-[y]opy-ə.*
PST Peter ART person 3U-hit-INV
'The person hit Peter.'

c. *Tə mehc ha hɔɔʔy m-wopy.*
PST you ART person 2U-hit
'The person hit you.'

d. *Tə əhc ha hɔɔʔy š-wopy.*
PST I ART person 1U-hit
'The person hit me.'

e. *Tə əhc* mehc *š-coky.*
PST I YOU 1U-want
'You want me.'

The coding properties in Tlahuitoltepec Mixe show that PNs are higher on the AH than human and animate common nouns, but lower than personal pronouns. Unfortunately, there are no examples with kinship terms in our source and we have no examples with 3rd persons. However, this is a very clear example in favor of the AH and in favor of the hypothesis we investigate. PNs are clearly treated as a separate class of referential expressions and the coding properties show that there is a split between PNs and human/animate nouns and a split between PNs and pronouns (alas, the 3rd person is lacking!). It is also obvious that we have a split between 1st and 2nd person in Tlahuitoltepec Mixe such that the 1st person precedes the 2nd person. This is a language-specific hierarchical rule, since there is variation in the languages with this marking system. This precedence of the 1st person is frequent in hierarchical systems, but the reverse can also be found.

This language is the only confirming example we have found so far, among languages with a hierarchical system, for the hypothesis that PN are in the middle position of the AH. Other languages such as Cree, Ojibwe, and Blackfoot (all three Algonquian languages of North America) show certain peculiarities with regard to the morphosyntactic treatment of PNs, but they cannot be interpreted with regard to the AH, i.e. they are simply not conclusive with regard to our question.

3. Conclusions

The morphosyntactic coding of PN is a highly under-researched domain in descriptive linguistics as well as in linguistic typology. This study is only a first step towards a systematic typological investigation of the grammar of PN in the languages. The goal of our investigation was to find empirical evidence for or against the hypothesis that PN are a separate referential category in the AH and that PN

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occupy a middle position between pronouns and common nouns. From a semantic and pragmatic point of view, there are good reasons to assume that PN are a separate type of referential expression that shows similarities to both, personal pronouns and common nouns, but also important differences.

With regard to the semantic level, PN refer to human beings like personal pronouns. But third person pronouns deviate from this generalization to some extent, since they may refer also to non-human entities. On the pragmatic level, PN are inherently definite, i.e. the referent of a PN is part of the pragmatic knowledge of the speaker/hearer. The particularity of PN is that the reference is unique ("rigid") and does not vary within the speech act. Personal pronouns are also inherently definite, but the definiteness is based on the perceived speech act situation and varies according the speech act roles the referents take over.

There are also similarities and differences between PN and common nouns. Semantically, common nouns may refer to all kinds of entities, human, animate and inanimate, which is not the case with PN. And on the pragmatic level, they are not specified for definiteness, but receive this feature by means of determiners that are available in the specific language.

So, there are differences and similarities between all three NP types on a semantic and pragmatic level and the differences justify assuming different classes of expressions, the more so as PN are also quite different from personal pronouns and common nouns in many languages with regard to the morphology and the syntax – which could be seen as a consequence of the different semantic and pragmatic properties of PN. This is certainly the intuition behind the postulation of the AH. The results of our very limited study do not fully confirm this intuition and the predictions of the AH with regard to PN:

1. Languages with split ergative marking patterns:
   a. there are numerous coding properties in the languages of our sample that distinguish PNs from other referential expressions, mostly between personal pronouns and PNs;
   b. there are only two cases where splits between PN and CN (Yidiny and Arabana) can be found; however, accusative marking in these cases is optional. If the accusative marking of PN is present in Yidiny, they show a split PN versus common nouns. On the other hand, such a split is only present in Arabana, if human common nouns in P function do not receive accusative;
2. Languages with hierarchical marking patterns:
   a. numerous instances show that PNs receive a special morphosyntactic coding that sets them apart from other referential expressions (for the lack of space we could not demonstrate this point);

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b. however, we have only one language (Tlahuitoltepec Mixe), where there is unambiguously a hierarchy of referential expressions and we have the kind of split we need to state that PNs are between pronouns and common nouns

Given this weak amount of evidence for the hypothesis that PN are a separate class of referential expressions that occupy a middle position in the AH, we would like to express doubts that this hypothesis as it is can be maintained. We do not want to abolish the AH, but we think that it needs to be modified, if our findings can be replicated also in other grammatical domains that are conceived as controlled by the AH.[4]

One of the important observations of our study is that languages even with split marking patterns lump together different types of referential expression with regard to alignment systems. Frequently, PN pattern with common nouns, and only rarely with personal pronouns. The most frequent splits in our data are between personal pronouns and nouns (PN and common nouns). These facts are somewhat astonishing from a theoretical point of view, because the semantic and pragmatic design of PN, and personal pronouns have much more in common than PN and common nouns and therefore seems to suggest another direction. If one considers the AH as representing a scale on animacy in the literal sense (see (3) c above), one would expect that personal pronouns (except third persons) pattern rather with PN as with common nouns. The same holds for the pragmatic property. If on takes the AH as a scale of definiteness (see (3)b. above), one would expect that PN pattern with personal pronouns rather than with common nouns. This is obviously not the case. However, this question needs a more systematic typological study with a significant larger sample of languages.

Abbreviations

I, II, etc.	noun class I, noun class II, etc.	DAT	DATIVE
ABS	absolutive	DU	dual
ACC	accusative	EP	epenthetic sound
ACT	actor	ERG	ergative
ANIM	animate	EXCL	exclusive
ASP	aspect	FEM	feminine
ART	article	FREQ	frequentative
CN	common noun	HUM	human

ʔ. In addition, it is remarkable how much evidence there exists, which goes against other parts of the AH, for instance against the person hierarchy (see also Filimonova 2005; Bickel 2008; and Phillips 2013).

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INAN	inanimate	PST	past
INCL	inclusive	PL	plural
INV	inverse	PN	proper name
LOC	locative	RDP	reduplication
M	masculine	SBJ	subject
NC	noun class marker	SG	singular
NOM	nominative	U	undergoer
OBJ	direct object		

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Appendix

Language samples

There are two different samples of languages that are the data base for the investigation presented above. The first sample is a selection of language that were reported to have dominantly a split ergative case marking of the fundamental relations A, P, and S. The second sample consists of languages that are reported to have a kind of hierarchical marking system of the fundamental relations. All languages that are listed in the subsequent tables were carefully examined with regard to the questions dealt with in this chapter. For the languages that are given in italics the sources did not provide the necessary data with regard to the grammatical coding of PNs. Consequently, these languages did not play a role with respect to the results and the conclusions drawn from this investigation.

Split ergative languages

n	Languages	Geographical area	Genetic affiliation	References
1.	*Alawa*	Northern Territory, Arnhem Land, Roper river	Australian, Gunwingguan, Maran, Alawic	Sharpe (1976)
2.	Alyawarra	Northern Territory and Queensland	Australian, Pama-Nyungan, Arandic	Yallop (1977)

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Appendix (*Continued*)

n	Languages	Geographical area	Genetic affiliation	References
3.	Arabana	Southern Australia	Australian, Pama-Nyungan, Karnic, Palku	Hercus (1994)
4.	Arrernte,	Northern Territory	Australian, Pama-Nyungan, Arandic	Wilkins (1989); Strehlow (1942–1944)
5.	*Bandjalang*	New South Wales	Australian, Pama-Nyungan, Bandjalangic	
6.	Burushaski (Yasin/ Hunza)	Pakistan	isolate	Berger (1974); Tiffou/Morin (1982)
7.	*Capanawa*	Peru	Panoan, Mainline, Shipibo	
8.	Cashinawa	Peru/Brazil	Panoan, Mainline, Tri-State	Aikhenvald (2012)
9.	Dhankute Tamang (dialect of Tamang)	Nepal	Sino-Tibetan, Tibeto-Burman, Western Tibeto-Burman, Bodish, West Bodish, Gurung- Tamang, Tamang	Poudel (2006)
10.	Diyari	Southern Australia	Australian, Pama-Nyungan, Karnic, Karna	Austin (1981)
11.	*Dumi*	Nepal, India	Sino-Tibetan, Tibeto-Burman, Western Tibeto-Burman, Himalayan, Kiranti, Western	Driem (1993)
12.	Dyirbal	Northeast Queensland	Australian, Pama-Nyungan, Dyirbalic	Dixon (1972)
13.	Gumbaynggir	New South Wales	Australian, Pama-Nyungan, Gumbaynggiric	Eades (1979)
14.	Kalaw Lagaw Ya	Queensland, Western Torres Strait islands	Australian, Pama-Nyungan, Kala Lagaw Ya	Comrie (1981b)
15.	Kashibo-Kakataibo	Peru	Panoan, Mainline, Cashibo	Zariquiey (2011)
16.	Kuku-Yalanji	Queensland	Australian, Pama-Nyungan, Yalandyic	Patz (1982); Hershberger (1964)
17.	Manipuri	India, Bangladesh	Sino-Tibetan, Tibeto-Burman, Sal, Kuki-Chin-Naga, Meitei	Bhat/Ningomba (1997)
18.	Ngiyambaa	New South Wales	Australian, Pama-Nyungan, Wiradhuric	Donaldson (1980)
19.	Nhanda	Western Australia	Australian, Pama-Nyungan, South-West, Yinggarda	Blevins (2001)

(*Continued*)

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Appendix (*Continued*)

n	Languages	Geographical area	Genetic affiliation	References
20.	Pitjantjatjara	Western part of Australian Central Desert	Australian, Pama-Nyungan, South-West, Wati	Bowe (1990)
21.	Shiriana (dialect of Yanam)	Northwestern Brazil, Venezuela	Yanomaman	Aikhenvald (2012)
22.	Squamish	Southwest British Columbia, Canada	Salish, Central Salish	Kuipers (1967)
23.	Thakali (Marpha dialect)	Nepal	Sino-Tibetan, Tibeto-Burman, Western Tibeto-Burman, Bodish, West Bodish, Gurung- Tamang, Gurungic	Georg (1996)
24.	Waga-Waga	Southeast Queensland	Australian, Pama-Nyungan, Waka-Kabic, Miyan	Wurm (1976)
25.	Yidin^{y}	Queensland	Australian, Pama-Nyungan, Yidinic	Dixon (1977)
26.	*Yimas*	East Sepik Province	Ramu-Lower Sepik, Lower Sepik, Karawari	Foley (1991)
27.	*Yukulta*	Queensland	Australian, Pama-Nyungan, Tangic	McConvell (1976)

Languages with a hierarchical marking pattern

n	Languages	Geographical area	Genetic affiliation	References
1.	Backfoot	Canada, South Alberta; also USA	Algonquian	Frantz (1971; 1991)
2.	*Chepang*	Nepal	Sino-Tibetan, Tibeto-Burman, Western Tibeto-Burman, Himalayan, Central Himalayan, Chepang-Bhujel	Caughley (1982)
3.	*Chukchee*	Russia, Northeast Siberia	Chukotko-Kamchatkan, Northern, Chukot	Nedjalkov (1979)
4.	Cree, Plains	Canada, North Central Manitoba	Algonquian	Bakker (2006); Mühlbauer (2010); Wolfart (1973)
5.	Mapudungun	Chile	Mapudungu (Araucanian)	Zúñiga (2010)

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Appendix (*Continued*)

6.	Tlahuitoltepec Mixe	Mexico, Northeast Oaxaca	Mixe-Zoquean, Mixean, Oaxaca Mixean, South Highland Mixe	Lyon (1967)
7.	Nishnaabemwin (Eastern Ojibwa)	Canada, USA	Algonquian	Valentine (2001)

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CHAPTER 12

Generic person marking in Japhug and other Gyalrong languages

Guillaume Jacques

This paper discusses the history of generic person marking systems in several Gyalrong languages. While closely related, Japhug and Tshobdun differ considerably: the inverse prefix marks generic A in Japhug, while it appears in the generic P form in Tshobdun. We propose a historical scenario to explain how such radically different systems came into being, proposing in particular that one of the generic human markers was grammaticalized from a nominalizer, and show that our reconstruction can also explain the origin of the local scenario portmanteau 1→2 and 2→1 prefixes. These reconstructions allow us to establish the existence of several previously unattested grammaticalization pathways.

Keywords: Gyalrong; Japhug; Tshobdun; Situ; inverse; generic; passive; grammaticalization; hierarchical agreement; nominalization

1. Introduction

Gyalrong languages[1] have a quasi-canonical direct / inverse system (DeLancey 1981; Sun & Shi 2002; Jacques 2010; Gong 2014; Jacques & Antonov 2014). Although the inverse prefixes found in the Gyalrong languages have clear cognates in other branches of the Sino-Tibetan family (DeLancey 2010), the systems attested outside of Gyalrongic are very different and this paper will only focus on Gyalrong-internal evidence.

In Gyalrong languages (except the Khrochu and Bragdbar dialects of Situ), the inverse is obligatory in 3→SAP and prohibited in SAP→3 scenarios (cf. Table 1 in

1. Gyalrong languages are spoken in some areas of the Rngaba Tibetan autonomous district, Sichuan, China. There are at least four distinct languages: Situ, Japhug, Tshobdun and Zbu, each of which comprises many distinct dialects.

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Section 2). It is also found in 2→1 forms in all Gyalrong languages except Japhug and is optional in 3→3 forms, depending on various parameters discussed in Section 2.2.[2]

In addition, the inverse prefix is also used to mark generic person in Japhug and Tshobdun (Jacques 2012b; Sun 2014). However, these two languages differ as to which syntactic function is targeted by the inverse: in Japhug the inverse is used to mark generic A, while in Tshobdun it marks generic P.

This paper is divided in three sections. In Section 2, I present an account of the use of the inverse prefix in Japhug and describe the system of generic person marking in this language. In Section 3, I provide additional data on nominalization in Japhug, which is necessary to introduce the historical discussion later in the paper. In Section 4, I discuss data from other Gyalrong languages, especially Situ and Tshobdun. Finally, in Section 5, I compare the available data on Gyalrong languages and propose historical scenarios explaining the use of the inverse as a generic human marker in Japhug and Tshobdun, the origin of the portmanteau 2→1 and 1→2 prefixes and the homophony between one of the generic human prefixes and the S/A participle prefix.

2. Inverse and generic marking in Japhug

2.1 The verbal paradigms

Table 1 (from Jacques 2010) presents the Japhug non-past transitive and intransitive paradigms. The symbol Σ represents the verb stem. In Japhug, intransitive verbs do not have stem alternations in the non-past, while some transitive verbs have two stems (called here stem I and stem III following Sun 2000's terminology; stem II is the perfective stem and will not be discussed here, as it is irrelevant to the question of person marking). Stem III is restricted to finite SG→3 forms (excluding the inverse 3′→3 form); all other direct forms are identical to the corresponding forms of the intransitive paradigm.

As shown by Example (1), in 3′→3 forms, it is always the number of the P that is indexed on the verb, never that of the A; in 3→3′ forms, the number of the A is indexed.

2. Closely related languages such as Khroskyabs have a prefix cognate to the Gyalrong inverse, but it has been generalized in all transitive non-local 3→3 forms (Lai 2015). This is also the case in some varieties of Situ (Sun 2015; Zhang to appear).

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Table 1. Japhug transitive and intransitive paradigms

	1SG	1DU	1PL	2SG	2DU	2PL	3SG	3DU	3PL	3′
1SG				*ta-*Σ_1	*ta-*Σ_1*-ndzi*	*ta-*Σ_1*-nɯ*	Σ_3*-a*	Σ_3*-a-ndzi*	Σ_3*-a-nɯ*	
1DU							Σ_1*-tɕi*			
1PL							Σ_1*-ji*			
2SG	*kɯ-*Σ_1*-a*	*kɯ-*Σ_1*-tɕi*	*kɯ-*Σ_1*-ji*				*tɯ-*Σ_3			
2DU	*kɯ-*Σ_1*-a-ndzi*						*tɯ-*Σ_1*-ndzi*			
2PL	*kɯ-*Σ_1*-a-nɯ*						*tɯ-*Σ_1*-nɯ*			
3SG	*wɣú-*Σ_1*-a*	*wɣú-*Σ_1*-tɕi*	*wɣú-*Σ_1*-ji*	*tú-wɣ-*Σ_1	*tú-wɣ-*Σ_1*-ndzi*	*tú-wɣ-*Σ_1*-nɯ*				Σ_3
3DU	*wɣú-*Σ_1*-a-ndzi*									Σ_1*-ndzi*
3PL	*wɣú-*Σ_1*-a-nɯ*									Σ_1*-nɯ*
3′							*wɣú-*Σ_1	*wɣú-*Σ_1*-ndzi*	*wɣú-*Σ_1*-nɯ*	
INTR	Σ_1*-a*	Σ_1*-tɕi*	Σ_1*-ji*	*tɯ-*Σ_1	*tɯ-*Σ_1*-ndzi*	*tɯ-*Σ_1*-nɯ*	Σ_1	Σ_1*-ndzi*	Σ_1*-nɯ*	

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(1) *ɣzɯ ra kɯ li ʑɣni tú-wɣ-nɯɕpɯz-ndʑi*
monkey PL ERG again 3DU IPFV-INV-imitate-DU
… *pjɤ-ŋu* (hist140511 xinbada, 262)
… IFR.IPFV-be
'The monkeys were imitating them.'

The distribution of the inverse prefix in local and mixed scenarios has been discussed in previous publications (Jacques 2010 and Jacques & Antonov 2014) and is not treated in the present paper. In the following sections, I focus exclusively on the use of the inverse in non-local scenarios, including its function as generic person marker for the A.

2.2 Inverse in non-local scenarios

In Japhug, the presence of the inverse marking in 3→3 scenarios is determined by semantic and pragmatic factors.

The only case where the inverse is required in non-local scenarios is in sentences with an inanimate A acting upon an animate P, be it an animal (as in 2) or a human (as in 3). In both examples suppressing the inverse would result in a non-grammatical sentence.

(2) *<yancong> ɯ-ŋgɯ ɲɯ-ɲaʁ rcanɯ, tɕe kumpɣɤtɕɯ ra*
chimney 3SG-inside IPFV-be.black TOP LNK sparrow PL
ɲɤ-wɣ-suɣ-ɲaʁ-nɯ ʑo,
IFR-INV-CAUS-be.black-PL EMPH
nɯ-kɯ-ɤkhra ra mɯ-ɲɤ-χsɤl ʑo tɕendɤre
3PL.POSS-NMLZ:S-be.colourful PL NEG-IFR-be.clear EMPH LNK
ʑurɯʑɤri qale tu-βze, tɯmɯ kɯ pjú-wɣ-χtɕi-nɯ tɕe
progressively wind IPFV-make[III] rain ERG IPFV-INV-wash-PL LNK
ɲɯ-me ɲɯ-ŋu
IPFV-not.exist TESTIM-be
'As it is black inside the chimney, the sparrows were completely blackened by it, the patterns and colours (on their feathers) were not visible any more, but progressively, the wind and the rain washes them and (the soot on their feathers) disappears.' (22 kumpGatCW, 74–76)

(3) *taʁ nɤ taʁ, taʁ nɤ taʁ tó-wɣ-tsum* (The flood3, 21)
up LNK up up LNK up IFR:UP-INV-take.away
'He was (progressively) carried up (by the water).'

Conversely, the inverse cannot be used in a sentence where a non-generic animate A acts upon an inanimate.

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When both A and P are animate, both inverse or direct forms can be used. Even in the case of a non-human A acting upon a human P, the inverse is not required, as is shown by Example (4).

(4) *ndʑi-sɤtɕha nɯnɯ ɣɯ jil nɯnɯ rcanɯ khu kɯ*
3DU.POSS-place TOP GEN villager TOP TOP:UNEXP tiger ERG
lonba ʑo tha-ɕkɯt ɲɯ-ŋu (the tiger, 5)
all EMPH PFV:DIR:3→3-eat TESTIM-be
'All the villagers in their land had been eaten by a tiger.'

When both arguments are inanimates, the direct form is generally used, but I found one exceptional example with the inverse in the Japhug corpus (5, describing the effect of big trees on smaller trees).

(5) *ɯ-rkɯ nɯ tɕu, si kɯ-wxti a-pɯ-tu tɕe*
3DU.POSS-side TOP LOC tree NMLZ:S-be.big IRR-IPFV-exist LNK
ɲú-wɣ-z-maqhu qhe ɯʑo
IPFV-INV-CAUS-be.after LNK 3SG
tu-mbro muj-cha. (14: sWNgWJu, 242)
IPFV-be.big NEG:TESTIM-can
'If there is a big tree$_j$ next to it$_i$, it$_j$ delays its$_i$ growth and it$_i$ cannot grow very big.'

Algonquian languages (as well as Mayan, see Aissen 1997) are known to have a constraint whereby the inverse configuration is required when the possessee acts upon the possessor. No such phenomenon is found in Japhug, as shown by Example (6).

(6) *ji-βdaʁmu kɯki, ɯ-pi kɯ*
1PL.POSS-lady DEM:PROX 3SG.POSS-elder.sibling ERG
ɣɯ-ja-suɣe tɕe, ɲɤ-znɯqatɯkɯr ma (The frog, 147)
CISLOC-PFV:DIR:3→3-invite LNK IFR-give.bad.advice because
'Our lady, when her elder sister invited her she gave her bad advice.'

When both arguments are non-generic animate, the use of the inverse is determined by the relative discourse topicality of the A and the P in the narrative in question. For instance, in (7), two referents are found: the main character (a boy, the last survivor of the flood) and a secondary character (a girl coming from heaven). When the boy is A and the girl P, we find the direct form (*ko-rqoʁ* 'he hug her' without inverse), but in the reversed situation the inverse is required (*tó-wɣ-tsum* 'she took him away').[3]

3. The absence of inverse in the other verbs in the example is straightforward: the first verb *to-nɯ-ŋga* 'she wore it' has an inanimate P and the last one *to-nɯqambɯmbjom* 'she flew up' is intransitive.

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(7) *tɕendɣre qro nɯnɯ ɯ-ŋga nɯ to-nɯ-ŋga*
LNK pigeon DEM 3SG.POSS-clothes TOP IFR-AUTO-wear
qʰe, tɕe nɯ ɯ-mke ko-rqoʁ qhe, tɕendɤre
LNK LNK DEM 3SG.POSS-neck IFR-hug LNK LNK
tó-wɣ-tsɯm to-nɯqambɯmbjom qhe
IFR-INV-take.away IFR:up-fly LNK
'She wore the pigeon skin, he hugged her, and she took him and flew away (with him).' (Flood, 2012.2, 69–70)

The inverse prefix *-wɣ-* is not a switch reference marker: it is common to find several verbs in a row with inverse marking sharing the same A and P (if it were switch reference, only the first should be specially marked).

In comparison with Algonquian and Kutenai (Dryer 1994), the inverse is relatively rare in Japhug narratives (see the text counts in Jacques 2010).

In addition to these uses, the inverse also appears to express generic human A, as in Example (8). Such examples differ from previous uses of the inverse in two ways: first, it can be used when the P is inanimate and the A human, and second, no cases of number indexation (of the P) have been found in such examples (though it is too early to claim that this is an absolute grammatical rule).

(8) *ɣɟɯ nɯ kɯngɯ-rtsɤɣ mbro ri, kɤ-sɤtʂu*
tower DEM nine-stairs be.high:FACT LNK INF-illuminate
khɯ tɕe tɤtʂu tú-wɣ-zwɤr
be.possible:FACT LNK lamp IPFV-INV-light.up
tɕe sɤmto. (hist140522 GJW, 35)
LNK be.visible:FACT
'Even if the watchtower is nine stairs high, it can be illuminated with a lamp, that is, when people light up a lamp, it is visible (inside).'

Such forms are discussed in more detail below, but some additional information on generic person marking in Japhug is necessary first.

2.3 Generic marking

In Japhug, non-overt arguments are generally interpreted as definite. In order to express indefinite referents, five strategies are available.

First, arguments can be demoted by means of voice derivations (passive, anticausative, antipassive and incorporation, see Jacques 2012c; 2014b). Second, a few dozens of transitive verbs feature agent-preserving lability, and the semantic patient is interpreted as indefinite whenever verbs in this class are conjugated intransitively (Jacques 2012b). Third, indefinite pronouns such as *tʰɯci* 'something' can be used to indicate indefinite referents. Fourth, human indefinite referents can be marked

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by plural suffixes on the verb (see Section 2.4). Fifth, specific generic markers *kɯ-* and *wɣ-* express generic human arguments, and are the focus of the present section.

In regular verbs, the generic marker *kɯ-* is used to designate generic human S or P, as shown by Examples (9) and (10) respectively. Verb forms marked with the prefix *kɯ-* are finite: unlike nominalized verb forms, they are compatible with all TAM categories. Yet, transitive verb forms with the prefix *kɯ-* cannot bear any person or number marker referring to the A, which is always third person and definite. Only one verbal argument can be marked as generic: a transitive verb cannot have both the A or the P marked as generic.

(9) *tɕe* [*tɯ-sum* *pɯ-a<nɯ>ri*] *nɤ* *ju-kɯ-ɕe*,
LNK INDEF.POSS-mind PFV-<AUTO>go[II] LNK IPFV-GENR:S/P-go
[*mɯ-pɯ-a<nɯ>ri*] *nɤ* *ju-kɯ-ɕe* *pɯ-ra* (14: tApitaRi, 212)
NEG-PFV-<AUTO>go[II] LNK IPFV-GENR:S/P-go PST.IPFV-have.to
'Whether one liked it or not, one had to go.'

(10) *tɕe* *ʁja* *nɯnɯ* *tɯ-qʰoχpa* *a-mɤ-tʰɯ-ɕe*
LNK rust TOP GENR.POSS-inner.organ IRR-NEG-PFV:downstream-go
ra *ma* *tu-kɯ-ɕɯ-ngo* *ɲɯ-ɕti* (30: Com, 86)
have.to:FACT LNK IPFV-GENR:S/P-CAUS-be.sick TESTIM-be:ASSERT
'Rust should not go into one's organs, otherwise it would cause one to get sick.'

The generic marker *kɯ-* is used with all intransitive verbs, whether dynamic or stative, including the copulas, as in Example (11).

(11) *tɕeri* *tɤ-pɤtso* *pɯ-kɯ-ŋu* *tɕe*, *nɯ* *kɤ-ndza* *wuma*
but INDEF.POSS-child PST.IPFV-GENR:S/P-be LNK DEM INF-eat really
ʑo *pɯ-kɯ-rga*. (12: ndZiNgri, 135)
EMPH PST.IPFV-GENR:S/P-like
'When (we) were children, (we) liked it a lot.'

In sentences with verbs in the generic form, the generic human referent is either non-overt or expressed by a generic noun such as *tɯrme* 'people, man'. Examples (12) and (13) respectively illustrate this noun used to refer to P and A generic human respectively; in the second case, it compulsorily receives ergative flagging *kɯ* like any noun phrase (see also 27 below)

(12) *tɕe* *li* *nɯ* *tɯrme* *kunɤ*
LNK again DEM people also
ku-kɯ-nɯʃse *ɲɯ-ŋu*, (19: GzW2, 17)
IPFV-GENR:S/P-recognize TESTIM-be
'(The monkey) recognizes people.'

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(13) *tɯrme kɯ tú-wɣ-ndza mɤ-sna.* (11: paRzwamWntoR, 39)
people ERG IPFV-INV-eat NEG-FACT:be.good
'It is not edible.'

Two transitive verbs have irregular generic forms. First, the verb *ti* 'say' has generic A form *kɯ-ti* instead of expected **ɣɯ-ti*. Second, the verb *suz* 'know' has a negative generic A *mɤ-xsi* 'one does not know' with a reduced allomorph *x-* of the *kɯ-* prefix (on this type of phonological reduction see Jacques 2014b).

Generic arguments are not only indexed by verbal morphology; there is also a generic pronoun *tɯʑo* 'one' and a generic possessor prefix *tɯ-*. Within a single sentence, there is obligatory coreference between the verb argument marked as generic and the generic referent marked by the generic pronoun of possessive prefixes.

(14) *nɯ tɯʑo kɯ tɯ-χti ɲú-wɣ-nɯ-ɕar*
DEM GENR ERG GENR:POSS-spouse IPFV-INV-AUTO-search
kɯ-maʁ kɯ, tɯ-phama ra kɯ
INF:STAT-not.be ERG GENR:POSS-parent PL ERG
tɯ-χti ɲɯ-ɕar-nɯ (14: tApi taRi, 210)
GENR:POSS-spouse IPFV-search-PL
'One would not search for one's spouse, one's parents would search for one's spouse.'

(15) *tɯʑo-sti a-mɤ-nɯ-kɯ-ɤtɯɣ ɲɯ-ra*
GENR-alone IRR-NEG-AUTO-GENR:S/P-meet TESTIM-have.to
ma ɲɯ-sɤɣ-mu. (21: pri, 98)
because TESTIM-DEEXP-be.afraid
'One should not meet (a bear) alone, it is frightening.'

Non-possessed nouns can receive the prefix *tɯ-* when they have a generic human possessor, as in Example (16). As shown by Example (20), it can in some cases be used to refer to humans together with domestic animals.

(16) *tɕe aʁɤndɯndɤt ʑo ku-zo qhe ɯ-qe ku-lɤt*
LNK everywhere EMPH IPFV-land LNK 3SG.POSS-feces IPFV-throw
qʰe wuma ʑo tɯ-kʰa cho tɯ-laχtɕʰa
LNK really EMPH INDEF.POSS-house COMIT INDEF.POSS-thing
ra sɯ-nqʰi. (25 akWzgumba, 59)
PL FACT:CAUS-be.dirty
'(Flies) land everywhere, shit on it and make one's houses and things dirty.'

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(17) *nɯ ku-fse tɕe tɯʑo tɯ-rɟit kunɣ ʑa*
DEM NMLZ:S-be.like LNK INDEF INDEF.POSS-child also early
mɤ-sci tu-ti-nɯ (27 qartshaz, 111)
NEG-FACT:be.born IPFV-say-PL
'People say that in this way, one's child will be born late.'

Possessed nouns differ from non-possessed nouns in that they obligatorily take either a indefinite (*tɯ-* or *tɤ-*) or a definite possessive prefix (*a-* 'my', *nɤ-* 'your' etc; see Jacques 2014b). In Japhug, there is only one series of definite possessive prefixes; the distribution of the two indefinite possessive prefixes *tɯ-* and *tɤ-* is lexically determined (for instance, *-jaʁ* 'hand' has the indefinite form *tɯ-jaʁ* 'a hand' while *-tɕɯ* 'son' has the form *tɤ-tɕɯ* 'a boy'). Some possessed nouns only allow definite possessive prefixes.

While the indefinite possessive *tɯ-* and the generic possessive *tɯ-* are phonetically identical and functionally very close, they are nevertheless distinct. The contrast between the two is only visible in the case of possessed nouns with an indefinite possessive form in *tɤ-*, as both forms are possible, compare for instance *a-rpɯ* 'my uncle (mother's brother)', *tɤ-rpɯ* 'an uncle' with *tɯ-rpɯ* 'one's uncle'. In sentence (18), the verb has a generic form (the irregular generic A form of *ti* 'say' with the prefix *kɯ-* instead of expected *wɣ-*), and the A of the verb 'say' is coreferent with the possessor of the noun *-rpɯ* 'uncle', hence the generic possessor *tɯ-* prefix.

(18) *tɯ-rpɯ ɯ-rɟit ɯ-ɕki tɕe tɕe ʻa-rpɯ*
GENR.POSS-uncle 3SG.POSS-offspring 3SG-DAT LNK LNK 1SG.POSS-uncle
a-ɬaʁ' tu-kɯ-ti ŋu. (hist140425 kWmdza, 69)
1SG.POSS-aunt IPFV-GENR-say be:FACT
'One has to say 'my maternal uncle, my maternal aunt' to one's maternal uncle's sons and daughters.'

Example (19), although it also refers to a generic state of affairs (it explains the Omaha-type skewing of the Japhug kinship system), has both verbs in non-generic forms, and here we find the indefinite possessor *tɤ-*rather than the generic *tɯ-* possessive prefix. In this sentence, it is possible to replace the indefinite generic *tɤ-* by the definite possessive prefix *a-* 'my'.

(19) *nɤʑo tɤ-rpɯ ɯ-rɟit a-pɯ-tɯ-ŋu,*
2SG INDEF.POSS-uncle 3SG.POSS-offspring IRR-PST.IPFV-2-be
tɕe tɕe aʑo kɯ ʻa-rpɯ'
LNK LNK 1SG ERG 1SG.POSS-uncle

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tu-ti-a *ku-ra.* (hist140425 kWmdza, 114)
IPFV-say-1SG NMLZ:S-have.to
'If you are the maternal uncle's son, (and I am the nephew,) I have to say 'my uncle' (to you).'

Examples (20) and (21) illustrate the same contrast with the possessed noun *-se* 'blood'.[4]

(20) *tɯrme me, ʃsapaʁ me, tɯ-se nɯ*
people whether.or animal whether.or GENR.POSS-blood TOP
ku-ts^{h}i nɤ ku-ts^{h}i (25 xCelwi, 40)
IPFV-drink LNK IPFV-drink
'Whether people or (domestic) animals, (the tick) drinks one's blood.'

(21) *tɤ-se ɣɤʐu kɯ?* (19: GzW, 76)
INDEF.POSS-blood exist:SENS INTERROGATIVE
'Is there blood?'

The generic possessive prefix can also be used with oblique case markers, which are etymologically semantically bleached possessed nouns, as in Example (22).

(22) *tɯ-ɕki wuma ʐo ʐɣɤ-su-ɤrmbat tɕe núndʐa*
GENR-DAT really EMPH FACT:REFL-CAUS-be.near LNK for.this.reason
khe tu-ti-nɯ ɲɯ-ŋu. (23: scuz, 60)
be.stupid:FACT IPFV-say-PL TESTIM-be
'It comes close to oneself, and for this reason people say that it is stupid.'

Nouns such as *tɯrme* 'people' are sometimes used as an alternative to the generic pronoun *tɯʐo* and can be equated with the referent marked with generic morphology on the verb or on possessive prefixes in the sentence. For instance, in (23), *tɯrme* 'people' is the A marked with the ergative, while the verb has inverse (generic A) marking.

(23) *tɯrme kɯ tú-wɣ-ndza mɤ-sna.* (11: paRzwamWntoR, 39)
people ERG IPFV-INV-eat NEG-FACT:be.good
'It is not edible (It is not good for people to eat).'

Yet, there is a slight difference of usage between *tɯrme* and *tɯʐo* in sentences with a generic argument. Both can be followed by a noun or a case marker taking the generic possessive prefix, as in (24) and (25).

4. This example also illustrates that the generic person marking is not restricted to humans, but can be used to refer to humans and domestic animals together.

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(24) *tɯrme tɯ-fsu ɕaŋtaʁ tu-mbro mɤ-cʰa.* (11: qarGW, 24)
people GENR-equal.to until IPFV-be.big NEG-FACT:can
'It cannot grow as big as a person (as oneself).'

(25) *ɯ-tɯ-mbro nɯnɯ tɯʑo tɯ-fsu jamar*
3SG-NMLZ:DEGREE-be.high TOP GENR GENR-equal.to about
tu-zɣɯt cha. (16: CWrNgo, 18)
IPFV:up-reach can:FACT
'As for its size, it can reach one's (a person's) size.'

However, *tɯrme* as a generic noun can alternatively be used with a possessee or a case marker with the third person singular *ɯ-* prefix, as in (26), while this option does not exist for *tɯʑo*.

(26) *tɯrme ɯ-fsu jamar tu-βze cha.* (12: ndZiNgri, 4)
people 3SG-equal.to about IPFV-do[III] can:FACT
'It can grow about as big as a person.'

2.4 Inclusive vs exclusive generic marking

Using the generic human prefixes *-kɯ-* / *-wɣ-* described in the previous section imply that the speaker includes himself/herself among the potential referents – they are *inclusive* generic markers. The impossibility for transitive verbs to have more than one generic argument mentioned above is a consequence of this constraint. Plural marking, instead of inverse or *kɯ-* prefixation, appears instead when the speaker excludes himself from the generic referents.

Example (27) illustrates the contrast between inclusive (the inverse prefix *-wɣ-*) and exclusive generic marking (the plural *-nɯ*). The consultant who uttered this sentence, a woman, includes herself among the potential Jews' harp player and thus uses inverse (generic A) marking on the first verb,[5] and conversely excludes herself from potential flute players and thus employs plural marking on the second verb.

(27) *kɯɕɯŋgɯ tɕe, iʑora tɕʰeme kɯ ʐngro ɲú-wɣ-lɤt,*
long.ago LNK 1PL girl ERG Jews'.harp IPFV-INV-throw
tɤ-tɕɯ ra kɯ ɲuli cʰu-lɤt-nɯ. (hist150907 ZNGro, 10)
INDEF.POSS-boy PL ERG flute IPFV-throw-PL
'Long ago, among us women used to play the Jews' harp, while men used to play the flute.'

5. The transitive verb *lɤt*, whose basic meaning is 'throw' or 'release', is one of the most common light verb used in noun-verb collocations.

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The opposition between inclusive and exclusive generic marking in Japhug is verified throughout the Japhug corpus, and especially clear when procedural texts collected from men and women are compared: men (respectively women) use *-kɯ-* / *-wɣ-* to refer to activities typically performed by men (resp. women), and plural for women's (resp. men's) duties.

3. Nominalization in Japhug

3.1 Overview of participle prefixes in Japhug

Japhug has an S/A participle *kɯ-* prefix formally identical to the generic S/P *kɯ-*, which is obviously relevant to any discussion concerning the origin of the generic construction in Japhug. In this section, we present general information about nominalization in Japhug, before discussing other Gyalrong languages and proposing a grammaticalization pathway linking generic and nominalization.

Japhug has four productive[6] nominalization prefixes: S/A participle *kɯ-*, P participle *kɤ-*, oblique participle *sɤ-* and action nominalization *tɯ-*.[7] All of these prefixes appear to present potential cognates elsewhere in the Sino-Tibetan family; in particular, nominalizing velar prefixes (for core argument nominalization) are particularly widespread (see Konnerth 2016).

The nominalized forms derived with the three first prefixes *kɯ-*, *kɤ-* and *sɤ-* are fully productive and can be combined with TAM and negation prefixes; they are commonly used in particular to build relative clauses (Jacques 2016). The *kɯ-* S/A participle prefix appears with both intransitive and transitive verbs, but in the latter case a possessive prefix coreferent with the P is added (see (29)). This nominalized form can be used as one of the tests to determine whether a particular verb is transitive or intransitive. Like Tshobdun (Sun 2003), Japhug exhibits accusative alignment $S = A \neq P$ in its nominalization pattern, unlike the ergative alignment found in generic forms.

(28) *kɯ-si*
NMLZ:S/A-die
'The dead one.'

(29) *ɯ-kɯ-sat*
3SG-NMLZ:S/A-kill
'The one who kills him.'

6. See Jacques (2014b, 4–6) concerning non-productive nominalization prefixes.

7. The latter will not be discussed here, as it is not relevant to the discussion; see Jacques (2014b, 6–9) for more information.

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(30) *kɣ-sat*
NMLZ:P-kill
'The one that is killed.'

The P participle *kɤ-* can appear with an optional possessive prefix coreferent to the A as in (31).

(31) *a-kɤ-sat*
1SG- NMLZ:P-kill
'The one that I kill.'

The infinitive prefixes *kɤ-* (for dynamic verbs) and *kuu-* (for stative verbs or intransitive verbs that cannot take an animate argument) are also historically related to the nominalization prefixes, though slightly distinct, since for instance dynamic intransitive verbs build a P participle but can have a *kɤ-*infinitive. Infinitives are used as citation forms (though not the preferred choice for all speakers), complementation and also as converbs (Jacques 2014a).

The *sɤ-*prefix (and its allomorphs *sɤz-* and *z-*) is used to relativize adjuncts (in particular recipients of indirective verbs, instruments, place and time). It receives a possessive prefix which can be coreferent with S, A or P.

(32) *uu-sɤ-ɣi*
3SG-NMLZ:S-come
'The place/moment where/when it comes.'

Nominalized forms (including infinitives) cannot receive finite person marking (person is only marked by possessive prefixes), inverse *wɣ-*, direct *a-*, irrealis *a-* or evidential directional prefixes and the non-past verb stem (Stem III).

3.2 Nominalization and generic

The generic S/P *kuu-* prefix and the S/A nominalization *kuu-* prefix are homophonous, occur in the same slot of the verbal template, and are very probably historically related (a hypothesis explored in Section 5.1). Nevertheless, they are nevertheless completely distinct synchronically.

Generic forms, although they cannot bear person markers other than the generic person *kuu-* or the inverse *wɣ-*, are fully finite and there is no restriction on the TAM morphology. In particular, unlike nominalized forms, generic verb forms are commonly used in the irrealis (see for instance Example 14), whereas the irrealis (as well as the progressive, the evidential, the conative) is incompatible with nominalized forms.

Unlike nominalized forms, verbs with generic *kuu-* or inverse *wɣ-* cannot take possessive prefixes, and cannot be used in the same way in relativization and

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complementation.[8] Moreover, while the two sensory existential copulas *ɣɔʑu* 'exist' and *maŋe* 'not exist' are defective and lack nominalized forms, they do have generic person forms, where the marker *kɯ-* appears as an infix: *ɣɔ <kɔ>ʑu* and *ma<ka>ŋe*.[9]

4. Tshobdun and Situ

This section provides complementary data on generic person marking in nominalization in Tshobdun and Situ in comparative perspective.

4.1 Generic person marking and nominalization in Tshobdun

The system of generic person marking in Tshobdun is complementely different from the Japhug one, although all prefixes involved have direct Japhug cognates.

Sun (2014) describes a generic person marking system involving four prefixes *kə-*, *kʋ-*, *sʋ-* and *o-*, respectively related to Japhug generic *kɯ-*, P participle and infinitive *kɤ-*, oblique participle *sɤ-* and inverse *wɣ-*.

In Tshobdun, *kə-* and *kʋ-* are used to indicate generic S or A. The contrast between *kə-* and *kʋ-*, without equivalent in Japhug, is between *non-volitional* and *volitional* human S/A, as illustrated by the Example (33) taken from Sun (2014, 238).

(33) *koʔ twaʔ kə-lden ʋnə-kʋ́-tʰi = nəʔ*
this liquor NMLZ-be.much IRR-GENR:VOL-drink = SUBORDINATOR
ʃla kʋ-ldeʔ ʃteʔ
immediately GENR:N.VOL-be.drunk be:EMPH
'If one drinks too much of this liquor, one quickly gets drunk.'

The prefix *sʋ-*, on the other hand, marks generic human person on copulas. In Japhug, copulas do not have distinct generic marking and the S/P generic person prefix *kɯ-* is used, as with all intransitive verbs.

To mark generic human P in Tshobdun, the prefix *ko-* (*kə-o-*) resulting from the fusion of the generic prefix *kə-* and the inverse prefix *o-* is used, as illustrated by (34) (Sun 2014, 240).

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8. The use of finite vs nominalized verb forms in relativization and complementation, however, cannot be discussed in detail within the scope of the present paper.

9. Note that the second person prefix *tɯ-* displays the same behaviour with sensory copulas; the second person forms of these verbs is *ɣɤ<tɤ>ʑu* and *ma<ta>ŋe*.

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(34) *tújmoɣ* *o-təɣʔ* *kə-toʔ*
mushroom 3SG:POSS-poison NMLZ:SUBJECT-exist
te-kʋ-ndze = nəʔ *ko-sənngiʔ* *múkəts^{h}ʋt*
PFV-GENR-eat = SUBORDINATOR GENR:INV-cause.to.be.ill not.only
ʋnʋ-t^{h}u = nəʔ *ko-ntʃ^{h}e* *tʃ^{h}ozʔ*
IRR-be.serious = SUBORDINATOR GENR:INV-kill be.the.rule
'If one eats poisonous mushrooms, one is made ill or is even killed if it is serious.'

4.2 Generic person marking and nominalisation in Situ

Situ has a nominalization prefix *kə-* which is an obvious cognate of the nominalization prefixes *ku-* in Japhug and *kə-* in Tshobdun. Yet, Situ differs from the other languages in its generic person marking system and in its nominalization patterns. Three major differences are observed.

First, there is no generic person marker *kə-* homophonous with the nominalization prefix in Situ. On the basis of data from Wei (2001, 47–9); Sun (2014, 243–4) identifies a generic person *ŋa-* prefix which can coalesce as *ka-*with the nominalizer *kə-*, as in Example (35), but *kə-* by itself does not mark generic person.

(35) *nə-ŋá-ʃi-s = ti* *lʋmɒ̄-kə*
PFV-GENR-die-PST = SUBORDINATOR lama-ERG
rgəwɒ̂ *ka-sə-pɑ̄* *rɑ̄*
sutra NMLZ:GENR-CAUS-do be.necessary
'When one dies, it is necessary to send for lamas to chant sutras.'

Second, unlike in Japhug and Tshobdun, nominalized forms in *kə-* are compatible with person affixes in particular conditions (see Sun & Lin 2007, 11–12), as in (36), where the verb 'come' bears the dual suffix *-ntʃ*. It is impossible to nominalize a verb in this way in the other Gyalrong languages.

(36) *tərmî* *to-kə́-pə-ntʃ = tə* *tʂaʃī* *nʋrə*
person PFV-NMLZ-come:PST-DU = DET Trashi and
łamō *na-ŋôs-ntʃ*
Lhamo PST.IPFV-be:PST-DU
'The people who came were Trashi and Lhamo.'

Third, Situ has a *kə-* prefix homophonous to the nominalizer *kə-* which is used, according to Lín 1993, 218 and Lin (2009, 163), to mark the plural (and dual) of intransitive verbs. Although native speakers do indeed translate intransitive verbs prefixed in *kə-* as plural, this analysis raises the question of the functional difference between the plural *kə-* prefix and the dual *-ntʃ* and plural *-ɲ* suffixes,

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which are also used on intransitive verbs. Jacques (2012a, 101–102) proposes that the former is used for non-topical (obviative) referrents, though only an extensive corpus study can solve this issue – elicitation is useless for this purpose.

5. Historical perspectives

5.1 From nominalization to generic marking

As shown in Table 2, although Japhug and Tshobdun are closely related languages and although the prefixes used in generic human marking forms are cognate, the structures of their systems are radically different. While Japhug presents clear ergative alignment in its generic marking pattern, with the inverse used to mark the generic A, Tshobdun exhibits accusative alignment as in nominalized forms.

The irregular generic forms *mɤ-xsi* 'one does not know' and *kɯ-ti* 'one says' in Japhug, however, show that the system observed in Japhug is innovative. Their existence implies that the prefix *kɯ-* could, at a former stage, be used to mark generic A, as in Tshobdun. The use of inverse *wɣ-* for generic A in Japhug is therefore innovative; although a change from inverse to generic A is not apparently attested in any other language, it is semantically straightforward: generic A is necessarily non-topical, and marking non-topicality is one of the functions of the inverse in non-local forms.

Table 2. Comparison of the generic person marking systems in Japhug, Tshobdun and Situ

Proto-Gyalrong	Japhug	Tshobdun	Situ
**kə-*	*kɯ-* NMLZ.S/A	*kə-* NMLZ.S/A	*kə-* NMLZ
	*kɯ-*GENR.S/P	*kə/kʊ-* GENR (generic S/A)	*ka-* NMLZ:GENR
			kə- 3′.N.SG.INTR
**wə-*	*wɣɯ-* INV	*o-* INV	*wə-* INV
	wɣɯ- GENR.A	*k-o-* GENR-INV (generic P)	
**sʊ-*	*sɤ-* NMLZ:OBLIQUE	*sʊ-* NMLZ:OBLIQUE	*sʊ-* NMLZ:OBLIQUE
		sʊ- GENR.S (copula)	

Therefore, in the common ancestor of Japhug and Tshobdun, the prefix **kə-* (ancestral to Japhug *kɯ* and Tshobdun *kə-*) was used to mark generic person regardless of its syntactic role.

The presence of inverse *o-* in Tshobdun in combination with *kə-* with generic P does not contradict the hypothesis that generic person *kə-* originates from a nominalized form: although we know that in Japhug and Tshobdun nominalized

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forms are incompatible with finite person markers (including the inverse), we have seen that no such constraint exists in Situ. It is thus straightforward to imagine how the richer nominalization morphology found in Situ could have become simplified in the other languages. Moreover, there are other fossilized traces of the nominalizing **kə-* prefix in combination with finite person markers in Japhug, such as the evidential circumfix *k-…-ci* that appears in combination with the progressive *asɯ-* prefix or with verb whose stem begins in *a-* (including those with the passive *a-* or the reciprocal *a- / amɯ-*), as in (37).

(37) *rŋgɯ nɯ to-kɯ-ɤmɯ-rpu-ndʑi-ci* (Smanmi 2011, 87)
boulder DEM IFR-EVD-RECIP-bump.into-DU-EVD
'The two boulders knocked together.'

The inverse *o-* in Tshobdun can be explained by the fact that in sentences with generic human P, the A is necessarily non-human, and can be inanimate. We have seen in Section 2.2 that in cases where the A is inanimate and the P animate in Japhug (and other Gyalrong languages), inverse marking is obligatory.

If we reconstruct for the ancestor of Japhug and Tshobdun a stage where verbs nominalized in **kə-* in third person singular forms could be used to indicate generic person, there were two generic forms: direct (marked with zero) and inverse (with the **wə-* prefix ancestral to Japhug *wɣɯ-* and Tshobdun *o-*), the second one obligatorily occurring with inanimates acting upon the generic human person. This form was completely lost in Japhug and generalized in Tshobdun to all generic P verbs.

The generic human person morpheme *ŋa-* found in Situ should be reconstructed to proto-Gyalrong, since as argued by Sun (2014, 244), it is indirectly reflected in Tshobdun with the generic human morpheme *kʋ-* ← **kə-ŋa-*. Its historical relationship with the agentless passive prefix attested in Japhug (*a-* ←**ŋa*) and Tshobdun (*a-* ← **ŋa* in both languages, see Jacques 2012b) is unclear. As shown by Haspelmath (1990, 49–50), passive morphology can originate from generic person markers ('generalized subject' in his terminology), while the opposite pathway appears to be unattested. On the other hand, the presence of a cognate passive prefix *ʁa-* in the neighbouring Khroskyabs language (Lai 2013, 152–154) militates against a recent grammaticalization from the generic person. Due to the lack of data on the use of *ŋa-* in Situ, it is necessary at this stage to postpone discussion of this issue until additional data become available.

The grammaticalization of the generic person marking system from the nominalizer **kə-* could be one of the many common morphological innovations between Tshobdun and Japhug (and probably Zbu, though the data is not yet available) not shared by Situ, and suggest that a Northern Gyalrong clade comprising Tshobdun, Japhug and Zbu should be established within the Gyalrong group. However, although Situ does not use *kə-* to mark generic person, the presence of a non-singular *kə-* in intransitive verbs in Situ could be interpreted as the last trace

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of the use of *kə-* as generic person marker, lost everywhere else in the language. If the hypothesis that the Situ plural originates from a generic person marker is valid, then the grammaticalization of *kə-* as a generic marker would have to be reconstructed back to common Gyalrong, and would not be usable as a a common innovation for defining the Northern Gyalrong subgroup. However, to evaluate this hypothesis, more data from Situ is needed, in particular concerning the nature of the semantic contrast between *kə-* on the one hand and the suffixes *-ntʃ* for dual and *-ɲ* for plural on the other hand in intransitive verbs.

In any case, since the evolution from nominalization to generic (regardless of the syntactic role of the generic person) is amply attested in various language families (see Sansò under review for a recent overview of related phenomena), for instance the passive *-ta* in Ute (Givón 2011, 264–7), the simplest explanation to explain the homophony between generic person *kə-* and nominalization *kə-* prefixes in Gyalrong languages is that the latter was grammaticalized from the former, though probably already in proto-Gyalrong.

5.2 The origin of the local scenario portmanteau prefixes

Gyalrong languages share portmanteau prefixes for local scenarios 1→2 and 2→1, as presented in Table 3 (data from Lín 1993, 218; Sun & Shi 2002; Jacques 2012a; Gong 2014). These prefixes appear to be isolated in the Sino-Tibetan family: in Kiranti for instance, there are no specific portmanteau prefixes for 2→1, (in Puma, a language with prefixes in the verb indexation system, the second person prefix *tʌ-* is used in 2→1 form, see Bickel et al. 2007), and the 1→2 is a suffix (Khaling *-nɛ* from **-na*).

Table 3. Local scenario prefixes in Gyalrong languages

	1 → 2	**2 → 1**
Japhug	*ta-*	*kw -*
Tshobdun	*tʊ-*	*kə-o-, tə-o-*
Zbu	*tʊ-*	*kə-w-, tə-w-*
Situ	*ta-*	*kə-w*

Gyalrong languages only differ in two regards: Japhug does not have the inverse *wɣ-* prefix in the 2→1 form, and Zbu and Tshobdun allow an alternative form with the second person prefix *tə-* and the inverse prefix. In all four languages, the verb receives suffixes coreferent with the P (second person in 1→2 and first person in 2→1).[10]

10. All languages apart from Situ allow double suffixation in 2→1SG, with the dual or plural suffixes stacked after the first person, as in Japhug *ɲɯ-kɯ-mbi-a-nɯ* IPFV-2→1-give-1SG-PL 'you[PL] (will have to) give (her) to me.'

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A possible explanation for the 1→2 prefix is a combination between the second person prefix *tɯ-* and the agentless passive *a-*, which yields the expected form in all four languages. In this view, a form such as *ta-no-n* 1→2-chase-2SG 'I will chase you^{SG}' (Lín 1993, 219) would have developed through the following stages:[11]

- **tə-ŋa-naŋ-nə* 2-PASS-chase-2SG 'you will be chased' (Passive form)
- **ta-naŋ-nə* 2: PASS-chase-2SG (Regular phonological fusion between the person marker and the passive prefix, attested in all four Gyalrong languages)
- **ta-naŋ-nə* 1→2-chase-2SG 'I will chase you' (reanalysis of the fused form as a portmanteau prefix; the unspecified agent of the passive construction is construed as being first person)
- *ta-no-n* 1→2-chase-2SG 'I will chase you ^{SG}' (regular sound changes)

In the case of 2→1, the phonetic identity of this prefix with the nominalizer / generic in all four languages is striking. If, as suggested above, the grammaticalization of the nominalizer *kə-* as a generic person marker goes back to the common ancestor of all four Gyalrong languages and not simply that of Japhug and Tshobdun, we may interpret the origin of a form such as *kə-w-no-ŋ* 'you will chase me' in the following way:

- **kə-wə-naŋ-ŋa* GENR-INV-chase-1SG 'someone will chase me' (generic form, with inverse since the SAP argument is P)
- **kə-wə-naŋ-ŋa* 2→1-INV-chase-1SG 'You will chase me' (reanalysis of the fused form as a portmanteau prefix; the unspecified agent of the passive construction is construed as being second person, i.e., the SAP participant not otherwise indexed in the verb form)
- *kə-w-no-ŋ* 2→1-chase-1SG 'You will chase me' (regular sound changes)

In this view, the absence of the inverse marker in the 2→1 form in Japhug is an innovation, which can be explained by the fact that the inverse is redundant in this form. This redundancy is solved in a different way in Zbu and Tshobdun, where speakers at least accept forms replacing the portmanteau *kə-* by the second person *tə-* (see Sun & Shi 2002 and Gong 2014).

6. Conclusion

In this paper, we have described the morphosyntax of generic person marking in Japhug and discussed four paths of grammaticalization (38 to 41).

11. Proto-Gyalrong follows the preliminary sound laws presented in Jacques (2004).

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(38) NMLZ (core argument) → GENERIC PERSON (neutral)

(39) GENERIC PERSON (neutral) + inverse → GENERIC PERSON (P)

(40) inverse → GENERIC PERSON (A)

(41) GENERIC PERSON (neutral) + SAP person marker → portmanteau local scenario affix

While (38) is very common crosslinguistically and (41) has already been described in other language families, the other ones have not previously been proposed. Pathway (39) is attested in Tshobdun, where the combination of generic and inverse has been generalized to all cases where the generic person is P, while pathway (31) is found in Japhug, resulting in diametrically opposed generic person marking systems, with accusative (in Tshobdun) vs ergative alignment (in Japhug).

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Abbreviations

AUTO	autobenefactive-spontaneous	FACT	factual
ASSERT	assertive	GENR	generic
CAUS	causative	IFR	inferential
CISLOC	cislocative	INDEF	indefinite
COMIT	comitative	INF	infinitive
DAT	dative	INV	inverse
DEM	demostrative	IPFV	imperfective
DET	determiner	IRR	irrealis
DEEXP	deexperiencer	LNK	linker
DIR	direct	LOC	locative
DU	dual	NEG	negation
EMPH	emphatic	NMLZ	nominalizer
ERG	ergative	NONVOL	nonvolitional
EVD	evidential	PFV	perfective

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PL	plural	SG	singular
POSS	possessive	STAT	stative
PROX	proximal	TESTIM	testimonial
PST	past	TOP	topic
RECIP	reciprocal	UNEXP	unexpected
REFL	reflexive	VOL	volitional
SENS	sensory		

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Author index

A
Abraham, P. T. 37
Adelaar, Willem F.H. 243
Ahenakew, Freda 266, 283
Aikhenvald, Alexandra Y. 399–400
Aissen, Judith 3, 8, 379, 385, 407
Aldai, Gontzal 103
Alexandre, Pierre 37
Alekseev, Mikhail 88
Anderson, Lambert 38
Anderson, Stephen 10
Anderson, Victoria 33
Antonov, Anton 14–15, 257–258, 357, 359, 403, 406
Aoki, Haruo 133, 150, 181
Aristar, Anthony 3, 5
Armagost, James L. 37, 42
Ataev, Boris 88
Austin, Peter K. 399

B
Baker, Mark C. 3, 8
Bakker, Peter 400
Bammesberger, Alfred 211
Barak, Veysi 80
Barðdal, Jóhanna 155
Barnard, John Terence Owen 364
Bassène, Alain-Christian 62
Bates, Dawn 319–320
Bauman, James 354
Beavert, Virginia 133, 140, 142–143, 146, 169, 174, 179
Beckman, Mary 37
Benveniste, Emile 82–83
Berger, Hermann 399
Bhat, Shankara 399
Bickel, Balthasar 4, 62, 126, 291, 347, 349, 366, 379, 388, 394, 420
Birchall, Joshua 298
Blackburn Morrow, Jesse 135, 138–139, 142, 146
Blake, Barry 381
Blau, Joyce 80
Blevins, Juliette 4, 15–18, 20, 31, 33, 35, 38–39, 44, 46, 50, 381, 399
Block, David 11, 242
Bloomfield, Leonard 267, 274
Blust, Robert 45, 52
Boas, Franz 181
Bobaljik, Jonathan D. 74
Bombien, Lasse 33, 40
Borges, Mônica V. 293
Boro, Krishna 347, 356, 359
Bossong, Georg 378
Bowe, Heather 400
Blevins, Juliette 4, 15–18, 20, 31, 33, 35, 38–39, 44, 46, 50, 381, 399
Block, David 11, 242
Bragdon, Kathleen 276
Bright, William 37–38, 53
Brown, Penelope 298
Bubenik, Vit 21
Burke de Ott, Rebecca 242
Burquest, Donald 44
Bybee, Joan 3, 5, 16, 18, 23, 171, 290
Bynon, Theodora 83–84, 363–364

C
Cabral, Ana S. 299, 303
Camacho, Lluvia Cervantes 49
Camp, Elizabeth 218, 231, 241, 249
Campbell, Lyle 23, 70, 78, 89, 164, 180, 324
Cardona, George 83
Caprile, Jean-Pierre 37
Carrier, Julien 76–77
Castel, Robert J. 273, 283, 287
Castro Alves, Flávia 176
Cedergren, Henrietta 37
Caughley, Ross 347, 356, 400
Chafe, Wallace 9
Chase, Nichumeno 114, 421
Chhangte, Lalnunthangi 354
Chitoran, Ioana 37
Chomsky, Noam 32
Clements, George N. 44
Comrie, Bernard 4, 8, 12, 15, 126, 290, 378–379, 381, 395, 399
Coña, Pascual 396
Cook, Clare 323
Coon, Jessica 78
Corbett, Greville 7–8, 111
Córdoba, Lorena 243
Costa, David 268
Cowell, Andrew 277–278
Caughley, Ross Charles 347, 356, 400
Crapo, Richley H. 38
Creissels, Denis 10–11, 59, 62, 69, 71, 85, 102, 124, 285, 324–325
Crevels, Mily 218, 241–242
Cristofaro, Sonia 3, 10, 12–13, 16, 18, 20–21, 105, 111, 124, 203–204, 252–253, 285, 290–292, 301
Croft, William 4, 6–8, 112, 155, 313, 378
Cuoq, Jean André 274

D
Dahl, Östen 333, 367, 370
Dahlstrom, Amy 270–273
d'Andrade, Ernesto 37
Daniel, Mikhail 53
Danielsen, Swintha 241–242
Dalrymple, Mary 63, 385
Das Gupta, Kamalesh 37
Dasher, Richard B. 23
Dauer, Rebecca M. 37
Davis, Irvine 37
Deal, Amy Rose 20, 74, 122, 153, 343, 347, 353
De Cuypere, Ludovic 124
de Lacy, Paul 51
DeLancey, Scott 8–9, 12, 15, 20, 70, 132, 134, 173–175, 186, 218, 246, 285, 290–292, 345–347, 352–353, 356–359, 364–366, 368, 378–379, 403, 422

EBSCOhost - printed on 2/10/2023 3:30 AM via . All use subject to https://www.ebsco.com/terms-of-use

Delforge, Ann Marie 37
Denk, Lukas 19, 377
Derrick, Donald 51
De Schepper, Kees 325
Diessel, Holger 211
Dimmendaal, Gerrit J. 35
Dixon, R.M.W. 8–10, 62, 89–90, 93, 134, 252, 291, 378–379, 381, 386, 390, 399–400
Donaldson, Tamsin 399
Donohue, Mark 97
Driem, George van 361, 363–364, 399
Dryer, Matthew 3–5, 408
Du Bois, John 9, 20
Dunkel, George 197
Dupoux, Emmanuel 50

E
Eades, Diana 381, 399
Ebert, Karen H. 347, 356, 364–366
Emkow, Carola 218, 231, 233
Estival, Dominique 176
Etxepare, Ricardo 100
Evans, Nicholas 98, 184
Eythórsson, Thórhallur 155

F
Fadden, Lorna M. 135, 138
Fauconnier, Stefanie 63
Faust, Norma 37
Feldman, Harry 38
Filimonova, Elena 126, 346, 388, 394
Foley, William A. 400
Forker, Diana 71, 89
Foster, Mary LeCron 38, 49
Frachtenberg, Leo 120–123
Frajzyngier, Zygmunt 353
Francis, Bernard 276
Frantz, Chester 37
Frantz, Donald G. 50, 378, 400
Frantz, Marjorie 37
Friedrich, Paul 38, 49
Frishberg, Nancy 378

G
Gaden, Henry 37
Gaenszle, Martin 366
Garrett, Andrew 11, 121, 387
Gendron, Jean-Denis 37
Genetti, Carol 362
Georg, Stefan 384, 400
Gerdts, Donna B. 310, 312, 314–315, 317–320, 322–323, 325, 329, 331–332, 335
Gerfen, Chip 37
Gick, Bryan 33, 35, 37, 45–46, 48, 50
Gilberti, Maturino 49
Gildea, Spike 9, 12–13, 17–18, 21, 78–79, 87, 89, 124, 131, 134, 152, 155–156, 173–174, 176, 178, 181, 239–240, 252–253, 290, 292, 301–303, 313, 326–327, 333, 347, 352, 422
Girard, Victor 218, 233
Givón, Talmy 3, 9, 140, 180, 291, 325–326, 332–333, 339, 352, 420
Goddard, Ives 267, 276–280, 282, 285
Golla, Victor 37, 132
Goldberg, Adele 155
Gong, Xun 285, 347, 350, 356, 403, 420–421
Gordon, Matthew 33, 37, 40–41, 46
Gray, Russell D. 147–148, 384, 387
Griffith, Aaron 12–13, 17, 191, 194–197, 200–204, 206–209, 212
Greenberg, Joseph 3–4, 7, 38, 112, 115
Guillaume, Antoine 158, 173, 176, 217–219, 222–223, 227–228, 233–235, 237, 242–244, 249, 257, 403

H
Haas, Mary 38, 97
Hahn, Reinhard F. 38
Haig, Geoffrey 176
Hagège, Claude 197
Hale, Kenneth 39, 202, 378
Halle, Morris 32, 44
Han, Mieko 37
Hansen, Benjamin 44
Hargus, Sharon 179
Harré, Rom 366
Harris, Alice 23, 62, 70, 78, 89, 103, 164, 180, 324
Harrison, Sheldon 37
Hartmann, Iren 61
Haspelmath, Martin 4, 7–8, 11, 61–62, 67–68, 105, 134, 180, 324–326, 419
Haude, Katharina 65, 242, 290
Hawkins, John 4–5
Heath, Jeffrey 20, 173, 246, 291, 298, 352–353, 356–357, 359, 368
Heine, Bernd 13, 35, 37, 175, 180, 197, 203, 325–326
Helmbrecht, Johannes 19, 377, 383
Henderson, Eugénie Jane Andrina 354
Hercus, Luise A. 386, 399
Hershberger, Henry 399
Hess, Thom 310, 312, 316, 319, 325, 327, 332, 335
Hewson, John 276
Hilbert, Vi 319
Hock, Hans Heinrich 197
Holmer, Niels 37
Holton, Gary 9, 97
Hualde, José Ignacio 87, 91
Huang, Bufan 41
Hukari, Thomas E. 310, 314, 318–323, 325, 332, 335
Hunn, Eugene S. 149, 181
Hymes, Virginia 136

I
Iemmolo, Giorgio 63, 146, 160, 385
Iskarous, Khalil 37

J
Jacobs, Melville 120, 133, 136, 139–140, 143–144
Jacobs, Peter 312, 314, 317, 323–325, 329, 332, 335
Jacques, Guillaume 4, 14–15, 20, 37, 47, 257–258, 285, 347, 351, 356–357, 359, 364, 369, 403–404, 406, 408, 410–411, 414–415, 418–421
Jamison, Stephanie W. 197
Janic, Kartarzyna 64, 180, 183–184, 324
Jannedy, Stefanie 38
Jansen, Joana 12–13, 17, 131–133, 135–143, 146, 151, 169, 174, 239, 253, 347, 422

EBSCOhost - printed on 2/10/2023 3:30 AM via . All use subject to https://www.ebsco.com/terms-of-use

Jensen, Cheryl 289–290, 292–294, 296, 298–301, 303–304
Jirsa, Bill 353
Jun, Sun-Ah 37
Junker, Marie-Odile 291–292

K
Kaburaki, Etsuko 290, 379
Kallfell, Guido 296
Kegg, Maude 283
Kemmer, Suzanne 180, 318–319, 325
Kerke, Simon van de 243
Kern, Gretchen 209
Kikusawa, Ritsuko 37
Kim, Yuni 37
Kinkade, M. Dale 181–183
King, John 353
Kiparsky, Paul 3, 8, 11
Kittilä, Seppo 19
Kiyosawa, Kaoru 315–317, 327, 331
Klaiman, M.H. 290
Klein, Jared 197, 214
Kongkham, Hemabati 354
Konnerth, Linda 365, 414
Kroeber, James D. 311, 314, 315, 317, 332
Kuipers, Aert 400
Kuno, Susumo 290, 379
Kuryłowicz, Jerzy 352
Kuteva, Tania 175

L
Ladefoged, Peter 33, 39, 41
Lahaussois, Aimée 362
Lai, Yunfan 285, 345, 347, 349, 356, 404, 419
Laka, Itziar 74
Lambert, Pierre-Yves 196
Langacker, Ronald 117
LaPolla, Randy 347, 355, 364
Latrouite, Anja 65
Launey, Michel 94
Lazard, Gilbert 61
Leslau, Wolf 98
Levin, Beth 7, 19–20
Levinson, Stephen 298
Liccardi, Millicent 218, 231, 241, 249
Lichtenberk, Frantisek 184
Lin, Youjing 275, 417
Lín, Xiàngróng 417, 420–421
Lo, Ch'ang-p'ei 99–100, 363
Lockwood, Hunter 6, 19–20, 346
Lukas, Johannes 38, 377
Lyon, Don D. 59, 217, 253, 289, 391, 401

M
Macaulay, Monica 6, 19–20, 297, 346–347, 350
MacWhinney, Brian 20
Maddieson, Ian 33–36, 39
Magalhães, Marina 295
Magomedova, Patimat T. 103
Malchukov, Andrej 20, 97, 381
Maldonado, Violeta Vázquez Rojas 49–50
Mascaró, Joan 33
Masica, Colin 38
Maslova, Elena 4
Mateus, Maria H. M. 37
McCloskey, James 3, 8, 202
McCone, Kim 196
McConvell, Patrick 400
McGregor, William B. 124, 142, 387
McFarland, Teresa Ann 38
McLaughlin, John 117
Melchert, Craig 197
Mendes, Ronald B. 37
Mihas, Elena 37
Michailovsky, Boyd 422
Michaud, Alexis 4, 47
Miller, Wick R. 37, 42
Mithun, Marianne 3, 9, 11–14, 17–18, 20–21, 97, 111, 120, 124, 177–178, 180, 290, 304, 311, 325, 327, 329, 333, 335, 339
Miyaoka, Osahito 38
Monserrat, Ruth 289, 291, 296
Montgomery-Anderson, Brad 114
Montler, Timothy 310, 312, 315–317, 319–321, 324–325, 327, 330, 335
Monserrat, Ruth 289, 291, 296
Moravcsik, Edith 9, 20, 112, 117
Morey, Stephen 356, 358
Morin, Ives-Charles 399
Morse, Robert 355
Moss, Alonzo Sr. 184, 277–278
Mounole, Céline 62, 87, 91–92
Munro, Pamela 37
Muysken, Pieter 218
Mühlbauer, Jeff 400
Mühlhäusler, Peter 366
Myers, Scott 37, 44
Myhill, John 176

N
Narrog, Heiko 180
Nash, David 39, 136–137, 139, 150
Nedjalkov, Vladimir P. 75, 400
Newmeyer, Frederick J. 3, 20
Nichols, Johanna 4, 66, 71, 134, 220, 291–292
Nichols, John 283
Nielsen, Konrad 37
Nikolaeva, Irina 63, 385
Ningomba, Darbhe 399
Novelli, Bruno 36

O
O'Grady, Geoffrey N. 37, 55
Opgenort, Jean-Robert 360
Ortiz de Urbina, Jon 87, 91
Ott, Willis 242
Ottaviano, Ida de 246
Oxford, Will 106–107, 268, 275, 282, 285, 381, 397
Oyharçabal, Bernard 100

P
Palmer, Bill 41, 51
Patz, Elizabeth 399
Payne, Doris L. 290, 296, 352
Payne, Thomas E. 292
Pellard, Thomas 40, 47
Peterson, John M. 83
Pharris, Nicholas 181
Phillips, Maxwell 379, 388, 394
Phinney, Archie 133, 179, 184
Pike, Evelyn J. 37
Pitman, Donald 218, 231, 233
Poudel, Kedal Prasat 399

Q
Queixalós, Francesc 60, 76, 134
Quinn, Conor M. 275, 277

R
Radetzky, Paula 201

EBSCOhost - printed on 2/10/2023 3:30 AM via . All use subject to https://www.ebsco.com/terms-of-use

Rankin, Robert 4
Rappaport Hovav, Malka 7, 19–20
Ray, Punya Sloka 37
Reichle, Verena 354
Rezac, Milan 74
Reis-Silva, Amélia 51
Ribera, Lazaro de 242
Rigsby, Bruce 133, 143, 160
Rivero, María Luisa 84
Rodrigues, Aryon 303
Rose, Françoise 6, 12, 17–18, 241–242, 253, 289–292, 296, 299–301, 304
Rude, Noel 132–133, 135–136, 138–144, 150–152, 154, 160–161, 163, 169, 173–174, 179

S
Saidova, Patimat A. 102
Sakel, Jeanette 242
Salzmann, Zdeněk 277
Samvelian, Pollet 99
Sansò, Andrea 420
Sapir, Edward 38
Say, Sergey 62, 162, 184, 199, 230, 236, 246, 283, 291, 327, 329, 385, 410–412
Saxton, Dean 37
Saxton, Lucille 37
Schrijver, Peter 195–197, 212
Schrock, Terrill 36–37
Schroeder, Helga 35–36
Schroeder, Martin 35–36
Seki, Lucy 295
Selam, James 181
Seržant, Ilja A. 63, 81, 84, 105
Sharma, H. Surmangol 365
Sharpe, Margaret C. 398
Shaw, Patricia 40, 317
Shi, Danluo 285, 403, 420, 421, 424
Shirai, Setsuko 37
Shiraishi, Hidetoshi 37
Siewierska, Anna 6, 24, 127, 134, 213, 238, 246, 254, 292, 298, 305, 371
Silverstein, Michael 8, 112, 119, 290–291, 346, 352, 377–381
Simoneau, Louise 37
Sims-Williams, Patrick 196
Singh, N. Gopendro 365
Smith-Stark, T. Cedric 112, 115, 124, 378
Soares, Marilia Faco 289, 291, 296
Sohn, Ho-min 38
Song, Jae Jung 8–9, 12–13, 15, 197, 203
Spencer, Andrew 240, 381
Spreng, Bettina 77
Squamish Nation Education Department 319, 321
Stevens, Kenneth N. 32
Strehlow, Theodor G. H. 399
Stroomer, Harry 37
Sun, Hongkai 101, 226, 232, 285, 347, 351, 356, 363–364, 403–404, 414, 416–417, 419–421
Sun, Jackson T. 101, 226, 232, 285, 347, 351, 356, 363–364, 403–404, 414, 416–417, 419–421

T
Taperte, Jana 63
Thanner, Sarah 19, 377
Tayeng, Aduk 37
Taylor, Douglas 37
Tavo Mayo, Victor 231,241
Tiede, Mark
Thomason, Sarah 181
Thomsen, Ditte Boeg
Thompson, Chad 167, 352, 356
Thompson, Sandra A. 167, 352, 356
Tonhauser, Judith 67
Thurneysen, Rudolf 211
Tiffou, Etienne 399
Toba, Sueyoshi 364
Tonetti, Ilenia 19, 377
Traugott, Elizabeth C. 23
Trussel, Stephen 45
Tsuchida, Ayako 37, 40
Tsunoda, Tasaku 61
Tucker, Benjamin V. 33, 40
Turnbull, Rory 33

V
Valdovinos, Margarita 37
Valentine, J. Randolph 273–274, 401
Valenzuela, Pilar 243
Verbeke, Saartje 124
Verstraete, Jean-Christophe 63
Villar, Diego 243
Vine, Brent 37–38
Voigt, Rainer M. 37
Vossen, Rainer 36
Vuillermet, Martine 218, 231–232, 253

W
Walker, James A. 37
Watkins, Calvert 197, 284
Watters, David 347
Warner, Natasha 33, 40
Wedel, Andrew 39, 50
Wei, Jie-Wu 417
Weidert, Alfons 358
Westfall, David 273, 283
Wetzels, Leo 33
Wichmann, Søren 97
Wierzbicka, Anna 209
Wilkins, David 399
Witzlack-Makarevich, Alena 62, 290, 304, 347
Wolfart, H. Christoph 260, 262, 264, 266, 270, 283, 378, 400
Wurm, Stephen 400

Y
Yallop, Colin 398

Z
Zahir, Zalmai 12–14, 17, 21, 178, 180, 309, 313, 315, 318, 323, 325, 328–329
Zariquiey, Roberto 399
Zavala Maldonado, Roberto N183
Zhang, Shuya 404
Zigmond, Maurice L. 37
Zúñiga, Fernando 3, 6, 12, 15, 19–20, 65, 111, 132, 134–135, 138–139, 141, 150–152, 173–174, 178, 181, 252, 261, 285, 292, 301, 313, 327, 333, 346–347, 352, 400
Zwicky, Arnold 379

EBSCOhost - printed on 2/10/2023 3:30 AM via . All use subject to https://www.ebsco.com/terms-of-use

Language index

A
Acoma 37, 56
Ainu 37
Akatec 175
Akhvakh 61–62, 95–97, 102–103
Alawa 398
Aleut 35
Alyawarra 389, 398
Amharic 97–98, 108
Ancient Greek 43
Angami 35
Angas (Ngas) 44-45
Arabana 381, 384–386, 389, 393, 396, 399
Araona 217–218, 225–228, 231–234, 238–240, 256
Arapaho 257–258, 267, 277–282, 284, 286
Arizona Tewa 178
Arrernte 389, 399
Ashéninka Perené 37
Ava-Canoeiro 292–294, 298
Avar 88, 95, 106
Awadhi 37, 57
Aymara 243

B
Baffin Island Inuktitut 77
Bagirmi 37
Bagvalal 102
Bakairi 326
Bandjalang 399
Basque 61–62, 68, 70–74, 76, 86–94, 99–105, 107–109
Bawm 354, 374
Bengni 41
Big Smokey Valley Shoshoni 38
Blackfoot 33, 35, 37, 45, 48–51, 54, 257, 392, 396
Brazilian Portuguese 37
Bulu 37
Burmese 35
Burushaski 384, 388, 395, 399

C
Canela 176
Canichana 241
Capanawa 399
Cashinawa 384, 388, 399
Cavineña 217–218, 225–228, 230–234, 238–239, 241, 243–246, 249–250, 253–254
Cayubaba 241
Cayuga 113, 115
Central Numic 42, 117
Chácobo-Pacahuara 243
Chamalal 102
Chamorro 178
Chang 358
Chepang 356, 371, 395, 400
Cherokee 113–114
Cheyenne 37, 267
Chickasaw 37
Chimariko 117, 178
Chol 78
Chone 41
Chukchee 378, 400
Cocama 37
Columbian 181, 183
Comanche 35, 37, 42–43, 47, 49
Cora 37
Cowlitz 181–182
Cree 257–262, 264, 267, 269–271, 273–275, 277, 279, 281–284, 287, 292, 378, 392, 398, 400
Cushitic 44
Czech 34, 39, 43

D
Dafla = Nishi 36
Damin (of Lardil) 39
Dhankute Tamang 384, 389, 397, 399
Diyari 384, 388, 395, 399
Dodos Nyakwai 35
Dumi 363–365, 372, 396, 399
Dyirbal 384, 388–390, 396, 399

E
Emérillon 296
English 32, 38, 53, 57, 61, 85, 90, 94, 125, 133, 196, 287, 326–327, 341
Ese Ejja 217–218, 225–228, 231–234, 238–240

F
Fijian 184
Filomena Nata Totonac 38
Fox 257, 268
French 37, 58, 71, 102, 252–253, 291

G
Gadsup 37
Galla 37
Georgian 68–69, 71
German 83–84, 197, 291
Goajiro 37
Godoberi 102, 109
Guajá 295
Guarani 12, 66–67, 74, 289–292, 294, 296–304
Gumbaynggir 380–381, 389–390, 399

H
Hakhun Tangsa 358–359
Halkomelem 309–310, 312, 314–318, 320–323, 325, 328–332, 334–340
Hanis 11, 120–122, 125
Hmong 35
Hopi 37, 117
Hungarian 85
Hupa 37

I
Icelandic 69
Ik 35–37, 179, 259, 262, 264–265, 270–271, 273–275
Ingush 71
Island Carib 37
Inuit 76–77, 326
Itivimiut 77

J
Japanese 37, 40, 64, 70
Japhug Rgyalrong 351
Jie 35
Jopara 295–296

EBSCOhost - printed on 2/10/2023 3:30 AM via . All use subject to https://www.ebsco.com/terms-of-use

K
Kalaw Lagaw Ya 389–390, 399
Kam-Sui 40
Kamaiurá 307
Karata 102–103
Karimojong 35–36, 57
Karuk 117, 178
Kashaya 35, 42
Kashibo-Kakataibo 384, 388
Kawaiisu 37, 58
Kayabí 292
Khaling 364–365, 374, 420
K'ichee' 70, 85
Kinyarwanda 37
Kiowa 292
Klallam 309–310, 312, 315–318, 321, 323, 325, 327–328, 330–336, 339–341
Klamath 35, 117, 132
Kokota 41–42, 46, 51, 57
Konyak 358
Korean 37
Koyukon 35
Kuku-Yalanji 399
Kurmanji Kurdish 69, 71, 79–82
Kutenai 139, 408

L
Labrang 41
Lakkia 35
Lakota 118–119
Lardil 39
Latin 64, 69, 82, 200, 202
Latvian 63, 81
Leko 243
Lezgi 37
Lushootseed 181, 309–310, 312–313, 315–318, 320–323, 325, 327–330, 332, 335–342

M
Magíana 242
Malagasy 37
Mandarin 37
Mandinka 71
Manipuri 384, 387–389, 395, 399
Maori 40
Mapudungun 400
Maracane 242
Mbay 37, 53
Mbyá 299
Miami-Illinois 257, 286
Micronesian 44–45
Mi'gmaq 257–258, 267, 275–277
Miluk 120
Mixtec 37, 54
Mizo 354
Modern Greek 326
Mohawk 113–115, 118–119, 124, 126
Mojeño 241–242, 251
Mokilese 37, 55
Mollala 175
Mosetén 242
Movima 242
Moyon 354
Mngaris 41

N
Nhanda 381, 395, 399
Nishnaabemwin 267, 273–277, 279, 284, 287, 398, 401
Nez Perce 13, 131–133, 149–154, 156–177, 179, 181–183, 185–186
Ngiyambaa 384, 388, 396, 399
Nyangatom 35
Nilotic, Eastern 35-36
Nishi (Nyishi, Dafla) 36-37
Nhanda 381, 395, 399
Nocte 355, 358–360, 362, 366
Northern Naga 347, 355–356, 358–361, 368–369
Nottoway 113–114
Nunggubuyu, 292
Nyangatom 35

O
Oceanic 41, 54, 183, 324
Oneida 33, 35, 37, 45, 48–49, 113, 115
Ojibwe = Ojibwa = Nishnaabemwin
Old Irish 13, 191, 195–213
Old Lapurdian 92
Olutec 183
Oneida 33, 35, 37, 45, 48–49, 113, 115
Onondaga 113, 115
Oromo 37, 44, 58

P
Pama-Nyungan 35, 380, 398–400
Papago (O'odham) 37
Persian 81
Pitjantjatjara 384, 388, 395, 400
Proto-Algonquian 260, 267–268, 271, 274–279, 282, 284–286
Proto-Iroquoian 114
Proto-Kiranti 361
Proto-Rgyalrongic 356–357
Proto-Sahaptian 13, 131–132, 149, 155, 157, 163, 172, 185
Proto-Salishan 183
Proto-Takanan 219, 231, 233–234, 237–239, 241, 243, 246, 252, 254
Proto-Thai 40
Proto-Tibeto-Burman 41
Proto-Tupi-Guarani 289–290, 294, 298–304
Pukina 243
Purépecha (Tarascan) 38, 49, 50
Purum 365

Q
Quechua 37, 243
Rawang 355, 364, 371
Reyesano 13, 173, 176, 217–227, 231–234, 237–246, 249–252

R
Russian 69, 81, 84, 97–99, 108–109

S
Saami 37
Sahaptin 13, 131–135, 138–139, 141–144, 147, 150–154, 156–164, 166–174, 176, 178–179, 181–183, 185, 239
Salishan 14, 178, 181–184, 239, 327, 332
Sara 37, 45
Sbathang 41
Sedang 35
Seneca 113, 115
Shasta 117
Shina 38
Shiriana Yanam 384, 388, 400
Sino-Tibetan 35–36, 46, 257, 285, 373–374, 399–400, 403, 414, 420, 424
Situ 403–404, 416–420
Siuslaw 14, 117, 122–125
Southern Paiute 38
Spanish 84–85, 102, 231, 291

EBSCOhost - printed on 2/10/2023 3:30 AM via . All use subject to https://www.ebsco.com/terms-of-use

Squamish 309–310, 312, 314–315, 317–323, 325, 327–332, 334–336, 339–341, 384, 388, 397, 400
Sui 40
Sunwar 355, 362–363, 366
Suyá 176

T
Tacana 176, 217–218, 225–240, 242–248, 250–251, 255
Tahltan 40
Tagalog 64–65, 74
Takanan 13, 176, 217–221, 225, 227–228, 231, 233–234, 237–243, 246, 250–252, 254
Takelma 35, 117
Tangut 292, 378
Tani/Miric 36
Tarascan (Purépecha) 38, 49
Tedim 354
Tepehua 292
Tepewa = Tepehua
Teso 35–36, 46–47
Teso-Turkana 35–36, 46–47
Thai 40
Thakali Marpha 384, 386–389, 400
Thulung 361–362
Tibetan 35–36, 41, 46, 51, 257, 285, 373–374, 399–400, 403, 414, 420, 424
Tillamook 181, 183, 311
Tindi 102–103, 108
Tlahuitoltepec Mixe 390–392, 394, 401
Tongan 38, 70
Toposa 35–36
Trukese (Chukese) 45
Trukic 47
Trung 355, 363–365, 374
Tshobdun 403–404, 414, 416–422
Tswana 184
Turkana 35–36, 38, 46–47, 54
Tiriyó 79
Tubatulabal 117
Tupinambá 296, 299, 300
Turkana 35–36, 38, 46–47, 54
Turkish 38
Tuscarora 113–114, 125

U
Upper Chehalis 181–182
Uyghur 38, 55

W
Waga-Waga 384, 387–388, 400
Wambule 360–362, 374
Wancho 358
Washo 115, 117
Wayampi 296
Wayana 79
Wendat 113, 115
West Chadic 44
Wobzi Khroskyabs 349–350, 356
Woleaian 38, 44–45, 58
Wyandot 113–115

Y
Yana 117, 178
Ye'kwana 326
Yidiny 381, 384–386, 389, 393, 400
Yukulta 400
Yupik 38, 56, 76–77
Yurok 178

Z
Zabana 41
Zbu Rgyalrong 350, 355–357, 361, 363–364
Zuni 38

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Subject index

A
accusativity 59, 73
adpositions 5, 9, 175
agreement 66–67, 74, 88–90, 93–97, 108–109, 112, 117, 119, 141, 170, 179, 208–210, 217–220, 222–224, 226, 232–233, 237–239, 241, 246, 249–252, 257, 290–291, 304, 345, 358, 368–369, 377–378, 388, 403
alignment *see* accusativity, ergativity, unaccusative, unergative
analogy 14, 31, 48, 81, 87, 90, 105, 160, 166, 169, 257, 268, 271, 275, 277, 280–282, 284–285, 347, 369
animacy 5–8, 10–12, 15, 17–21, 63, 111–112, 125, 134, 140–146, 258, 290–291, 317, 377–379, 385, 394
animacy hierarchy 140, 142, 290, 377–379
anticausative 64, 75, 84, 408
antipassive 60, 64–65, 75–77, 92–93, 104, 106, 154, 163–164, 166, 184, 309–310, 318, 323–327, 331–333, 337–339, 378, 408
areal sound patterns 35
argument ellipsis 59–60, 94, 104–105
aspiration 51, 358

B
bi-absolutive construction 88–89

C
cislocative 151–152, 159, 162, 173–175, 185, 359, 366, 422
clitics 13, 120, 122, 138, 141, 145, 157–158, 162, 173, 191, 194–195, 200–201, 219, 229, 231, 234, 239–240, 256, 303, 354
co-articulation 16, 40
coding frame 59–61, 72–73, 91, 93, 95, 97, 100–103
competing motivations 21, 26, 173
conjunct order 14, 257, 260–261, 264, 266–271, 274–275, 277, 281–282, 284–286
Construction Grammar 155, 186–187, 340
conventionalization 11, 59–60, 94–97, 104–105

D
dedicated case marking 7–8, 21
definiteness 63, 112, 134, 146, 377–378, 385, 393–394
deictic 175, 191, 196–199, 201, 203–204, 206, 209–212, 252, 292, 345–347, 352, 355–356, 359, 365–366
deixis 27, 189, 201, 211–212, 288, 307, 333, 352, 375, 398
devoicing 33, 36–37, 39–40, 42–47, 49
differential head marking 117
direct see hierarchical indexation
direct-inverse marking see hierarchical indexation
direction 5, 131, 135, 145–146, 149, 152, 159, 164, 174–175, 182, 184, 257, 259, 280, 282, 285, 291–292, 324, 331, 346, 370, 394
directionality 156, 161, 187, 257–258, 284
disambiguation 4, 7, 16, 21, 207, 245

E
economy 7–8, 255, 291, 373
empathy hierarchy 111, 290, 379
ergativity 10, 25, 59–60, 62, 64, 70–73, 76, 89, 107–109, 128, 254–255, 305, 333, 377, 380, 383, 396–397, 423
Evolutionary Phonology 4, 24, 31, 38, 50, 52

F
face-threatening effects 246
functional-typological approach 3, 5, 7

G
glottal gestures 50
grammatical change 23, 155, 333
grammaticalization 4, 12, 23, 59–60, 78–82, 86–91, 93, 104–105, 119, 156, 158, 175, 187, 201, 203, 206–207, 217, 229, 238–239, 241, 243, 245–246, 249–251, 289, 302–304, 341, 347, 403, 414, 419–421

H
/h/ 31, 34–35, 41–43, 46–47, 49, 51
hierarchical alignment *see* hierarchical indexation
hierarchical agreement *see* hierarchical indexation
hierarchical indexation 173, 345–348, 354, 358, 360, 367
independent order 261–262, 266, 271, 275–276, 281, 283, 286

I
instrumentals 11, 17
intransitivity 70, 163
inverse *see* hierarchical indexation

K
kin terms 112, 124, 380–383, 386

L
language universals 3, 16, 24–25, 128, 305, 396
laryngeal features 33
Lexical Character Displacement 50

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lexical competition 31, 39, 50
light verb compound 90, 100–103

M
marked nominative 64
middle 24, 136, 180, 188, 309–310, 318–320, 322, 324–326, 339, 341, 379–380, 382, 390, 392–394
mixed scenario 272
morphotactics 49

N
nominal hierarchy 291, 379
notae augentes 13, 191–192, 194–196, 198–201, 203–207, 209, 211–213
number 3–8, 10–11, 16, 18–19, 24, 31, 33, 60, 62, 65, 88, 94–97, 100, 112–117, 119–120, 124–126, 134–137, 140, 145, 152–153, 156, 158, 162, 172, 193–194, 196–199, 203, 208, 217, 222–224, 227, 229, 237, 242, 246, 249, 275, 290–291, 331, 345–346, 349, 355, 358, 360, 367, 382, 385, 404, 408–409
number hierarchy 6–7

O
Obligatory Case Parameter 74
Obligatory Coding Principle 59–60, 73–74, 78–81, 84–85, 88–89, 93–94, 97, 99–100, 102–105
obviation 139, 259–260
overt marking 4, 6–8, 11, 14, 291

P
passive 14, 17, 60, 64–65, 75–79, 82–84, 92–93, 104, 106, 123–124, 142, 177–178, 180–182, 186, 189, 213, 244, 252, 292, 309–310, 318, 324–328, 331–333, 335, 337–341, 351, 366, 369, 378, 403, 408, 419–421
pattern copying 180, 185
perfective constructions 10
person hierarchy 217, 219, 243, 252, 285, 289–292, 296–298, 304, 345–346, 381, 383, 389, 394
plural 4, 6–7, 10, 18, 69, 94, 106, 112–113, 115, 124, 126, 135–136, 138, 140–144, 146–147, 151–154, 157, 159–165, 167, 170–171, 179, 185, 199, 205, 208, 213, 219, 222–223, 232–233, 236, 242, 246, 251, 253, 268–269, 273, 275, 277, 279, 281, 284, 286, 291, 294, 305, 340, 349, 354, 378, 386, 395, 409, 413–414, 417, 420, 423
phonetic explanation 31, 34
phonologization 16–17, 31–32, 38–40, 42, 46–47, 49
phonotactics 31, 49
phrase-final devoicing 43–46
possession 4, 83
possessive-resultative periphrases 82-83
progressive periphrases 85
pronouns 6, 11–14, 17, 19, 63, 111–112, 115–126, 136–139, 146, 151, 158, 161, 167, 173, 196–204, 206–207, 212, 214, 217, 219–221, 227–231, 233–241, 243–252, 294, 302–303, 346, 353–354, 366–367, 374, 377–382, 384–390, 392–394, 408
proper names 19, 111, 118, 377–378, 382, 384–385
progressive 78, 85–91, 106, 415, 419

R
reanalysis 9–10, 12, 22, 42, 44, 49, 75–76, 78–79, 82–85, 94–95, 97–98, 120–126, 156, 161, 164, 166–167, 174–176, 178–180, 282, 284, 292, 359, 363, 421
referential hierarchy see animacy hierarchy
reflexive 63, 102, 138, 147–148, 180, 261, 275, 318–320, 324–326, 340, 423
resultative 75, 78–79, 82–85, 92–93, 108, 253, 333

S
singular 4, 6–7, 10, 18, 69, 94–96, 98, 106, 112, 115, 124, 126, 131, 138, 140–147, 152, 154, 159, 161–163, 170, 178, 185, 200, 208, 213, 219, 221–223, 228, 231–232, 235–238, 242, 244, 246–249, 251, 253, 268, 275, 277–279, 281, 284, 286, 294, 305, 340, 349–351, 356–359, 361–363, 365, 371, 389–390, 395, 413, 419, 423
sociopragmatic effects 345, 353, 360, 365
sonorants 15–18, 22, 31–35, 39–47, 51
sound change 31, 38–39, 41–43, 51, 199, 257
spread glottis 33–34, 40
source constructions 4, 9–12, 14–16, 19–20, 22–23, 93, 369
speech act participants 6–7, 12–13, 15–18, 118, 125, 134, 145, 150, 174, 273, 291, 295, 313, 345, 378

T
teleology 111
Tobler-Mussafia law 240
topicality 14, 63, 111, 118–119, 125–126, 134, 136–137, 140–142, 144, 146, 148–149, 164–165, 167, 184, 291, 333, 352, 357, 366–367, 407, 418
topic continuity 14, 119, 123, 367
transitivity 60–62, 103, 133, 164, 310, 335–336, 340
typological hierarchies 3, 5–8, 10–11, 14–16, 18–19, 21–25, 27, 126–127, 186–187, 189, 254, 258, 289–290, 305–306, 372–373

U
unaccusative 68
unergative 71
univerbation 11–12, 59–60, 96, 99–100, 102–105

V
voiceless sonorants 15–18, 22, 31–35, 39–47, 51
voiceless vowels 15–16, 31–40, 42–51
voicelessness 33, 35
vowels 15–16, 31–40, 42–51, 196, 274, 278

W
Watkins's law 284
word order: adpositions, possessors

Z
zero case 61, 63, 69, 72, 77, 79, 82, 87–91, 95–97, 99, 101–103
zero marking 11

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Typological hierarchies are widely perceived as one of the most important results of research on language universals and linguistic diversity. Explanations for typological hierarchies, however, are usually based on the synchronic properties of the patterns described by individual hierarchies, not the actual diachronic processes that give rise to these patterns cross-linguistically. This book aims to explore in what ways the investigation of such processes can further our understanding of typological hierarchies. To this end, diachronic evidence about the origins of several phenomena described by typological hierarchies is discussed for several languages by a number of leading scholars in typology, historical linguistics, and language documentation. This evidence suggests a rethinking of possible explanations for typological hierarchies, as well as the very notion of typological universals in general. For this reason, the book will be of interest not only to the broad typological community, but also historical linguists, cognitive linguists, and psycholinguists.

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