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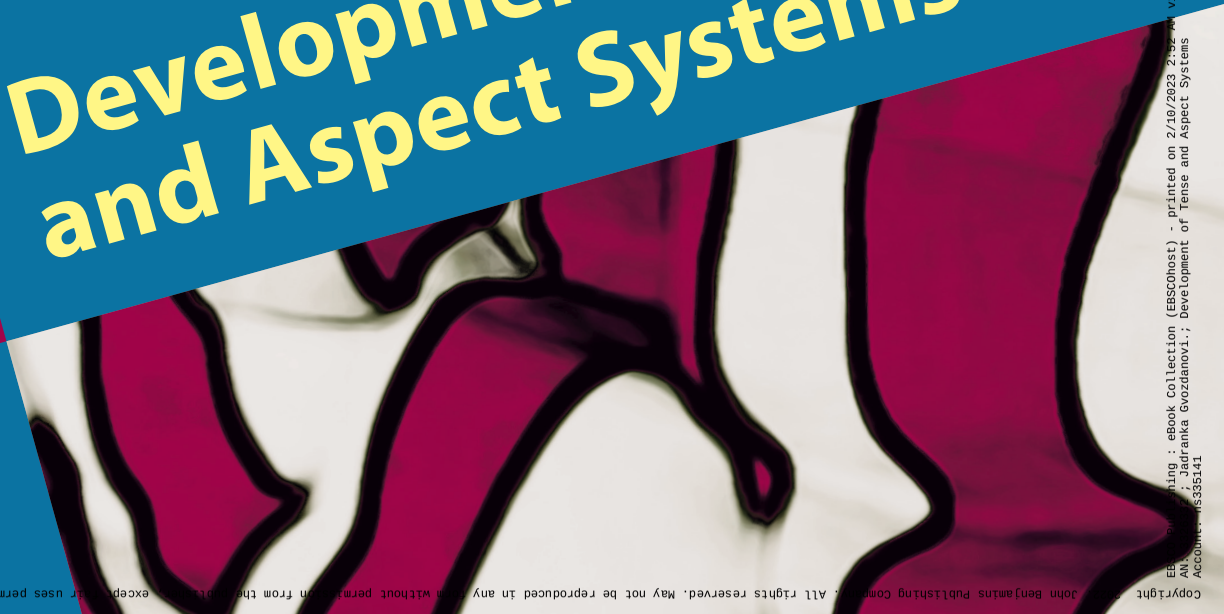
Development of Tense and Aspect Systems



Development of Tense and Aspect Systems

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Development of Tense and Aspect Systems
Edited by Jadranka Gvozdanović

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Development of Tense and Aspect Systems

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Introduction*

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> An hour, once it lodges in the queer element of the human spirit, may be stretched to fifty or a hundred times its clock length; on the other hand, an hour may be accurately represented on the timepiece of the mind by one second.
> Virginia Woolf, *Orlando* (1928: 36)

1. General introduction

Linguistic construal of time lies at the center of language and language use; it is also one of the cognitive foundations of culture. Time and space in language situate and frame states of affairs and characterize them deictically. Conceptually, time in language concerns three levels: the level of the verbal predicate, the level of states of affairs, and the (primary and secondary) deictic level.

At the level of the verbal predicate, the main distinction is between dynamic and stative, within dynamic between telic and atelic (i.e., terminative and non-terminative), and within telic between distinguishing phases or not. This underlies the verb distinction in activities (dynamic, atelic), accomplishments (dynamic, telic, with distinct phases), achievements (dynamic, telic, non-phasal) and states (non-dynamic, atelic), in line with Vendler (1967). This is lexical aspect; it is context-sensitive and may undergo coercion (i.e., a shift between categories). Affixation is the most frequent process producing changes of lexical-aspect categories; in addition to lexical aspect described above, also more fine-grained distinctions mainly focusing on phases or quantification of verb events can be derived by means of affixation, refered to as 'aktionsarten'. Affixes may develop from converbs, auxiliaries, adverbial preverbs, serial verbs or subordinate clauses, often with an intermediate auxiliary phase.

As part of a verbal predicate, a verb may combine with a goal argument, a converb, an adverb scoping over the predicate and its internal arguments such as *completely* (i.e. an adverb on the layer of configurational property in the sense of the

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Functional Discourse Grammar, cf. Hengeveld 2022) etc., and this may add telicity to an inherently atelic dynamic verb (e.g. *to climb* is by itself atelic, but *to climb a hill* is virtually telic, and *to climb the hill completely,* with a specific, definite internal argument and an adverb of degree, is indeed telic). In addition to the direct influence of internal argument(s) on aspect, also the external argument (mostly an agent or experiencer) may influence aspectual meaning (e.g., multiple agents conceived individually may cause an iterative, non-telic reading of an achievement verb).[1] Adverbs of configurational property (such as the degree adverb *completely*) and adverbs of states of affairs (such as the quantifying adverb *frequently*) can further modify the aspectual properties. This shows that lexical aspect feeds into complex compositional phenomena of aspectuality on clausal level.

Verbal predicate with its internal argument(s) is the core domain on which aspectual contrasts are construed, to express telicity vs. non-telicity as a lexical property, but also possibly to express totality of the verb event reaching its internal (or possibly temporally given) boundary, or alternatively ongoingness on the level of states of affairs (e.g., to express the difference between an ongoing process of *climbing a/the hill,* and the change of state that results from *having climbed the hill (completely)*). Such differences are superimposed on lexical telicity vs. non-telicity (i.e. ongoingness often coincides with absence of telicity, but repeated telic events can also represent a kind of ongoingness). Whenever these differences are systematically anchored in a language system (and form oppositions), we speak about grammatical aspect.

The different perspectives on states of affairs (either external, overlooking the total state of affairs, or internal, viewing it from the inside) may be grammaticalized, yielding grammatical aspect. Grammatical aspect is essentially a viewpoint aspect; it conceptualizes the different perspectives on events. Grammatically, it rests on a system of oppositions expressed by conventionalized formal properties. In languages with grammatical aspect, this category interacts with the lexical aspect of the predicate and with tense in sequences of states of affairs (e.g., when combined with an aspect (presumably) denoting totality, a past tense can undergo a forward shift in time, cf. e.g., Sogeram examples discussed in this volume by Daniels). English experienced only very limited effects until the 19th century, when the role of the progressive aspect became noticeable (cf. van Gelderen 2018).

The distinction between a total (so-called external) view of an event and an internal view underlies a frequent type of grammatical-aspect opposition, that of perfective vs. imperfective aspect. What is called an "external," or total, view

1. So-called arguments, in principle obligatorily demanded by the predicate frame for the grammaticality of the construction, are distinguished from more loosely connected specifications of manner, time etc., called satellites.

corresponds to an extension of the narrated period beyond the event period (in the sense of Jakobson 1957) or of topic time beyond the event time (in the sense of Klein 1994; topic time further elaborates Reichenbach's 1947 notion of reference time)[2] such that the event's inherent boundary and change of state affecting the internal argument(s) becomes evident; this is ascribed to perfective aspect. Imperfective aspect is, on the other hand, based on the opposite relation: the narrated period is included in the event period (or the topic time in the event time) and the event's ongoingness is made visible. This kind of inclusion can be logically defined as a set-subset relation. Moreover, a subset can either be a proper subset (always smaller than the set) or simply a subset (either smaller or equal to the set). Such differences between (general) inclusion and proper inclusion concerning topic time and event time can account for typological differences (cf. Gvozdanović 2012). For example, eastern Slavic (East Slavic and eastern South Slavic) and western Slavic (West Slavic and western South Slavic) differ in aspectual restrictions (cf. Dickey 2000),[3] including most prominently habitual, historical-present and general factual contexts, in which eastern Slavic uses the imperfective aspect and western Slavic allows the aspectual choice (perfective for singling out a single event in a sequence, imperfective for an *in medias res* perspective). Such instances show that topicality, specifically the topic time relative to the time of the event-situation, plays a crucial role on a language-specific basis. In fact, the full range of aspect uses and typological differences in Slavic can be modelled by assuming the following subtle but systematic differences between eastern Slavic (illustrated by Russian) and western Slavic (illustrated by Czech) proposed in Gvozdanović (2012: 795):

Definition: Russian vs. Czech aspect (TSit = event time, TT = topic time)

i. In Russian perfective aspect, TSit is a proper subset of TT (i.e. TSit $\subset$ TT);
   In Russian imperfective aspect, TT is a subset of TSit (i.e. TT $\subseteq$ TSit).
ii. In Czech perfective aspect, TSit is a subset of TT (i.e. TSit $\subseteq$ TT);
   In Czech imperfective aspect, TT is a proper subset of TSit (i.e. TT $\subset$ TSit).

2. For more complex systems such as Vedic, as discussed by Kiparsky (1998), both the reference time and an additional parameter of perspective time are needed to account for the temporal relations.

3. Dickey (2000) analyzed the eastern Slavic perfective aspect as "temporal specificity" (in a sequence of events) and the imperfective aspect as "qualitative temporal indefiniteness," whereas the western Slavic perfective aspect conceptualizes "event totality" and the imperfective aspect, "quantitative temporal indefiniteness." Preceding this work, Barentsen (1995) analyzed Russian aspect based on terminativity, totality and sequential connection: the presence of all these properties yields the perfective aspect, and absence of at least one of them, the imperfective aspect.

As a consequence of these differences, a total event in which topic time and event time fully coincide is an instance of perfective aspect in western Slavic, but of imperfective aspect in eastern Slavic (for more details and examples from parallel texts, cf. Gvozdanović 2012). This coincidence occurs e.g. in achievements, when an event culminates, but is not followed by an explicit change of state (e.g., *he came, but could not find the building*), motivating the imperfective aspect in Russian, but the perfective aspect in Czech. So-called general-factual meaning in Slavic (e.g., *who sewed this dress of yours*?) is as a rule expressed as imperfective in eastern Slavic (because not the resulting state, but the act of sewing is enquired about) and mostly as perfective in western Slavic (where the event time is a subset of the topic time and may coincide with it) and exceptionally as imperfective, when only the process of sewing is addressed (and the topic time is placed within the event time). Topicality, focus, and possibly other informational properties play a crucial role in the setting of topic time.

Comparable differences were addressed, but not fully explained in a typological contrast, in Altshuler's model. According to Altshuler (2014: 771), an aspectual operator is perfective if it requires a maximal stage of an event in the extension of the VP that it combines with; an operator is imperfective if it requires a stage of an event in the extension of the VP that it combines with, but this stage need not be maximal. This is comparable to stating that the topic time is a subset of the event time in Russian imperfective aspect, but in a typological perspective this formulation does not fully define the Russian perfective aspect, for which, as shown above, the event time is a proper subset of the topic time.[4]

Tense temporally conceptualizes states of affairs relative to one or two reference point (one of these, also called 'perspective time', either coincides with speech time in primary deixis, or a narratively concurrent, preceding or following, vantage point in secondary deixis; in systems with two temporal reference points, the other reference point additionally specifies the event time).

2. From space to time

The observed developments from aspect to tense are related to more general regularities concerning space and time. The notion of time is more abstract than that of space, but location, movement (or direction) and domain boundedness are comparable for space and time. In language histories, shifts from space to time semantics occur (e.g., originally spatial prepositions can acquire aspectotemporal

4. Crucially, a proper subset, not just a subset, which might still be compatible with Altshuler's formulation.

meanings). Examples of such developments can be found a.o. in Celtic languages. The Old Irish preposition *oc* 'at' first meant spatial proximity, then proximity of an agent to the action (when used with a verbal noun) and finally contemporaneity (in durative or iterative readings, the latter with punctual verbs, cf. Ronan 2006: 66). Ambiguity between space and time in *oc* + verbal-noun constructions occurred as early as in the *Cambray Homily*, dated to around 700 AD; cf. e.g. *oc forcetul recto Dée* 'at/in teaching the law of God' (CH 38a, 19–15).[5]

2.1 Lexical aspect

In the history of Indo-European languages, adverbial preverbs denoting spatial frames for events with beginnings, endpoints or locations were, in historical times, univerbated with verbs, yielding prefixes. Such verbal prefixes originally had spatial semantics, but increasingly developed aspectotemporal semantics and contributed to the formation of lexical aspect. As illustrated by Early Vedic (recorded in the Rigveda, from the second half of the second millennium BC), preverb-verb combinations produced new telic predicates. Dahl (2008: a.o. 200) argued that telicity was a marked property of predicates, and predicates unmarked for telicity (typically, activities and processes) were compatible with both telic and atelic readings, the latter especially with non-specific bare plural noun phrases as internal arguments; states were generally atelic. Telicity interacted with aspectotemporal past tenses, most clearly so in the aorist (denoting a past event bounded by event telicity).

Other parts of the world developed different kinds of aspectual (or aspect-like) contrasts. For example, so-called associated motion, attested in some areas of the world (e.g., the Amazonas, Australian languages discussed in this volume, etc.), provides a further interesting instance of motion through space being transfered into time. As discussed by Koch (this volume) concerning Arandic languages, Kaytetye developed associated-motion patterns into what Koch calls a "quasi-aspectual" system: there is a *ONCE.ALONG* form signaling a single, quick (possibly attenuative) action, an *ALL.ALONG* form emphasizing total overlap between the timing of the main action and the motion, and an (unspecific) *ALONG* form that typically connotes repeated action. Following the morphological slot for associated motion in verb suffixes, Kaytetye has a slot for aspect (imperfective

5. This pattern was later adopted by Old Irish *re* 'before' + verbal noun, extended to denote precedence in a temporal structure, e.g. *ré ndul for cel* 'before going to death' in the Middle Irish *Aislinge Meic Con Glinne* (253). Posteriority was expressed by means of *íar* 'after' + verbal noun already in the *Würzburg Glosses*, cf. Wb 3c2: *tri chretim in ísu nó isin beothu itáa ísu iar nesséirgu* 'through belief in Jesus, or in the life wherein Jesus is after resurrection' (cf. Ronan 2006).

aspect, or no marking); in the presented examples, *ALONG* motion is followed by imperfective aspect. In comparison with the aspectual distinctions discussed for Slavic, the reference (*ALONG*) movement in Kaytetye might be compared with TT, the topic time, leading to the following comparison:

ONCE.ALONG may be analyzed as TSit being a proper subset of TT, i.e. TSit ⊂ TT,
ALL.ALONG as TSit fully coinciding with TT, i.e. TSit = TT, and
ALONG (+ imperfective) as TSit being a subset of TT, i.e. TSit ⊆ TT.

If the present analysis is correct, it could mean that Kaytetye is in the process of developing a motion-oriented aspect system in which the (spatial) category of associated motion enables a transfer into the temporal domain.

When discussing sources for anteriors and perfectives, Bybee (2015: 142f.) explicitly mentions resultatives (formed with a stative verb and a participle) and constructions adding semantic implicatures of 'finish' or 'come from' to the verb. Kaytetye (as discussed by Koch, this volume) is also in this respect relevant, because its *COMING* form indicates only the direction of the motion and is compatible with punctual, repeated or totally overlapping action. Interestingly, the Kaytetye *COMING* form has undergone a change of the relative timing of the motion from being prior to another action to being simultaneous with it, preserving only the general deictic sense.

2.2 Developments of aspect and tense in Indo-European

In the history of Indo-European languages, we can observe developments of aspectotemporal verb forms mainly from aspect to tense, best documented by the Early Vedic texts (Rigveda, from the second half of the second millennium BC). The Early Vedic aorist, formed from telic and unmarked verbs, had the meaning of the reference time including the event time (cf. Dahl 2008, Kiparsky 1998). The imperfect could apparently occur with any type of states of affairs, and had the (probably unmarked) meaning of a past event, either of a reference time overlapping with event time (for a telic event), or else a reference time included in event time (Dahl 2008: 247). The perfect had the meaning of a state resulting from a past event. Early Vedic also had a so-called pluperfect, infrequently attested and with partial overlaps with the other past tenses (cf. Dahl 2008: 378 etc.); this form will not be discussed here. The aorist, imperfect and perfect all had an aspectual meaning and a temporal meaning (of anteriority), but especially in the aorist the aspectual properties were primary. This also played a role in aorist formation: telic predicates formed so-called root (or thematic -a-) aorist and predicates unmarked for telicity so-called sigmatic (-*s*) aorist (the suffix is assumed to have

been aspectual, probably telicising); the latter subsequently developed into a productive marker of the aorist stem, in contrast to its absence in the present stem.

The aspectual meaning of the aorist (supported by the aorist stem formation) in Early Vedic hinged on the lexical-aspect restrictions to telic or telicity-neutral verbal predicates and the reference time extending beyond the event time (inherently atelic roots did not form aorists in Rigvedic, cf. Kiparsky 1998: 44).[6] We may conjecture that these aspectual properties conditioned the different temporally past readings (of near past, relative/anterior past and statement of fact) as context-conditioned implicatures. According to Kiparsky (1998), the reference time was in Vedic specifically determined by temporal adverbs and/or the narrative context. The imperfect denoted a general past and usually a general imperfective aspect, cf. Dahl 2008: 250) and could be used for sequential, temporally overlapping and habitually occurring situations. The perfect mostly had retrospective readings: the perfect of instantaneous achievements had a stative present value, and the perfect of non-punctual telic events usually a present resultative reading. Moreover, the perfect could also have an existential reading focusing on a (telic or non-telic) past event without emphasis on the resultant state (cf. Dahl 2008: 378). In summary, lexical aspect played a significant role in the Early Vedic aspectotemporal system, and some temporal values could be derived from aspect.[7] With time, this system changed and at the subsequent Brāhmaṇas period, the aorist was in use as a general past tense, whereas the perfect was used for a past event not attested by the speaker (cf. Kiparsky 1998). Further details are discussed by Dahl in this volume.

The described Early Vedic system had several functional overlaps (particularly between the perfect and the aorist, cf. Kiparsky 1998). Assuming that Early Vedic was indicative for Early Indo-European, it comes as no surprise that later Indo-European languages had different simplifications. Italic coalesced perfect and aorist into a preterite (i.e. simple past), which was continued in Romance (with a periphrastic perfect emerging later). Ancient Greek continued the old distinctions, but (as extensively documented by Drinka 2017) already Homeric Greek began to develop a periphrastic perfect (first from 'be' + middle perfect participle, later also from 'have' + aorist active participle). Drinka (2017: 104) points out that the 'have' perfect of Classical Greek was subject-oriented and fully grammaticalized, but the 'have' perfect of New Testament Greek (formed with 'have' + direct object + participial objective complement) was object-oriented and still retained some of the possessive meaning. Greek of the Roman Empire (probably under Latin influence) coalesced perfect and aorist (Horrocks 2014: 131). Old Germanic

6. Cf. also Dahl, this volume, stating that Early Vedic aorist was a non-partitive operator, whereas Late Vedic aorist was a partitive operator (allowing also atelic roots).

7. Temporal variability also characterized another Vedic form, the injunctive (cf. Hoffmann 1967), which was tenseless and adapted to the temporal and syntactic surroundings.

heavily reduced the system leaving the present vs. preterite opposition (and it was the thematic, not the *-s* aorist that fed into the preterite), later complemented by periphrastic tenses (the perfect passed a comparable stage as the New Testament Greek mentioned above).

Perhaps it comes as more of a surprise that Slavic and Celtic generalized the (so-called sigmatic, *-s*) aorist into an aorist-based preterite (simple past tense), a process specific to these language groups. The survival of an (*-s*) aorist-based preterite in Celtic and Slavic may either be an inherent development or belong to an intermediate contact stage of the Indo-European dialectal development, probably past the dissolution of the reconstructed Italo-Celtic and Balto-Slavic branches. As discussed by Andersen (e.g., 2013), the pan-Slavic development resulted from a formal merger of aorist and imperfect endings and was dated to the earlier period of Common Slavic.[8] It was followed by the emergence of a new imperfect (built by the formula: interfix *-ē-* (common with the Baltic preterite ending) + progressive *-ja-*+ preterite *-x/š-* + thematic *-a/e-* + person/number ending, cf. Andersen 2013: 11). The new imperfect exhibited a major difference between West Slavic (e.g. *xoděxŭ* 'I went') and East Slavic (*xodäxŭ*) and South Slavic (*xoždaaxŭ*); it can therefore be dated after West Slavs left the Slavic homeland in the middle of the first millennium AD. In addition to the older root and sigmatic aorist, an additionally introduced thematic aorist exhibited the same kind of division between West Slavic (*-e-xŭ*) and East and South Slavic (*-o-xŭ*). These phenomena point to relatively recent innovations of the beginning differentiation of Common Slavic, making it more likely to search the reason for these developments in inherent properties. Indeed, we can conjecture that the internal functional reason most likely enabling this development was the development of aspect.

Preceding Common Slavic, already Proto-Slavic was in the process of enriching its lexical aspect system by means of preverbs univerbated with verbs as prefixes. They made non-telic verbs telic, producing pairs of simple vs. prefixed verbs. This heavily enhanced the use of aorists, especially of *-s* aorists, paving the way for the aorist to become a general preterite. The aorist thus underwent a reinterpretation from aspect to tense due to the development of an alternative derivational aspect.[9]

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8. Probably around the middle of the first millennium AD.

9. In contrast to Andersen (2013), the aorist, imperfect and perfect of Common Slavic are here viewed as tenses, not as aspects, because all of them located an event relative to a temporal point of reference. This is different from situation-internal temporal constituency characteristic of aspect (in line with Comrie 1976, 1985).

There are reasons to assume that Celtic had a slightly different, but on a general level comparable development during a comparable period of time, again, on internal grounds. The comparability refers to enhancement of aspectual properties and subsequent extension of the aorist functions.

Probably already in Proto-Celtic (because of comparable reflexes in the later Celtic languages, both Southern and Northern Celtic) there were preverbs attached to verb roots to modify their meanings. Particularly the preverb **pro-*, rendered as *ro-/ru-* in Old Irish, *rhy-* in Welsh, *re-* in Breton and Cornish, *ro-/re-* in Gaulish and *ro-* in Celtiberian, added the meaning of (lexical) telicity to the verb, cf. e.g. Old Irish *as-beir* 'he says', *as-bert* 'he said', and *as-ru-bart* 'he has said' (totally completed, e.g. at the end of a speech). In Old Irish, this preverb was combinable with verbs in different tenses and with other preverbs, except for *con-* (a lexically restricted telicity-marking preverb). Fixed *ro-* occurred as the last preverb and directly preceded a conjunct verb form;[10] its function was to add telicity as a lexical property of the verb, conditioning the meaning of totality on the level of the predicate and state of affairs (e.g. *gabais* 'he took' vs. *ro-gab* 'he has taken').[11] Fixed *ro-* had a partial counterpart in *no-*, used with simplex verbs (in conjunct form) without changing their (mainly non-telic) lexical aspect.[12] So-called movable *ro-* occurred before the verb complex (i.e. before the pronominal marking of inner argument(s) etc.), but following the first preverb (specifically following negative or interrogative particle, *ní-ro-* or *in-ro-*, respectively), e.g. *ni-ru·tho-gaítsam* 'we have not deceived' Würzburg glosses 16a22).[13] The status of movable *ro-* is disputed and assumed to have been a grammatical particle, comparable to *no-*, with no particular meaning (for a survey cf. Lambert 1995). However, e.g. *ni-ru·tho-gaítsam* 'we have not deceived' shows that movable *ro-* contributed the meaning of totality, i.e. aspect on the level of the state of affairs to which the negation applies. In this sense, we may assume that movable *ro-* was a grammatical marker of aspect. Generally, *ro-* gave either a potential or a retrospective reading to a present form, marked relative present, potential future, and added the meaning of a total, completed past event to preterite (developed from *-s* aorist); with the imperfect (iterative) *ro-* denoted action repeatedly completed in past time (Thurneysen

10. Only exceptionally could fixed *ro-* be followed by *-uss-*.

11. Only *-uss-* could intervene between *ro-* and the verb.

12. Conjunct forms occurred in all verbs compounded with prepositions, the preverb/particle *ro-* and certain conjunctions and particles.

13. Celtic *ro-* was similar to Gothic *ga-*, also a marker of telicity (cf. e.g. Gothic *mēljan* 'write' vs. *gamēljan* 'write (fully)').

1946: 342).[14] Latin perfect forms were regularly translated by *ro-* preterites in Old Irish (e.g. Latin *in imperium subrogatus est* 'he has been chosen in the empire' > Old Irish *ro-óirdned* Milan glosses, Ml.14a3). Given that Latin perfects presented events "in retrospect as one complete, indivisible whole" (Pinkster 2015: 444), their translation by means of *ro-* in Old Irish confirms the assumption about *ro-* contributing the meaning of totality (in spite of controversial discussions reported in Lambert 1995).[15] For us it is important to notice that the relatively far-reaching development of aspectual markings independently of the original *-s* aorist enabled a reinterpretation of the aorist as a general preterite in Celtic. In Middle Irish, *ro-* became a grammatical marker indeed, an additional marker of the preterite (cf. Lambert 1995), providing another example of an aspect marker developing into a tense marker.

Partly comparable developments of aspect developing into tense were observed in the history of Japanese (discussed by Narrog in this volume) and are in line with more general observations by Dahl (1985) and Bybee et al. (1994). The opposite direction of grammatical change is heavily constrained – aspect can compensate for tense, i.e. functionally adopt its role, but this is different from tense yielding aspect (cf. also the discussion on East Slavic delimitative *po-* below). For example, most Slavic languages (except in the southeast) have heavily simplified the past-tense system (in most instances leaving only one fully-fledged past tense), whereas, at the same time, they have enhanced their aspect system, now capable of fulfilling the functions formerly performed by the aorist and the imperfect past tenses. This was a shift in function, not a reversal of a general tendency.

2.3 Aspect in medieval Slavic

Given the rather pervasive functional load of Slavic aspect, it is a good test case for investigating change processes and their systemic properties.

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14. Thurneysen (1946: 341ff.), who did not discern a systematic difference between fixed and mobile *ro-*, gave the following list of functions: Old Irish *ro=* (written *ro=* for the preverb) gives perfective force to the preterit indicative and past subjunctive. In the imperfect tense, it denotes repeated completion in the past. In the present indicative and subjective, it denotes completion at the time that another action takes place, and future reference for the present subjunctive (*futurum exactum*). The preverb *ro=* converts a hortative subjunctive into an optative, and in the present tense, it can also express possibility or ability and is used in a general gnomic sense.

15. Wiemer and Seržant (2017) discussed *ro-* in Old Irish based on a partial listing of its functions and without discussing the data listed in Lambert (1995). The conclusion about *ro-* being a semantically empty preverb has some applicability to Middle Irish, but not to Old Irish.

Medieval attestations of Slavic languages exhibit a continuation of the Indo-European type of inflectional aspect (based on the opposition of the aorist stem, denoting a temporal boundary and boundedness, and the present/imperfect stem, denoting ongoingness) combined with a developing derivational aspect. Affixal verbs were still rare in the earliest documents.

For the development of grammatical aspect in Slavic, a central role was played by the delimitative verb prefix *po-* (cf. e.g., Janda et al. 2013; Dickey 2015; Eckhoff 2018). This prefix is important because it adds temporal quantification to atelic states of affairs (in addition to resultative variants with telic states of affairs and inceptive variants with movement verbs) and thereby contributes to systematic entrenchment of grammatical aspect, hinging on the internal boundedness of states of affairs.

Based on corpus data from the Tromsœ Old East Slavic/Old Russian and Old Church Slavic Treebank, Eckhoff (2018) established a significant presence of delimitative *po*-verbs already in the oldest documented stages: Old Church Slavic (*Codex Marianus* and *Codex Zographensis*) and Old East Slavic had around 20% delimitative and around 40% resultative *po*-verbs.[16] In Old East Slavic, the same semantic verb classes occurred in *po*-derivatives and in aorists (denoting a temporal boundary): states, plain activities, speech verbs and psych verbs, whereas secondarily derived verbs did not occur in aorists. The functions of *po*-derivatives vs. aorists were in the beginning complementary, but with the increased use of *po*-derivatives in aorists they came into competition and finally, in the 14th century, *po*-derivatives took over the function of the aorist, which was lost (but preserved in the bookish style until the dissolution of diglossia in the 17th century).

The aspect system of the earliest Old East Slavic and Old Russian texts was in the process of development (cf. a.o. Bermel 1997). Prefixation was used for denoting the specific boundary of a telic event; in most instances, prefixation added transitivity to the verb. Contrasts between prefixed verbs and (unprefixed) simplex verbs existed for non-punctual telic events (e.g. *sŭ-gor-ě-ti* vs. *gor-ě-ti* 'burn'); punctual telic verbs participated in contrasts only to a limited extent, a.o. in contrasts between a simplex verb and a secondarily suffixed verb with an iterative meaning (e.g. *da-ti* vs. *da-ja-ti/da-va-ti* 'give').

Po-verbs occurred most frequently in resultative and delimitative variants; these depended on the lexical content and the object of the verb. Importantly, as I show below, the delimitative *po*-variant involved a quantified goal-object, if any, and otherwise the agent-subject. In the older texts, the relevant argument was

16. The dissolution of Old East Slavic unity is usually dated to the 13th century, but northern Russian exhibits separate properties (e.g., concerning the second and third palatalizations) from the post-migration period in the second half of the first millennium AD.

spatially quantified; temporally quantified events were first expressed by simplex verbs in the aorist, then by *po*-verbs in the aorist, and subsequently by *po*-verbs only (or *pro*-verbs, denoting totality of space, time or an entity), when the aorist was lost. This can be illustrated by the following example from the *First Chronicle of Novgorod* (written between the 11th and the 13th century, preserved a.o. in the Synodal copy from the end of the 13th / beginning of the 14th century), which consistently distinguishes between *po-gor-ě-ti* 'burn down, in relation to a spatially quantified argument' and *sŭ-gor-ě-ti* 'burn down totally'.

In its description of the year 1134, the *First Chronicle of Novgorod* reports that the Merchant Square burnt, *po-gor-ě* (in the aorist), with a clear indication of the affected part of the square (i.e., spatially delimitative), as it had burnt in the anterior past, *bja-še po-gor-ě-l-ŭ* (spatially and temporally delimitative), immediately followed in the text by the statement that (the) ten churches burnt down (resultatively), *sŭ-gor-ě* (a terminative statement about burning).

(1) *Tomĭ že lětě* ***pogorě*** *Tŭrgovyi polŭ otŭ ručĭja*
that.LOC prt year.LOC.SG burn.AOR.3SG Merchant.ADJ square from creek.GEN
Pŭltĭnicĭnago do koncja Xŭlma, jakože i preže bjaše ***pogorělŭ;***
P.GEN to end.GEN X.GEN as and before be.IMP burn.APP.MASC.SG
A cerkvii cstĭnyxŭ 10 ***sŭgorě*** *avgusta vŭ 4.*
and church.GEN.PL sacral.GEN.PL 10 burn_down.AOR.3.SG August.GEN on 4
'In the same year the Merchant Square burnt from the Timberer's Creek to the end of Xolm, as it had also burnt before; and ten holy churches burnt down on the 4th of August' (*Novgorod First Chronicle*, year 1134)

We can see that *po-gor-ě* is used with a quantified argument and an additional piece of information about the burning process. With *sŭ-gor-ě,* the informational unit is completed, i.e., the event reported on is understood to have run its course to completion, and only the result is in focus. Aspectual meanings were thus intersecting with all language levels already in the early history of Russian.

The Russian National Corpus[17] (http://www.ruscorpora.ru) has 42 instances of *po-gor-ě* and 12 instances of *sŭ-gor-ě* in Old Russian (all of the latter in the *First Chronicle of Novgorod*),[18] predominantly used in the aorist. In the subsequent period of Middle Russian (which altogether lasted from the 14th until the 17th century), the aorist is preserved in the bookish style; the textual evidence of the Russian National Corpus[19] points to its textual occurrence lasting until the end of Middle Russian. Scattered over the period from the 14th until the 17th century, there were 294 attestations of the aorist *po-gor-ě*, compared to only 46 instances

17. Attestation on October 10, 2019.

18. On October 10, 2019, consisting of 500292 words.

19. On October 10, 2019, consisting of 8144748 words.

of the perfect. In a similar way, there were 151 instances of (the aorist) *sŭ-gor-ě / z-go-rě,* compared to 39 instances of the perfect. The delimitative *po*-verb was, as a rule, used only with (explicitly or implicitly) quantified arguments and usually with a contextual reference to the inner, delimitative phase. In contrast, resultative verbs indicated completion of the event and were followed by a statement about the new state or at least partially new situation (often introduced by the conjunction *a* 'and, but' to denote a deictic shift of time, space, or inner-argument referent(s)).

(2) *mnogoe ix množestvo i tyi vsi pogoreli, i tovarŭ ix, i*
much they.GEN multitude and these all burn.APP.PL and goods they.GEN and
skoty, i iměnie ix, to vse s nimi vkupě
animals and belongings they.GEN that all with they.INSTR together
zgorělo
burn_down.APP.SG
'Great many of them and all these burnt, and their goods, and animals, and their belongings, all that burnt down together with them.'
(*Letopis' tipa Avraamki*, 1371–1375)

These data show that there was a rather smooth shift of the temporal delimitative function from the aorist onto the *po*-verb with its argument(s). This development shows at the same time that aspect is a matter of the verbal predicate with its arguments, tied up with the vantage point of the context.

Another important lesson from this development concerns the functional interaction between tense and aspect. In the specific instance of delimitative *po*-verbs, the shift of the function of temporal quantification from the aorist to *po*-verbs accompanied a more-general semantic transfer from spatial to temporal meanings of the prefix *po-* characteristic of the formation of grammatical aspect with other affixes as well (e.g., *sŭ-gor-ě-ti* '(literally:) all-together-burn' vs. *gor-ě-ti* 'burn' in the Old Russian period, in contrast to the full aspectual pair *sŭ-gor-ě-ti* 'burn to completion' vs. *sŭ-gar-a-ti* 'be burning to completion' in the Middle Russian period).

3. Remarks on tense systems

The formation of tense systems with a contribution of aspect, a relatively frequent phenomenon in the languages of the world, has been discussed above for various Indo-European languages.

The opposite development, of tense influencing the development of aspect, is rare, but possible, too. Such an example is found in medieval northern Russia

presumably under the influence of the Finnic substrate. As of the earliest attestations of the 11th century, the tense system of the vernacular of Novgorod hinged on periphrastic past-participle constructions (except for the present tense); the aorist and the imperfect were rare and attested only in the formal style (cf. a.o., Zaliznjak 1995: 155). At the same time, the aspect system was still in the process of formation. Prefixed perfective derivatives of telic verbs used in the past participle had a resultative reading, focusing on the effect of the verb event. This was generalized to become the meaning of the Russian perfective aspect discussed in Section 1 above.

Another frequent phenomenon is extension from temporal into modal domains, showing that the representational language level is closely connected with the interpersonal (communicative and evaluative) level. Such extension was observed already by Delbrück (1876: 128) concerning the Vedic aorist between Early Vedic and Middle Vedic (Brāhmaṇas); whereas, in both periods, the aorist was used for recent past, it significantly acquired an additional evidential meaning (in the sense of experiential: the speaker having witnessed the event) in the Middle Vedic period. This process has also been described for the Vedic aorist by Dahl (2012), as well as the (later) rise of inferentiality in the Vedic perfect (see Dahl 2014). There are multiple examples of temporal meanings extending into modal domains, most frequently in the realm of future, but also past tenses for inevitable or hypothetical events. Such developments are basically inherent but may be instigated by language contacts (particularly in Bible translations, cf. Drinka 2017, Gvozdanović 2019, but also direct contacts, cf. e.g., of Germanic with Slavic, cf. Gvozdanović 2021).

4. The present volume

The focus of the papers in this volume is on historical developments of genetically different aspect and tense systems across continents.

The paper by Daniels on Sogeram languages of Papua New Guinea discusses regularities and constraints on shaping and reshaping tense systems. Sogeram exhibits a variety of development possibilities, either simplifying the reconstructed Proto-Sogeram system or making it more complex. As established by the author, the relative order of tenses does not change if something is added or lost. Another important result is that no change of relative to absolute tense is attested (not supporting a hypothesis by Hengeveld 2017).

Daniels proposes to account for temporal phenomena by distributed exponence, a concept of featural interaction by which a newly introduced feature can interact with features from another dimension, and then, if the featural distinction

is lost, contribute to a pattern of distributed exponence. This is indeed a promising model for tense and aspect interaction that could be developed further. For example, we know that tense can cause coercion of lexical aspect and, on the other hand, grammatical aspect can "shift" a semantic tense value. An example can be found in the Sogeram language Mum, in which historic past is formed with the past suffix *-ma*, but occurrence of the aspectual suffix *-s* (probably a marker of completive or perfective aspect) together with *-ma* constitutes the innovated category of far past (temporally shifted forward on the timeline). The presumed aspectual value of *-s* may help us to understand what happened: completive (or perfective) aspect rests semantically on a change of state, focusing the resulting state, and this takes the temporal anchoring one step forward in time. In the closely related language Sirva, on the other hand, the combination of *s-* past with immediate past endings yielded the far past (which in this language comprises the historic past), probably showing that in this language the focus was on the first state of the change of state conceptualized by the aspectual suffix *-s*.

Formation processes of aspect and so-called Associated Motion are discussed in Harold Koch's paper "Development of aspect and associated motion in Arandic languages." The origins of so-called "associated motion" involve the combination of non-finite verb forms with different verbs of movement sometimes involving direction ('go', 'go back', 'come') or with stance verbs. Originally ascribed to the imperfective aspect, associated motion is now seen as a category of its own. Importantly, this category allows contrasting temporal relations between the main action and the motion, especially *prior motion*: 'go (back) and do', vs. *subsequent motion* 'do and go (back)', but also *concurrent motion* 'do while going/coming'. The category of associated motion, usually formed from serial or subordinate verbs, exhibits some similarities with serial verbs that historically contributed toward aspect morphology in the Sogeram languages (e.g., 'walk' for habitual or more generally imperfective aspect), but this category is more elaborate and makes the impression of more recent origin than the Sogeram aspectual serial verbs. Such categories are difficult to classify from an Indo-European perspective, although they are not fully unknown, because e.g. Indo-Aryan developed light verbs (e.g., 'go', 'fall') in aspectual functions.

The data presented in the paper on Kisikongo Bantu (Dom et al., this volume) reveal partly comparable phenomena. Probably by a slow functional shift aided by homonymy caused by prefix loss, the Kisikongo simple present (*-ø-R-a*, where *R* = root) now (except with auxiliaries and in fixed expressions) replaces the former future tense (*ku-R-a*), whereas the present imperfective (*-ø-R-ang-a*), originally restricted to habitual uses, acquired episodic and generic uses to become a general present tense. In addition to the authors' insightful analysis, I would like to draw attention to the particle *se* (in the meaning of a change of state) attested

in future-tense uses in Kisikongo and grammaticalized as *si ø-R-a* in Kintandu, a neighboring East Kikongo variety. It is the presence of this particle that signals future reference, in contrast to its absence, while the verb itself signals present reference (e.g., see Example (39) in the paper on Kisikongo). In the meaning of a change of state, it is an aspectual particle, which together with the simple-present form yields future meaning, comparable to the perfective present with future meaning in Slavic languages. Such phenomena belong to a larger field of distributed exponence in temporal domains.

Historical changes of aspect and tense in Japanese are discussed by Narrog against the wealth of Japanese and western studies with partly contradicting terminologies. This concerns particularly the *-(ur)u* forms, which the author analyzes as *default* in Old Japanese (used adnominally and in finite forms) in contrast to perfective and resultative, and as non-continuative in Modern Japanese, in contrast to new continuative (progressive) forms. It was the multitude of meaning variants of this form which led former researchers into mutually contradicting analyses; Narrog shows how these variants result from combinations with lexical aspect, a phenomenon also discussed for Sogeram and Kisikongo in this volume. In Modern Japanese, *-Te- i-* is a continuative non-past counterpart of (non-continuative non-past) *-(ur)u*. *-Te- i-* denotes progressive semantics with activities, resultative with achievements and accomplishments, stative with states, and perfect with non-stative verbs under certain contextual conditions. In resultative variants, it is apparently the resulting state which is continuative; in such instances, the argument affected by the resulting state is topicalized, as in Example (4) of Narrog's paper. Such examples show that, also in Japanese, the setting of topic time is a crucial component of expressing aspectual distinctions. Narrog describes developments of aspect to tense (e.g., of perfective *-t-, -n-* to past tense) and of tense to modality (e.g., of future *-am* to full modality) relative to scope properties and in comparison with general tendencies of change and category climbing up the systemic hierarchies.

Finally, two prototypical, and probably the most discussed, Indo-European tense-aspect systems, those of Vedic and Latin, are analyzed in a comparative perspective by Dahl in this volume; Vedic and Latin exhibit interestingly different reevaluations of the aorist-imperfect-perfect tense domains. Whereas both languages start with a comparable system, Vedic gradually develops a remoteness- and evidentiality-based tense system, but Latin preserves aspect distinctions, found in later Romance languages as well. Dahl establishes a markedness shift in Vedic, by which particularly the aorist loses its marked perfectivity to become a neutral past tense between Early and Middle Vedic (while the perfect undergoes semantic erosion as well). Analytically, Dahl applies the neo-Reichenbachian as

well as Altshuler's (2014) model, showing that these are in fact complementary and reveal important typological properties not easily accounted for otherwise.

Across language groups and continents, the general principles revealed by the studies presented here contribute towards a novel and deepening understanding of tense and aspect. They contribute not only to modelling and theory, but also to a better understanding of processes in individual languages.

Abbreviations

ACC	accusative
AOR	aorist
APP	active past participle
DAT	dative
GEN	genitive
IMP	imperfect
INF	infinitive
INSTR	instrumental
INTR	intransitive
IPF	imperfective
LOC	locative
MASC	masculine
NOM	nominative
PER	perfect
PF	perfective
PL	plural
PRT	particle
REFL	reflexive
SG	singular
TRANS	transitive

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The history of tense and aspect in the Sogeram family*

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1. Introduction

Our understanding of how tense and aspect morphology is created has grown considerably in the last few decades (key works include Bybee & Dahl 1989; Heine 1993; Bybee, Perkins & Pagliuca 1994; Kuteva 2001; Heine & Kuteva 2002, and Hengeveld 2011, but there are many others). The number of volumes dedicated to common pathways of grammaticalization is now so large that volumes are beginning to be dedicated to *uncommon* pathways (Devos & van der Wal 2014). But for all this, our understanding of how tense and aspect *systems* change still lags behind, particularly when it comes to systems with more numerous tense distinctions.

In this paper I provide a systemic, diachronic perspective on the tense and aspect (TA) morphology of the Sogeram languages, a family of Papuan languages spoken in Papua New Guinea. The Sogeram languages make for an interesting case study in several respects. Most of them make several remoteness distinctions in the past. Many also have a tense, which I call the immediate past, which combines present and past time reference. They also exhibit less common morphological phenomena like distributed exponence (Carroll 2016), where multiple morphemes conspire to mark a single feature value. Taking a systemic perspective and considering the observed semantic changes within the context of the semantic oppositions that are in play allows us to see patterns of change more clearly.

Of course, we are not completely ignorant when it comes to the diachronic behavior of TA systems, even complicated ones. We are particularly fortunate to be in possession of Nurse's (2008) monograph on tense and aspect in Bantu, to which I will make frequent reference throughout this paper. These comparisons are particularly illuminating since Bantu languages, like Sogeram languages but unlike European ones, often possess several remoteness distinctions in the past.

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And of course histories of individual languages have been written, although not usually with an exclusive focus on the development of TA morphology (exceptions include Dakin 1979; Andersen 2006; Estaji & Bubenik 2007; Hsiao 2013; Kragh 2015; Dahl 2016).

Before commencing, it is also necessary to make a few remarks about how the arguments I present here can be interpreted. Since we are working with languages spoken in New Guinea, which were not written down before the arrival of Europeans in the last century, we must rely on comparative reconstruction for our insights. Consequently, the discussion flows primarily from the reconstruction of Proto-Sogeram I argued for in Daniels (2015). From a methodological standpoint, this is not ideal – it would be much nicer to learn about language change by observing it directly – but it is nevertheless our only option if we would understand how languages like the Sogeram ones behave over time. Still, care must be taken in interpreting the data. It is especially important to bear in mind that our conclusions can only be as valid as the reconstruction they are derived from. Luckily in the Sogeram case there is a good deal of cognate morphology, and since the phonological correspondences are fairly well understood (Daniels 2010, 2015) we can propose reconstructions with some confidence.

In the rest of this introduction, I present the Sogeram languages. I then briefly outline the reconstruction of Proto-Sogeram TA marking as I presented it in Daniels (2015). In Section 3 I describe how each daughter branch has changed this system, and discuss the patterns that emerge from these observations in Section 4.

The Sogeram languages are a family of ten languages (Daniels 2016, 2017a) spoken along the Ramu and Sogeram Rivers in central Madang Province, Papua New Guinea (see the map in Figure 1). They are Trans New Guinea languages (Pawley 2005; Ross 2005; Pawley & Hammarström 2017), and within that large family they belong to the Madang branch (Z'graggen 1975; Pawley 1995). Of the four branches of Madang, they belong to South Adelbert (Z'graggen 1980); of the two branches of South Adelbert, Sogeram is one and the other is Josephstaal.

Data on Nend, Mum, and Apalɨ come from Kyle Harris (1990, n.d.), Mike Sweeney (1994, n.d.), and Martha Wade (1989, 1993, 1997, n.d.), respectively. Data on the remaining languages come from my fieldwork. Magɨ had not been surveyed until recently and I have only conducted very brief fieldwork on it (Daniels 2016); consequently, it does not feature prominently in what follows. From a comparative standpoint, however, this is not so great a loss, as it is very closely related to Aisi.

An investigation into the internal relationships of the Sogeram languages (Daniels 2010, 2015; Daniels, Barth & Barth 2019) has produced the family tree given in Figure 2 and the glottometric diagram in Figure 3.[1]

1. Glottometric diagrams are a kind of wave diagram in which each line represents a bundle of innovations shared by more than one language, and the thickness of that line the strength of the bundle (see François 2014 and Kalyan & François 2018 for more discussion).

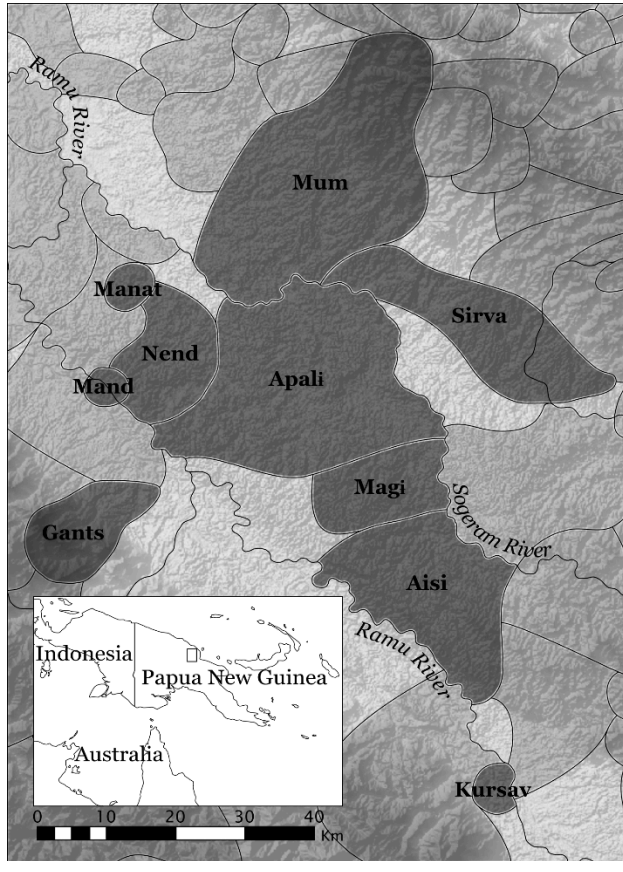

Figure 1. Map of the Sogeram languages

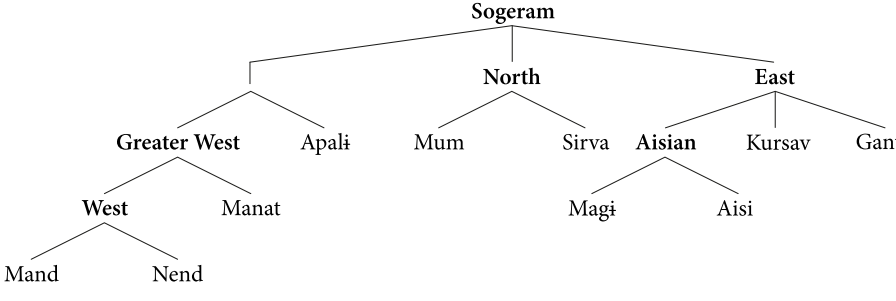

Figure 2. Family tree of the Sogeram language family

I turn now to a discussion of the tense-aspect system that can be reconstructed for Proto-Sogeram.

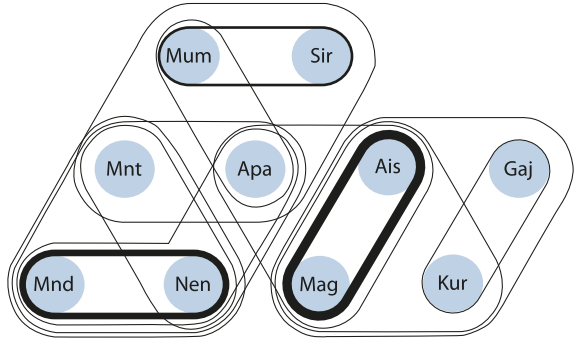

Figure 3. Glottometric diagram of the Sogeram languages

2. The Proto-Sogeram tense-aspect system

In this section I give an overview of the tense-aspect (TA) system of Proto-Sogeram, as it is reconstructed in Daniels (2015). This will serve as the starting point for our discussion. Before diving into the various strategies for marking tense and aspect that can be reconstructed, though, I need to say a little about Proto-Sogeram verb morphology.

The general Proto-Sogeram verb template was the simple schema given in (1): a verb stem followed by a tense/aspect/mood suffix, followed by a subject agreement suffix. A few categories, such as the imperative mood, did not have a separable TAM suffix but were instead marked by a unique subject agreement paradigm. And one category, the far past, was marked by the combination of two TAM suffixes, as we will see below.

(1) Stem-TAM-SBJ

Subject agreement suffixes distinguished five person/number values: 1SG, 2SG, 3SG, 1PL, and 2PL. It is unclear how 3PL was marked in Proto-Sogeram; most modern languages mark it with a combination of the 3SG agreement suffix and a separate plural suffix, but none of the plural suffixes are cognate. This question remains unresolved and I do not address it here.

Different TAM categories took different subject agreement suffixes. Thus, for example, the 1SG suffix in the historic past was *-in, but in the far past it was *-n. Seven sets of subject agreement markers can be reconstructed to Proto-Sogeram, but three of these were only used to mark modal categories. The remaining four, which are the ones that concern us, are shown in Table 1.

Finally, I should say that I am, for the most part, restricting myself to a discussion of final tenses and aspects. The Sogeram languages make frequent use of clause chaining constructions that distinguish chained verbs, which take what

Table 1. Proto-Sogeram subject agreement suffixes

Name	1SG	2SG	3SG	1PL	2PL	TAM categories
Set I	*-in	*-na	*-i	*-riŋ	*-ra	Immediate past, historic past
Set II	*-n	*-na	*-r	*-uriŋ	*-ra	Recent past, far past
Set III	*-n	*-na	*-ri	*-riŋ	*-ra	Future
Set IV	*-n	*-na	*-i	*-riŋ	*-ra	Habitual

is known as medial morphology, from the final verb of the chain, which takes final morphology. Medial morphology usually marks switch reference and relative tense; aspect and absolute tense are usually marked only on the final verb. Readers may wonder why I am excluding the relative tense that is marked on medial verbs from this discussion, but the reasons will become clear when I return to this topic in Section 4.3.

I now discuss the reconstructible TA forms for Proto-Sogeram. I begin with the synthetic forms, those that are marked by suffixation alone. I then turn to the analytic forms, which in Proto-Sogeram were formed by verb serialization.

2.1 Synthetic forms

Six synthetic TA forms can be reconstructed to Proto-Sogeram: five tenses and one aspect. The tenses made a variety of temporal distinctions, while the aspect appears to have been unmarked for time reference. For space reasons I cannot provide supporting cognate sets for all of these reconstructions, but more detailed discussion is available in Daniels (2015: 148–171). Instead, I simply provide an overview of the reconstruction as it stands and describe the overall system that it suggests.

The most secure reconstruction is a tense I refer to as the immediate past. It was formed with the Set I agreement suffixes and a null TAM suffix, as shown in Table 2. Reflexes of this tense are retained in every Sogeram language. In most languages the tense includes present time reference and also past time reference, extending back some distance from the present. This distance typically ranges from a few hours before the present (as in Mand) to two days (as in Aisi).

Table 2. Proto-Sogeram immediate past

	SG	PL
1	*-Ø-in	*-Ø-riŋ
2	*-Ø-na	*-Ø-ra
3	*-Ø-i	–

Moving backwards through time, the next two tenses we encounter are the recent past (Table 3) and the far past (Table 4). Both of these tenses were marked by the past tense suffix *-ŋkɨ and the Set II subject agreement suffixes; the far past also added another past tense suffix, *-ma. The *-ŋkɨ suffix is only retained in Manat and Gants, which means that both of these tenses are also only retained in these two languages. However, these two languages are from disparate branches of the family and show no evidence of having been in contact with each other, meaning that in spite of the paucity of reflexes this reconstruction is actually fairly secure.

Table 3. Proto-Sogeram recent past

	SG	PL
1	*-ŋkɨ-n	*-ŋk-urɨŋ
2	*-ŋkɨ-na	*-ŋkɨ-ra
3	*-ŋkɨ-r	–

Table 4. Proto-Sogeram far past

	SG	PL
1	*-ma-ŋkɨ-n	*-ma-ŋk-urɨŋ
2	*-ma-ŋkɨ-na	*-ma-ŋkɨ-ra
3	*-ma-ŋkɨ-r	–

The last past tense was the historic past (Table 5), formed with the suffix *-ma and the Set I agreement suffixes. This paradigm, like the immediate past, is amply reflected in modern languages: it is retained in Nend, Manat, Apalɨ, Mum, Sirva, and Gants.

Table 5. Proto-Sogeram historic past

	SG	PL
1	*-m-in	*-ma-rɨŋ
2	*-ma-na	*-ma-ra
3	*-m-i	–

The final tense that can be reconstructed for Proto-Sogeram is the future, which was formed with the future tense suffix and the Set III agreement suffixes (Table 6). The future suffix, which seems to have had two allomorphs, *-ɨmpia and *-ɨmpa, is retained in only two languages: Apalɨ and Aisi. Although these two languages are from different branches of the family, they are geographically adjacent and there is a good deal of evidence that they have been in contact in the

past and have undergone some innovations together. This would ordinarily mean that the future could not be reconstructed to Proto-Sogeram, but luckily there are resemblant forms outside the family. The sister group to Sogeram is Josephstaal, and two Josephstaal languages have cognate future suffixes: Moresada (Capell 1951) and Anamuxra (Ingram 2001). The Anamuxra future suffix is *-ba* (where *b* is prenasalized), and the Moresada suffix appears to be *-mba*, although it is not synchronically separable in every form. These two reflexes allow us to reconstruct this form to Proto-South Adelbert (the parent of Proto-Sogeram and Proto-Josephstaal), and thus to infer that it existed in Proto-Sogeram and was retained in Apaḷi and Aisi.

Table 6. Proto-Sogeram future

	SG	PL
1	*-ɨmpia-n	*-ɨmpa-riŋ
2	*-ɨmpa-na	*-ɨmpa-ra
3	*-ɨmpa-ri	–

Finally we turn to the only synthetic aspectual paradigm, the habitual, which was formed with the suffix *-ɨtia and the Set IV agreement suffixes (Table 7). Reflexes of this paradigm are found in Mand, Nend, Apaḷi, Magɨ, and Aisi.

Table 7. Proto-Sogeram habitual

	SG	PL
1	*-ɨtia-n	*-ɨtia-riŋ
2	*-ɨtia-na	*-ɨtia-ra
3	*-ɨtia-i	–

The primary aspectual division in the Sogeram languages is generally between temporally contiguous and temporally non-contiguous situations. All the tenses described above referred to temporally contiguous situations that could be located at a single point on a timeline. The habitual, by contrast, referred to temporally non-contiguous situations that may have spanned a long temporal range.

The reconstructed tenses are summarized in Figure 4; the habitual is not included in this diagram because, as mentioned, it did not have explicit temporal meaning. Note also that "present" in this diagram is to be interpreted semantically – not as a morphological tense value, but simply as denoting the present moment in time. Reconstructing semantic content for the tenses in this figure is difficult for two reasons. First, tenses often shift their meaning in daughter

languages, and it is difficult to establish principles of directionality for these changes: a past tense could acquire more recent time reference as easily as more remote time reference. Second, languages differ in terms of how flexible the divisions between tenses are. In Gants, for example, speakers have a lot of leeway to construe objectively recent events as having occurred long ago by using a remote past, and vice versa. In Manat, by contrast, the time references of the tenses are much more fixed.

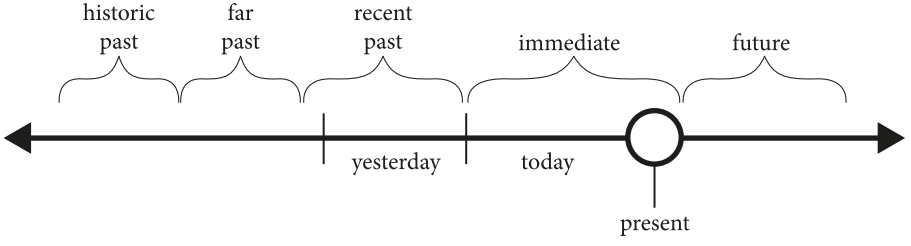

Figure 4. Proto-Sogeram tenses

But although we cannot reconstruct the temporal meaning of these tenses with much confidence, we can reconstruct their temporal *relation* much more assuredly. This is because they never switched places on the timeline. In other words, whenever two of the tenses in Figure 4 are retained in a language, they are retained in the same temporal order given in Figure 4. So it seems fairly safe to say that, for example, the historic past referred to a more remote past than the far past, even though we cannot locate the boundary between them with much precision.

I turn now to a discussion of Proto-Sogeram serial verb constructions, which were used in expressing a variety of aspectual distinctions. Auxiliary verb constructions also play a role in the story, but I do not present them until Section 4.1.

2.2 Serial verb constructions

A productive system of verb serialization can be reconstructed to Proto-Sogeram. Daniels (2015: 126–153) reconstructs three special kinds of serial verb construction (SVC), each of which had its own special grammatical properties, in addition to the general productive serialization pattern which did not express particular grammatical meaning.

In SVCs, a series of uninflected verbs was followed by a verb that carried all the inflection for the SVC. An example from Kursav, which preserves this original structure intact, is given in (2). Here *magra* 'pull' and *vɨsa* 'get' are serialized, and the combined predicate is marked with the same-subject suffix *-da*.

Kursav

(2) *Om* ***magra visa-da,*** *ya-ba* *ya-koma* *bin* *skra-da …*
land **pull** **get-ss** 1sg-emph 1sg.poss-arm loc put-ss
'I'll get the land back, and put it in my own hands, and …' (Land_17)

Some Proto-Sogeram verbs had two root shapes: one for when they bore affixes, and another for when they did not. In verbs that had this alternation, the unaffixed form always added an *a to the end of the affixed form. So for example 'give' was *iŋkwa when it was not the final verb of an SVC, and *iŋku- or *iŋkw- when it had suffixes. I call these allomorphs the free form and the bound form of the root, respectively.

The subtype of SVC that concerns us here is what I term the aspectual SVC. In this construction, non-final verbs all had their normal lexical meaning, but the final verb of the SVC had a special aspectual interpretation. Four separate verbs can be reconstructed as having occupied this aspectual position: 'walk', which contributed imperfective aspect; 'stay', which contributed stative aspect; 'put', which contributed completive aspect, and 'look', which contributed conative meaning. I describe each of these in turn, focusing on the first two, which have more of a role to play in the story to come.

As mentioned, *kinta 'walk' could contribute imperfective aspect to the predicate when it was the last verb in an SVC. Reflexes of this construction are found in a variety of languages. (3) shows this construction in Gants, where it has habitual meaning.

Gants

(3) *Krim mida, araka, dugep,* *kra* *nuduŋ* *rotu* *ada* ***kida-m-ek.***
night com noon afternoon top 3sg.poss worship do **walk-fpst-3sg**
'Night, day, and afternoon, she would always worship.' (Christian_19–20)

In Manat, SVCs have univerbated and are now compounds. The cognate construction is still found, though, and it marks progressive aspect (4).

Manat

(4) *Trih-ura-s* *vihir* *ka-b* ***kubru-da-n=a …***
pull-pl-3.ds bamboo md-nom **break-walk-2/3.ss=lnk**
'They pulled and the bamboo was breaking and …' (Creation_149)

Essentially the same construction is also found in Apali (5), where it conveys continuous aspect. The only other difference is that the lexical verb for 'walk' is not homophonous in Apali, so *-da* must be analyzed as a suffix.

Apaḷi

(5) *Huja cil* ***huǥila-da-m-i.***
yam.type peel **cook-CONT-HPST-3SG**
'She peeled the yams and habitually cooked them'. (Wade n.d.)

Proto-Sogeram SVCs have been a frequent source of new TA morphology throughout the Sogeram family, and these three examples, culminating with the Apaḷi continuous suffix *-da*, illustrate a common path of innovation. Morphology that grammaticalized along this pathway can usually be recognized by two signs. First, it is located to the left of older morphology; for example, in (5) *-da* is found to the left of the older historic past suffix *-ma*, which existed in Proto-Sogeram. Second, suffixes that were created in this way often attach to the free form of the root instead of the bound form.

Another aspectual SVC that can be reconstructed to Proto-Sogeram involved the verb *kiña 'stay', which contributed stative aspect to its predicate in this position. Examples below show reflexes of 'stay' in this position in Gants (6), Apaḷi (7), and Nend (8).

Gants

(6) *Ai-da ada ga-k-e ga, oŋai ma mia* ***ci-m-ek.***
come-SS do perceive-DS.SEQ-3SG TOP possum NEG hold **stay-FPST-3SG**
'He came back and when he looked, it wasn't holding a possum'. (SB_2)

Apaḷi

(7) *Via* ***miǥila hiṇi-da-ci …***
get **watch stay-CONT-3SG.DS**
'He got it and was watching while …' (Wade 1989: 188)

Nend

(8) *Wiram mba-na-mb kiṛim* ***aŋkwa-ñi~ndiñ-i.***
man ND-CTR-NOM just **stand-stay~TPST-3SG**
'This man just stood there'. (Harris n.d.)

Two more Proto-Sogeram verbs could be used in this construction: *tama 'put' signalled completive meaning; and *tiku 'see' signalled conative meaning ('try to V', which is more properly classified as a mood than an aspect). Since neither of these constructions feature in the developments discussed below, I do not exemplify them but only mention them here for completeness.

We have now surveyed all that can be reconstructed of the Proto-Sogeram TA system. Five synthetic tenses and one synthetic aspect combined with three analytic aspects to form a rich system capable of expressing a wide range of both temporal and aspectual meanings. Now we are in a position to begin answering the question: How does such a richly endowed TA system behave over time?

3. Innovations

Our next step is to examine the changes the Proto-Sogeram TA system underwent in each daughter branch. In this section I present what is essentially a catalogue of the various innovations that have taken place in different branches of the family. The discussion proceeds primarily on a language-by-language basis, but I also discuss some innovations that are reconstructible to intermediate proto-languages.

3.1 Gants innovations

Gants provides us with a convenient starting point for two reasons. First, it is at one end of the contact chain that the Sogeram languages arose from, which means starting with it allows us to move our discussion along that chain. Second, it has been quite conservative. I begin the discussion with an overview, presented diagrammatically in Figure 5.

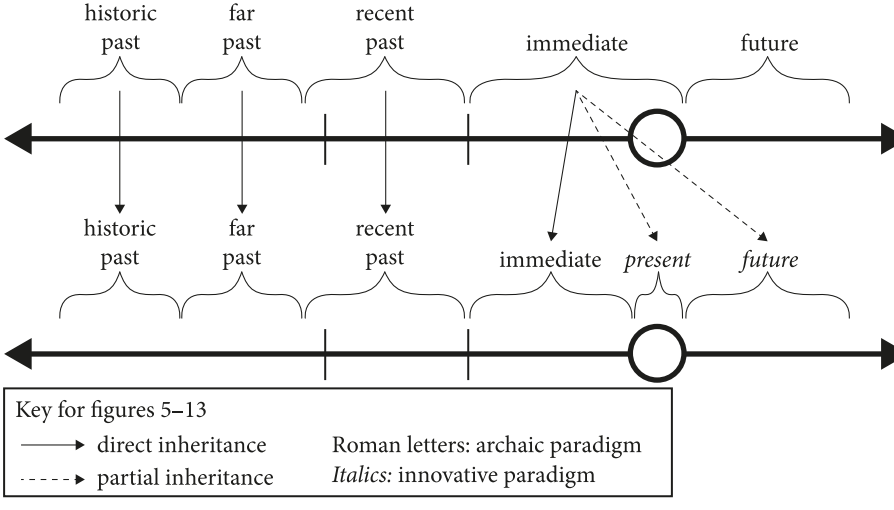

Figure 5. Gants innovations

For each language in this discussion, I will provide a similar diagram, but for space reasons I provide the key only in this one. The top timeline contains the reconstructed Proto-Sogeram system, and the bottom timeline contains the modern system of the language in question. Arrows indicate relationships between the two: a solid line indicates direct inheritance of a morphological paradigm, while a dashed line indicates partial inheritance. So for example the Gants immediate past is a direct morphological descendant of the Proto-Sogeram immediate past, although the Gants tense has innovated somewhat semantically. Similarly

three other tenses – the historic, far, and recent pasts – are retained.[2] The Gants future tense, by contrast, is formed with the future tense suffix *-paŋ* plus reflexes of the Proto-Sogeram immediate past paradigm (Table 8). So part of this tense – the agreement suffix – is inherited from the Proto-Sogeram immediate past, and the other part, *-paŋ*, is not. In this case the etymology of the innovative element is uncertain, but often it can be reconstructed.

Table 8. Gants future

	SG	PL
1	*-paŋ-niŋ*	*-paŋ-ruŋ*
2	*-paŋ-naŋ*	*-paŋ-raŋ*
3	*-paŋ-dɨk*	*-paŋ-dek*

Table 9. Gants present

	SG	PL
1	*-cɨ-niŋ*	*-cɨ-ruŋ*
2	*-cɨ-naŋ*	*-cɨ-raŋ*
3	*-cɨ-k*	*-c-ek*

Consider, for example, the Gants present tense, shown in Table 9. This tense is formed with the suffix *-cɨ* in combination with reflexes of the immediate past suffixes. In this case we do know the etymology of the innovative element: it comes from the Proto-Sogeram aspectual SVC involving the verb *kɨña 'stay'. Recall that *kɨña, when serving as the final verb of an SVC, could mark stative aspect on the predicate. Proto-Sogeram *kɨña is retained in Gants as *ca*, and while it still fulfills this stative-marking function in SVCs (as illustrated in Example (6) above), it has also grammaticalized into a marker of present tense. This is particularly clear in examples like (9), where lexical *ca* (the bound allomorph of which is *cɨ-*) combines with the present tense suffix *-cɨ*.

2. It goes without saying that the patterns of inheritance are not actually as simple as this, and the Gants TA suffixes have actually undergone a great deal of change. For example, Gants has changed the historic past suffix from *-ma to *-me* on analogy with the 1SG and 3SG forms; it has created a new plural suffix *-i* with which it forms the 3PL in some paradigms; it has undergone regular and irregular sound changes; it has appended the accusative enclitic *=ŋ to some suffixes in an apparent case of insubordination (Evans & Watanabe 2016); and so on. But in this paper I am exclusively interested in those changes that affect the set of semantic oppositions made by the TA system, and none of these changes are relevant there. So I ignore them, and I likewise ignore similar changes in all the other languages.

Gants

(9) *Asɨ-da aŋa, kɨñɨŋ ko* ***ci-ci-k?***
do.what-ss go bottom DEF **stay-PRS-3SG**
'Why is he staying at the bottom (of the tree)?' (WP_105)

Note that the diagram in Figure 5, like the similar diagrams in the following sections, does not include aspect markers. Every Sogeram language possesses what can be called 'simple tenses', which are fairly unmarked aspectually and serve primarily to locate a (usually punctual) situation in time. While every Sogeram language also makes aspectual distinctions, these are less morphologically systematic – often some are synthetic, others analytic, and so on. Thus I present the simple tenses in these diagrams, and discuss the aspectual marking separately.

Gants is unique among the Sogeram languages in having no synthetic aspects. However, it still retains a productive system of verb serialization, which many Sogeram languages have lost. Aspectual distinctions made by serial verbs include stative or durative (marked by *ca* 'stay'), habitual (marked by *kɨda* 'walk'), and completive (marked by *tama* 'put' and *mɨga* 'come down'). It is unclear how these two completive constructions differ.

3.2 Kursav innovations

While Gants is one of the most conservative Sogeram languages when it comes to TA marking, Kursav is one of the most innovative. It has reduced the five-way Proto-Sogeram tense distinction to a two-way one, distinguishing only future from non-future (Figure 6).

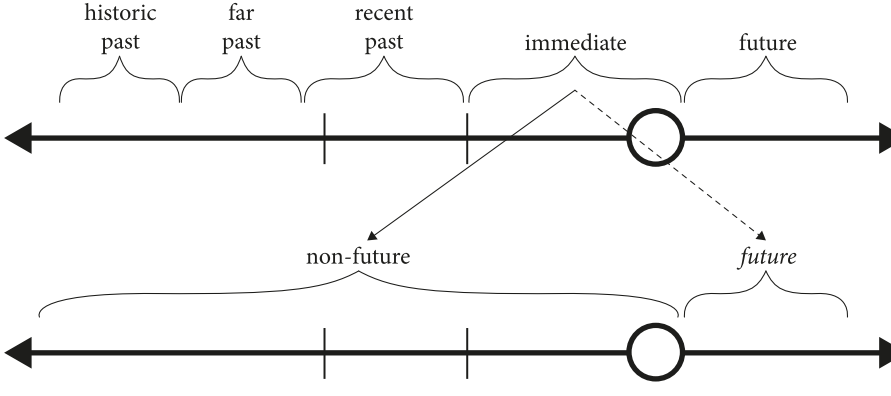

Figure 6. Kursav innovations

The non-future is a straightforward retention of the immediate past. Its meaning still includes present time reference, and it has been extended, via the loss of every other past tense, all the way back along the timeline.

The future is formed with the suffix *-md* plus the subject agreement suffixes from the Proto-Sogeram immediate past (Table 10). This tense originated periphrastically as a combination of the participial suffix *-m* (from Proto-Sogeram *-m) and the verb *di-* 'do' (from *anti-).

Table 10. Kursav future

	SG	PL
1	*-md-ua*	*-md-uar*
2	*-md-uana*	*-md-uara*
3	*-md-e*	*-md-o*

Table 11. Kursav habitual

	SG	PL
1	*-d-ua*	*-d-uar*
2	*-d-uana*	*-d-uara*
3	*-d-e*	*-d-o*

Kursav also possesses a habitual paradigm, shown in Table 11. This is formed with the same subject agreement suffixes, this time in combination with the habitual suffix *-d*. This suffix probably traces its origin back to the Proto-Sogeram imperfective SVC, which was formed with the verb *kinta 'walk'.

In addition to the habitual, formed by suffixation, Kursav forms a few additional aspects by serialization. These include a continuous or stative aspect (formed with *in-* 'stay') and two completive aspects (formed with *kadu* 'do thus' and *skra* 'put'), the difference between which is not known.

3.3 Aisi innovations

Aisi, like Kursav, has a fairly simple tense system, although it distinguishes one more tense than Kursav does (Figure 7). It retains the Proto-Sogeram future and immediate past, although the immediate past includes reference to the day before the speech act in Aisi. It has also created a new far past tense.

The far past is formed with the suffix *-s* and the immediate past subject agreement suffixes (Table 12). This innovative suffix is also found in Magi, Mum, and Sirva; I refer to the cognate tenses in these languages collectively as the *s*-past.

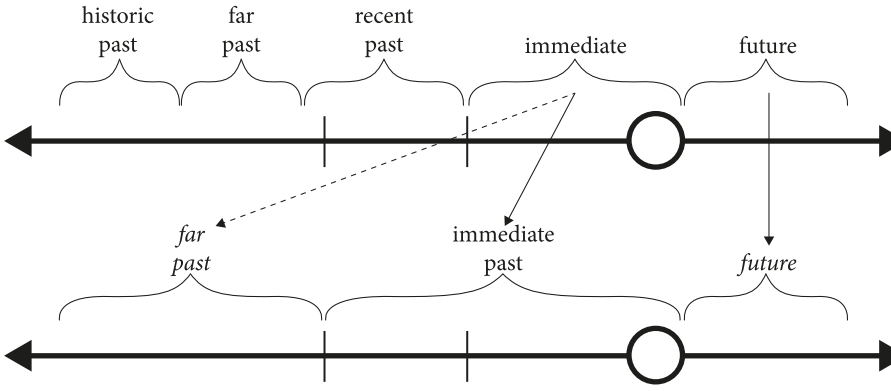

Figure 7. Aisi innovations

Although these languages belong to two primary branches of the family, they are in geographic proximity to one another and have undergone other innovations together. Because of that, and because of the peculiar pattern of semantic inheritance we see with the *s*-past, it is best considered an innovation that was shared by Proto-North Sogeram (the ancestor to Mum and Sirva) and Proto-Aisian (the ancestor to Aisi and Magɨ).

Table 12. Aisi far past

	SG	PL
1	*-s-iŋ*	*-s-aŋ*
2	*-s-aŋ*	*-s-ar*
3	*-s-i*	*-s-uŋ*

This tense was formed via an aspectual SVC involving the verb *sɨ- 'do'. The lexical sense of this verb can still be reconstructed based on reflexes in Mand (10), Nend (11), and Magɨ (12).

Mand

(10) *W-e tɨh* ***s-i*** *a-i, Udɨmapɨh watɨm pi-rɨd.*
go-SS work **do-SS** come-SS Udɨmapɨh after take-FPST
'I went, worked, came back, and later had Udɨmapɨh'. (Wife_58)

Nend

(11) *Wɨram mba-na-mb ha-n-av-e ñɨ-ma-r mariv* ***sɨ-ma-r***
man ND-CTR-NOM MD-ACC-do.thus-SS stay-HPST-3SG spirit **do-HPST-3SG**
ha-n.
MD-ACC
'The man whom the spirit had done to stayed like that'. (Harris n.d., my gloss)

Magɨ

(12) *Yɨ naŋgari ikut-ɨbyaŋ* ***s-iŋ.***
1SG now go.upstream-1SG.FUT **say-1SG.IPST**
'"I'll go upstream today," I said'. (White_33)

This verb then began to serve as the aspectual verb in an SVC, which later grammaticalized into a past tense marker in Proto-North Sogeram and Proto-Aisian. Unfortunately the aspectual meaning of this erstwhile SVC can no longer be reconstructed, as it is no longer retained as an SVC in any language. But there are still clues that it did in fact originate as an SVC: most importantly, the Sirva *s*-past attaches to the long form of the root, which is descended from the Proto-Sogeram free form.

So the *s*-past was created in the common ancestor to Proto-North Sogeram and Proto-Aisian. In Aisi it is retained as a far past tense that is distinguished from an immediate past tense. The dividing point between these two tenses is between yesterday and the day before.[3]

Moving on to aspect, we see that Aisi has retained the Proto-Sogeram habitual paradigm, as shown in Table 13.

Table 13. Aisi habitual

	SG	PL
1	*-er-iŋ*	*-er-aŋ*
2	*-er-aŋ*	*-er-ar*
3	*-er-i*	*-er-uŋ*

3. Such a tense system – which distinguishes yesterday from before yesterday, but does not distinguish it from today – was once hypothesized to be impossible (Comrie 1985). Since then numerous examples of similar distinctions have been found (notably in Andersen & Roberts 1991, but also in Ingram 2001 and Sarvasy 2014), but to my knowledge the etymology of the relevant forms is not known in any of those cases. This, then, provides us with the first account of the origin of such a system: the Aisi immediate past originated as a tense with more restricted time reference, and its opposite number, the far past, is an innovation. Unfortunately, this is not much of an explanation; we cannot say *why* the immediate past has the time reference that it does, or exactly how it acquired it.

Aisi also has two other aspectual constructions, both of which are formed periphrastically and both of which involve the participial suffix *-ba*. When a participle in *-ba* is combined with with *kɨ-* 'stay' bearing finite morphology, the expression has durative or stative meaning (13). When such a participle is combined with *kr-* 'walk', it has habitual meaning (14).

Aisi

(13) *Aŋ sigɨ sigɨ **n-ɨba** **kɨ-s-i.***
water cockroach cockroach **eat-PTCP stay-FPST-3SG**
'It was eating water cockroaches'. (Giants_11)

Aisi

(14) *W-i Sep=eŋ w-i **wa-ba** **kr-aŋ.***
go-SS Sepu=LOC go-SS **come-PTCP walk-1PL.IPST**
'We go to Sepu and come back'. (Go_Come_10)

3.4 Mum innovations

Although there is as yet no description of Mum grammar, there is a phonological sketch (Sweeney 1994), a collection of transcribed texts (Sweeney n.d.), and some verb paradigms (Wade 1993). Based on these we can observe that Mum has retained essentially the same five-way distinction that has been reconstructed for Proto-Sogeram (Figure 8), although it has replaced both the recent past and the far past with *s*-past paradigms.

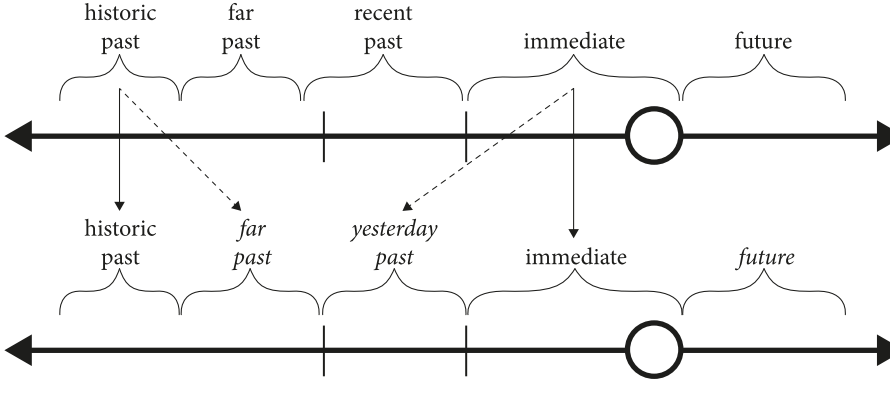

Figure 8. Mum innovations

The Mum far past is one of the few innovative Sogeram tenses that was formed on something other than the immediate past. As the paradigms in Table 14 (using the verb *ña-* 'eat') make clear, it was created by combining the innovative *-s* suffix

with the historic past forms. (Note also that the position of *-s* to the left of the older suffix *-ma* is more evidence that it originated as a verb in an SVC.) The yesterday past, by comparison, was created by combining this innovative suffix with the immediate past.

Table 14. Mum tense paradigms (Wade 1993: 91–92)

	HPST	FPST	YPST	IPST
1SG	*ña-m-in*	*ña-s-m-in*	*ña-s-in*	*ñ-Ø-in*
2SG	*ña-ma-na*	*ña-s-ma-na*	*ña-s-na*	*ña-Ø-na*
3SG	*ña-m-i*	*ña-s-m-i*	*ña-s-r*	*ñ-Ø-i*
1PL	*ña-ma-riŋ*	*ña-s-ma-riŋ*	*ña-si-riŋ*	*ña-Ø-riŋ*
2PL	*ña-ma-ra*	*ña-s-ma-ra*	*ña-s-ra*	*ña-Ø-ra*
3PL	*ña-m-u*	*ña-s-m-u*	*ña-s-yu*	*ña-Ø-yu*

The two innovative tenses are located semantically between the two archaic tenses, suggesting that the original meaning of the *-s* suffix was something like 'middle past'. But it is difficult to ascribe a specific meaning to this suffix in Mum today, since the four Mum past tenses are marked by what is called "distributed exponence": when morphological features are marked by a combination of forms, in such a way that there is no one-to-one correspondence between form and meaning (Caballero & Harris 2012; Carroll 2016).

So for example the historic past is marked by *-ma*, but we cannot say that *-ma* is the historic past suffix because it is also involved in marking the far past. Indeed, in the presence of this agreement paradigm (which is consistent across all the forms with the single exception of 3SG *-r* in the yesterday past), the tense value of the verb emerges from the combination of the presence and absence of the two suffixes, *-s* and *-ma*, as outlined in Table 15.

Table 15. Combinations of Mum tense suffixes

	HPST	FPST	YPST	IPST
-s	−	+	+	−
-ma	+	+	−	−

This illustrates one way that distributed exponence can be created. A straightforward morphological opposition, in this case between overt *-ma 'HPST' and null *-Ø 'IPST', is supplemented by an innovative form, in this case *-s*. Often such an innovative form will enter the verb template and take up residence in the same slot as archaic suffixes; this is what has happened with *-s* in Aisi and Sirva. But in this

case the innovative form created a new templatic slot, which allowed it to combine with both of the archaic patterns, *-ma and * Ø, creating a four-way opposition. Such a situation could conceivably result in two featural systems working side by side. Suppose, for the sake of discussion, that *-s* had been a marker of perfective aspect. (This is far from certain; it could just as easily have marked completive or some other aspect.) In that case we would have a perfective/imperfective contrast, realized in both the historic past and the immediate past. This is analogous to what has actually happened with the creation of the retrospective forms in Late Common Slavic: each of the four existing TA forms simply gained a retrospective counterpart (Andersen 2006). But in Mum we see something different. The new morpheme became a marker in the same featural system (tense) as the old morphemes, meaning that the complete realization of any featural value in that system (such as historic past or far past) now requires the presence or absence of two morphemes.

Mum also possesses an innovative future paradigm, shown in Table 16, and an innovative habitual paradigm (Wade 1993: 92), shown in Table 17. The latter is quite clearly another descendant of the Proto-Sogeram imperfective SVC in *kɨnta 'walk'; the etymology of the future paradigm is unclear.

Table 16. Mum future

	SG	PL
1	*-ɨrma-n*	*-ɨmdaŋ*
2	*-ɨrma-na*	*-ɨrmad-ra*
3	*-ɨrmad-Ø*	*-ɨrmad-yu*

Table 17. Mum habitual

	SG	PL
1	*-d-in*	*-da-rɨŋ*
2	*-da-na*	*-da-ra*
3	*-d-i*	*-d-u*

Unfortunately it also remains unclear whether there are any periphrastic aspectual constructions in Mum, and if there are, what they are like.

3.5 Sirva innovations

Sirva, as the other North Sogeram language, is Mum's closest relative, and the two languages have undergone a number of innovations together (Daniels 2019). One of these is the creation of the *s*-past, although interestingly the result of this gram-

maticalization process is quite different in Sirva than it is in Mum. Figure 9 diagrams the origin of the Sirva tense system.

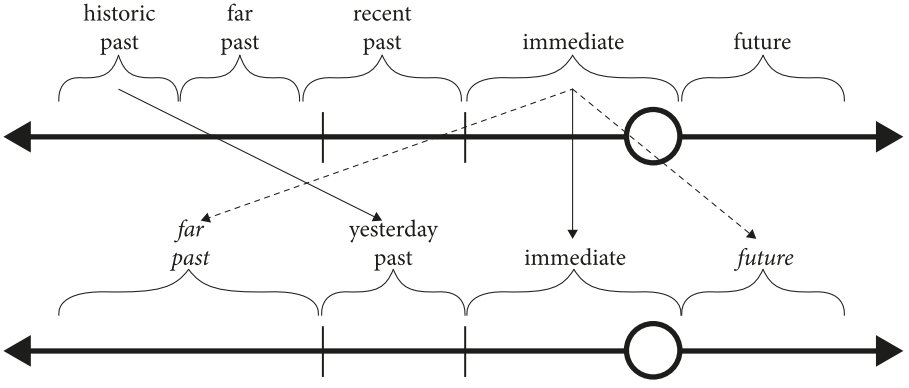

Figure 9. Sirva innovations

The immediate past is retained with little change. The historic past is also retained, but its time reference is shifted forward dramatically so that it is now a yesterday past. The boundary between it and the far past is fairly strict, so that the combination of the yesterday past and the adverb *añir* 'two days away (i.e., the day before yesterday or the day after tomorrow)' is ungrammatical (15) – even though this presumably was allowed at some point, since both the adverb and the morphology are reconstructible to Proto-Sogeram (Daniels 2015).

Sirva

(15) **Ara añir adi-ma-r.*
1PL two.days.away do-YPST-1PL
Intended: 'we did it two days ago'.

The other two tense paradigms are innovative: the far past (Table 18) and the future (Table 19). The far past is an *s*-past, formed with the suffix *-si* and the immediate past suffixes. It is thus wholly cognate with the Mum yesterday past, described above. But, puzzlingly enough, its time reference is not located between reflexes of the Proto-Sogeram historic past and immediate past, as the Mum tense is; it refers to a more remote past than the reflex of the historic past. This is further evidence that the *s*-past originated as an aspectual SVC of some kind. If it had had temporal meaning from its inception, we would expect to find reflexes of it in similar places on the timeline in different languages. But the fact that we do not suggests that it originated with some other kind of meaning, likely aspectual, and that as its meaning became more temporal, it became fixed onto different positions in the timeline of different daughter languages.

Table 18. Sirva far past

	SG	PL
1	*-si-n*	*-si-r*
2	*-si-na*	*-si-ra*
3	*-s-a*	*-bi-s-a*

Table 19. Sirva future

	SG	PL
1	*-vanadi-n*	*-vanadi-r*
2	*-vanadi-na*	*-vanadi-ra*
3	*-vanadi-Ø*	*-vana-bri*

The Sirva future is composed, etymologically, of a periphrastic construction involving the desiderative suffix *-vana* and the verb *adi-* 'do'. The etymology of the desiderative suffix, however, remains unclear.

Sirva also possesses a habitual suffix, although this form is only used in the third person (16); first and second person habitual statements are made with an analytic construction.

Sirva

(16) *Sukuri beau ña-rava-b-ri.*
k.o.yam DEF.ACC eat-HAB-PL-3
'They used to eat *sukuri* yams'. (Old_Ways_40)

The habitual suffix *-rava*, like the future suffix, appears to have originated periphrastically, in this case as a combination of the same-subject medial verb suffix *-ra* and the verb *va-* 'say, do'.

The analytic habitual construction is formed using the verb *kida-* 'walk' as an auxiliary, which combines with a nominalized form of the lexical verb (17). The same construction, but using *ki-* 'stay' as the auxiliary instead, also forms an analytic continuous construction (18).

Sirva

(17) *Kura ma wa~wa kida-b-ri.*
man NEG go~NMLZ walk-3PL-TPST
'People don't go (there)'. (Source_18)

Sirva

(18) *Kura kad sagwaña be añi pɨi~bɨi kɨ-s-a*
man skin white 3SG water bathe~NMLZ stay-FPST-3SG
'A white-skinned man was bathing'. (Yesas_44)

3.6 Apalɨ innovations

Apalɨ possesses quite a rich inventory of tenses, as shown in Figure 10: fully eight temporal categories are distinguished (Wade 1989). Note, however, that there are two quite divergent dialects of Apalɨ (Wade 1993) and that these forms come from the Akɨ dialect; the Acɨ dialect lacks the yesterday past and has somewhat different forms for the historic past and the far future.

Of the eight categories in Figure 10 three are direct retentions from Proto-Sogeram: the historic past, immediate past, and far future. The yesterday past, today past, and present continuous are innovations made using immediate past morphology, and the immediate future was made with morphology from the Proto-Sogeram future.

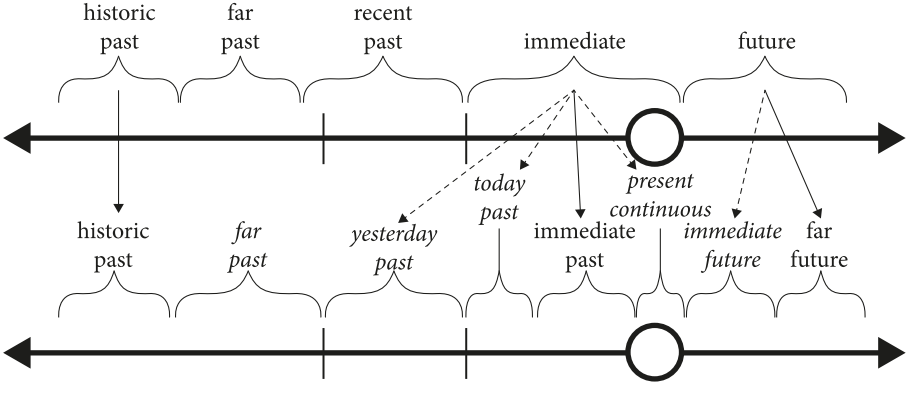

Figure 10. Apalɨ innovations

The innovative paradigms are shown in Table 20, including two that are only found in the Acɨ dialect. The etymology of the far past is difficult to establish, and it appears that the first and second person forms – which seem to be built on a pre-Apalɨ morpheme *-ka – do not have the same origin as the third person forms. The yesterday past suffix *-ɨmalam* may be formed from a combination of the historic past suffix *-ma* and the verb *lama-* 'put'. While this appears semantically plausible, it requires positing that the historic past suffix could, at one point, form non-finite verbs on its own, without any agreement suffix. Although reflexes of the historic past suffix *-ma are found throughout the Sogeram family, it always

Table 20. Innovative Apaɨi tense paradigms

	FPST	YPST	TPST	PRS	IFUT	FUT (Aci)	HPST (Aci)
1SG	*-cin*	*-ɨmalam-in*	*-iem-in*	*-d-in*	*-bal-in*	*-ɨd-aŋ*	*-mad-in*
2SG	*-hanaŋ*	*-ɨmalamɨ-naŋ*	*-iemɨ-naŋ*	*-da-naŋ*	*-balɨ-naŋ*	*-ɨdɨ-naŋ*	*-madɨ-naŋ*
3SG	*-lɨ*	*-ɨmalam-i*	*-iem-i*	*-d-i*	*-bal-i*	*-ɨdɨ-Ø*	*-ma-lɨ*
1PL	*-hɨlu*	*-ɨmalamɨ-lu*	*-iemɨ-lu*	*-da-lu*	*-balɨ-lu*	*-ɨdɨ-lu*	*-madɨ-lu*
2PL	*-hɨlaŋ*	*-ɨmalamɨ-laŋ*	*-iemɨ-laŋ*	*-da-laŋ*	*-balɨ-laŋ*	*-ɨdɨ-laŋ*	*-madɨ-laŋ*
3PL	*-va-lɨ*	*-v-ɨmalam-i*	*-v-iem-i*	*-va-d-i*	*-balɨ-hav-i*	*-v-ɨdɨ-Ø*	*-vɨ-ma-lɨ*

occurs with agreement suffixes, which renders this hypothesis somewhat implausible. One point in favor of this hypothesis, however, is that it allows us to invoke the non-finite function of *-ma to explain the Aci historic past suffix *madɨ*, which is also difficult to explain. If we allow that *-ma could form some sort of past tense infinitive, then that form could have combined with *antɨ- 'do' to form the Aci historic past suffix.

The etymology of the today past suffix *-iem* is likewise difficult to establish. This paradigm is also found in Nend and Mand, so it was probably innovated before Apaɨi and those languages diverged.

The present continuous *-da*, on the other hand, appears to be a straightforward grammaticalization of the Proto-Sogeram imperfective SVC in *kɨnta 'walk'. The Aci future suffix *-ɨdɨ* also looks like it may be a reflex of this construction, but in fact this is doubtful. The /ɨ/'s on either side of the /d/ are difficult to explain, as are the unusual agreement suffixes. This paradigm remains unaccounted for.

The etymology of the immediate future is also reconstructible: the *-ba* element is derived from the future tense suffix *-ɨmpa, which *could* form an irrealis infinitive; reflexes of this function are still found in Apaɨi (Wade 1989), Aisi, Kursav (Daniels 2015), and even outside the Sogeram family in the Josephstaal language Anamuxra (Ingram 2001). The *lɨ-* part of this suffix is cognate with the Apaɨi verb *lɨ-* 'do' (< Proto-Sogeram *=rɨ 'be').

In addition to these tense forms, Apaɨi has two synthetic aspects: the historic past habitual and the (plain) habitual. Aci only has the latter, but its marker is not cognate with either Akɨ form. The paradigms are given in Table 21.

All three paradigms appear to be derived from SVCs: the Akɨ historic past habitual is descended from the Proto-Sogeram imperfective SVC with *kɨnta 'walk', inflected for historic past tense. The Aci plain habitual is descended from the same SVC, but inflected for immediate past. And the Akɨ plain habitual appears to be descended from an aspectual SVC that used *la-* 'do' in final position.

Apaɨi also has a verb-verb compounding construction, which is descended from Proto-Sogeram SVCs. The second verb in these compounds can sometimes

Table 21. Apaḷi aspect paradigms

	HPST.HAB	HAB	HAB (Aci)
1SG	*-dam-in*	*-ɨla-n*	*-hɨd-i*
2SG	*-damɨ-naŋ*	*-ɨla-naŋ*	*-hɨda-naŋ*
3SG	*-dam-i*	*-ɨla-lɨ*	*-hɨd-i*
1PL	*-damɨ-lu*	*-ɨla-lu*	*-hɨda-lu*
2PL	*-damɨ-laŋ*	*-ɨla-laŋ*	*-hɨda-laŋ*
3PL	*-vɨha-dam-i*	*-vɨ-la-lɨ*	*-hɨda-v-i*

indicate aspect (Wade 1989: 188). Thus *ɟɨhala-* 'finish' marks completive aspect, or fully affected objects (19), and *hini-* 'stay' marks durative aspect (20).

Apaḷi

(19) *Hɨlana-ɟɨhala-vɨla uvɨ ida-vɨla ani hɨsɨv-avɨ-m-i.*
cook-finish-SS place lie.down-SS sleep close.eyes-PL-HPST-3
'They cooked all the food and lay down and slept'. (Wade 1989: 188)

Apaḷi

(20) *Via migɨla-hini-de-ci …*
get watch-stay-CONT-3SG.DS
'He got it and was watching while …' (Wade 1989: 188)

3.7 Manat innovations

Manat, along with Gants, is one of the more conservative languages when it comes to the TA system. Figure 11 shows that it has retained the historic, far, recent, and immediate past tenses, and its only innovation is to replace the future paradigm with two new ones.

The two innovative Manat paradigms are given in Table 22, along with the innovative aspectual paradigms. Both future suffixes involve an element *-ɨt* and Daniels (2015: 215) suggests a plausible connection between this and the Proto-Sogeram irrealis suffix *-ɨt. However, the remainder of the suffixes does not lend itself easily to etymological speculation, so the origin of these forms remains unclear. Both use the agreement suffixes of the immediate past, though, and the near future suffix *-ɨtak* can also occur without agreement suffixes in a future infinitive.

Manat also possesses an enviable wealth of habitual paradigms. The *-rat* habitual, which is defective and lacks 1SG and 3SG forms, has present time reference and is used to refer to current habits. The *-rat* suffix can also be used on its own, like the

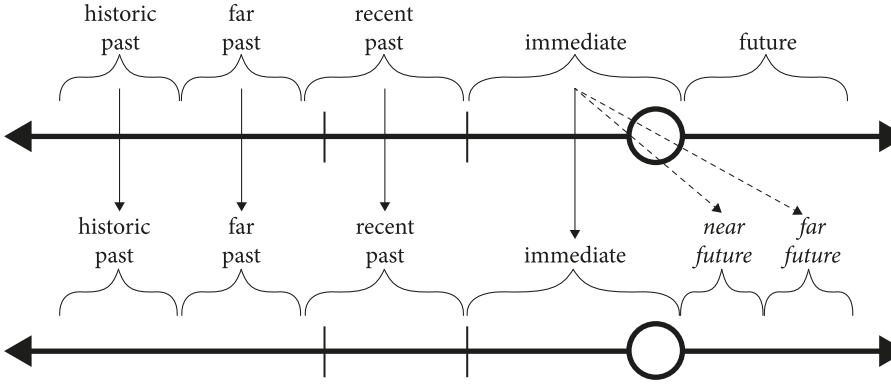

Figure 11. Manat innovations

Table 22. Innovative Manat paradigms

	NEAR.FUT	FAR.FUT	HAB	PRS HAB	MPST.HAB	FPST.HAB
1SG	*-ɨtrak-in*	*-ɨtɨh-in*	–	*-rh-in*	*-r-ma-ŋin*	*-r-m-in*
2SG	*-ɨtraka-nad*	*-ɨtɨha-nad*	*-rat-nad*	*-rha-nad*	*-r-ma-ŋinad*	*-r-ma-nad*
3SG	*-ɨtrak-id*	*-ɨtɨh-id*	–	*-rh-id*	*-r-ma-g*	*-r-m-id*
1PL	*-ɨtraka-r*	*-ɨtɨha-r*	*-rat-rɨ*	*-rha-r*	*-r-ma-gɨr*	*-r-ma-r*
2PL	*-ɨtraka-rad*	*-ɨtɨha-rad*	*-rat-rad*	*-rha-rad*	*-r-ma-grad*	*-r-ma-rad*
3PL	*-ɨtrak-ur-id*	*-ɨtɨh-ur-id*	*-rat-ur-id*	*-rh-ur-id*	*-rh-ura-ma-g*	*-rh-ura-m-id*

near future suffix *-ɨtrak*, to form a habitual infinitive. The etymology of this suffix, however, is not clear.

The three other habitual paradigms – the present, middle past, and far past habitual – are formed with the suffix *-r(ha)* and combine temporal with aspectual meaning. The present refers to present states; the middle past refers to states from the speaker's lifetime or recent history; and the historic past refers to prior states, such as statements about how the ancestors used to live.

An obvious question is how the meaning of the present habitual differs from that of the *rat* habitual. While speakers consider them interchangeable in most situations, and their usage in natural speech corroborates this intuition, it does appear that the present habitual has a more generic or gnomic meaning than the *-rat* habitual, which tends to refer to situations that are habitual or iterative for a shorter period of time.

The habitual suffix *-r(ha)* is cognate with the Manat verb *rɨ-* 'do' (< Proto-Sogeram *=rɨ- 'be'), which exhibits very similar irregular allomorphy to the habitual suffix. All three habitual paradigms thus appear to be derived from an SVC

(or verb-verb compound) in which *rɨ-* 'do' contributed habitual aspect. This construction would originally have been combinable with any tense, and it retained a good deal of this productivity as it grammatlicalized. Its combination with the immediate past yielded the present habitual; the far past yielded the middle past habitual; and the historic past yielded the historic past habitual.

Finally, Manat retains some of the Proto-Sogeram SVCs as verb-verb compounds, which are now one phonological word. In the second position of a compound, *ñɨ-* 'stay' contributes stative aspect, and *da-* 'walk' contributes progressive aspect.

3.8 Nend innovations

Nend, like Apalɨ, has a rich inventory of tense forms (Harris 1990): five past tenses, a present, and two futures (Figure 12).

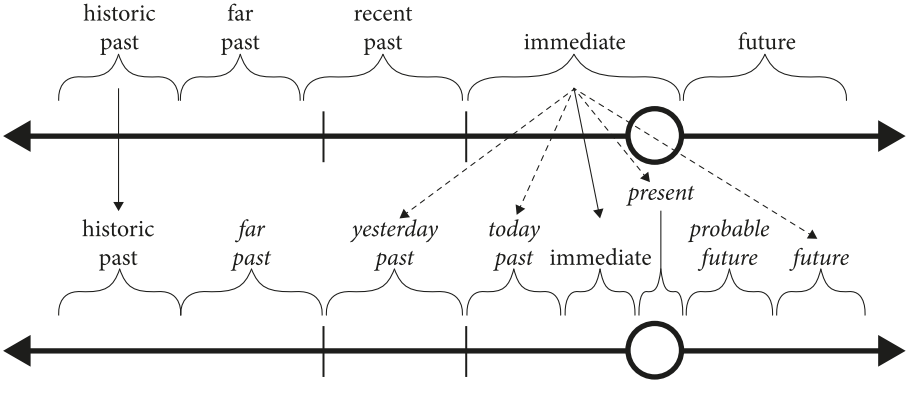

Figure 12. Nend innovations

The historic and immediate past tenses are the only direct retentions from Proto-Sogeram – and even the historic past has been augmented in some person-number categories.[4] The innovative paradigms are shown in Table 23.

The etymology of the far past is difficult to establish, so its origin is unmarked in Figure 12. The yesterday past suffix *-em*, as mentioned, is cognate with suffixes in Apalɨ and Mand but its etymology is not known. The today past is formed by appending a prenasalized *nd* to the verb stem, reduplicating the last verb root (the reduplicated material is indicated by [RED] in the table above), and inflecting with

4. Harris also analyzes it as consisting of two morphemes: a marker of temporal indefiniteness *-m* and a marker of historic past *-a* (1990:124). Whether one accepts this analysis or not, the etymology of the *ma* sequence is not in question.

Table 23. Innovative Nend tense paradigms

	FPST	YPST	TPST	PRS	PROB.FUT	FUT
1SG	*-en*	*-em-en*	*~nd[RED]-in*	*~ [RED]mbɨr-in*	*-ŋɨ-n*	*-ndar-in*
2SG	*-an*	*-em-an*	*~nd[RED]-n*	*~ [RED]mbɨra-n*	*-ŋ-an*	*-ndara-n*
3SG	*-r*	*-emɨ-r*	*~nd[RED]-i*	*~ [RED]mbɨr-i*	*-ŋɨ-nj*	*-ndar-i*
1PL	*-oriŋ*	*-em-oriŋ*	*~nd[RED]-riŋ*	*~ [RED]mbɨra-riŋ*	*-ŋ-ariŋ*	*-ndara-riŋ*
2PL	*-mg-an*	*-mg-em-an*	*-mgɨ-niŋgɨ-n*	*-mgɨ-mbɨra-n*	*-mgɨ-ŋ-an*	*-ndara-mgɨ-n*
3PL	*-mgɨ-r*	*-mg-emɨ-r*	*-mgɨ-niŋg-i*	*-mgɨ-mbɨr-i*	*-mgɨ-ŋɨ-nj*	*-ndara-mg-i*

the immediate past agreement paradigm. This form is also shared with Mand. It appears to have arisen as a periphrastic construction in which a non-finite form in *-nd* combined with an inflected verb, but it is unclear what the origin of the *-nd* might have been.

The present is also formed with a reduplicative element. This one is probably a reflex of the Proto-Sogeram nominalizing suffix, which was also reduplicative (Daniels 2015: 194). This nominalized verb then combined with a verb *mbɨra-*, and that combination grammaticalized into the present tense construction. Unfortunately it is difficult to determine what the origin of the *mbɨra-* verb might have been, or what it meant before grammaticalizing.

Nend has two futures, the difference between which is more modal than temporal. The probable future is formed with a suffix *-ŋ* and an agreement paradigm of uncertain origin. The suffix appears to be cognate with the Mand purposive suffix *-ŋ*, but it is unclear where that suffix arose. Links with the Proto-Sogeram '-IRR-1SG' sequence *-ɨt-iŋ or a possible Proto-Sogeram 1SG.IMP *-ŋ are possible, but not definitive.

The simple future is formed with a suffix *-ndara*, for which there is a plausible hypothesis about its origin. If we accept, based on the existence of the today past suffix *~nd[RED]*, the existence in pre-Nend of a nonfinite verb suffix *-nd*, we can posit that the simple future arose as a combination of that nonfinite verb form with the verb *ara-* 'say', inflected in the immediate past. Such combinations of nonfinite verb + 'say' are commonly encountered as desiderative constructions in the Sogeram languages (Daniels 2017b), and the proposal that a desiderative construction might have univerbated and become a future tense inflection is plausible.

Nend also distinguishes two habitual paradigms, one for historic past events and the other for all other events (Table 24). They are formed with a unique agreement paradigm, of uncertain origin, and an aspectual suffix each: *-rɨ* for the (present and recent past) habitual and *-andɨ* for the historic past. Both of these undergo significant morpho-phonological changes when combining with their agreement suffixes.

Table 24. Innovative Nend aspect paradigms

	HAB	HPST HAB
1SG	*-jin*	*-anj-in*
2SG	*-ri-n*	*-andi-n*
3SG	*-j*	*-an-j*
1PL	*-ri-riŋ*	*-andi-riŋ*
2PL	*-mgi-ri-n*	*-mg-andi-n*
3PL	*-mgi-j*	*-mg-an-j*

Both habitual paradigms appear to have arisen as SVCs ending in verbs meaning 'do'. The historic past *-andi* is a plausible reflex of *anti- 'do', and the present/recent past *-ri* a reflex of *=ri 'be' (retained in Nend as *ra-* 'do').

3.9 Mand innovations

Mand is closely related to Nend, and the two languages share some innovative morphology. Mand has the five-way tense distinction shown in Figure 13.

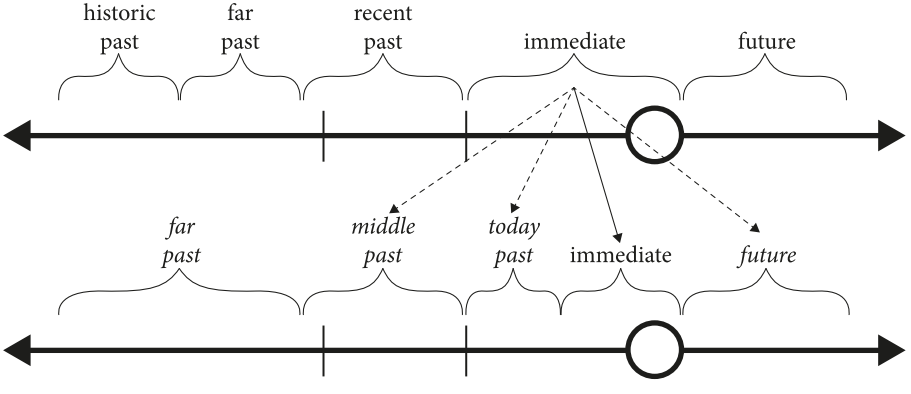

Figure 13. Mand innovations

Only one of the five tenses in Mand is retained from Proto-Sogeram: the immediate past. Three of the innovative tenses – the middle past, today past, and future – are formed with immediate past morphology in combination with an innovative tense suffix, while the fourth, the far past, is formed with an innovative tense suffix and a different agreement paradigm. The forms are given in Table 25. It is unclear how the far past paradigm was formed. The middle past suffix *-emi* is cognate with the Apali today past *-iem* and the Nend yesterday past *-emi*. The today past suffix *~d[RED]* is also shared with the Nend today past. The future was

Table 25. Innovative Mand tense and aspect paradigms

	FPST	MPST	TPST	FUT
1SG	*-ri-n*	*-emi-n*	*~d[RED]-in*	*-ŋar-in*
2SG	*-ri-n*	*-emi-n*	*~d[RED]-n*	*-ŋara-n*
3SG	*-r, -rd*	*-eb-i*	*~d[RED]-i*	*-ŋar-i(d)*
1PL	*-ri-nhw*	*-emi-nhw*	*~d[RED]-inhw*	*-ŋar-inhw*
2PL	*-eu-ri-n*	*-emi-n*	*-e~de-n*	*-ŋar-e-n*
3PL	*-eu-r, -eu-rd*	*-eb-i*	*-e~de*	*-ŋar-e-d*

formed from a periphrastic desiderative construction, as was suggested for the Nend future above. Mand has a purposive suffix *-ŋ*, which in Pre-Mand could be combined with the verb *ara-* 'say' to form a desiderative construction. This construction acquired future meaning and univerbated to form the future tense suffix *-ŋara*. One clue to this origin is that the first /a/ in *-ŋara* is articulated with the word-initial allophone [a] instead of the word-medial allophone [ɐ], suggesting that the first /a/ of *-ŋara* used to be word-initial.

The only synthetic aspect in Mand is the habitual, which is marked by a reflex of the Proto-Sogeram habitual paradigm.

4. Discussion

The previous section presented a great deal of information rather tersely, and readers will be excused for feeling as if they cannot see the forest for the trees. In this section I step back a bit from the minutiae about origins of middle past habitual paradigms, and attempt to draw out some broader patterns of change. In order to do this it will be necessary to sort the fifty-odd forms that were discussed in Section 3 into a few classes based on the features that provide the most insightful generalizations. I begin below by reporting on what can be learned about the source constructions from which new morphology emerges; I then discuss features of the target constructions in Section 4.2, and point out developments that did not take place, but might reasonably have been expected to, in Section 4.3.

4.1 Generalizations about source constructions

Exactly how many innovative constructions are described in Section 3 depends on how one draws the line between different constructions, but by my count I presented 47 new forms that mark a TA category, not counting retentions from Proto-Sogeram. Of these, eight are new analytic constructions, in which both the

lexical verb and the TA-marking verb are still full verbs; this definition includes innovative verb-verb compounds in Apaḷi and Manat. The other 39 constructions I discussed are new synthetic forms.

There are two primary sources for these: SVCs and auxiliary verb constructions. By SVC I mean a reflex of the reconstructed Proto-Sogeram SVC, recognizable by the fact that a lexical verb is followed by a TA-marking morpheme with no intervening material. By auxiliary verb construction I mean a construction in which any morphologically marked non-finite verb form, such as a nominalization or participle, is combined with an auxiliary verb.[5] These are distinguishable from SVCs by the fact that some additional morphological element, such as a participial suffix, intervenes between the lexical verb and the auxiliary. Of our 39 innovative forms, eight originated as auxiliary verb constructions, 19 originated as SVCs, and for 11 we cannot tell. A single form – the Sirva habitual suffix *-rava* – has a separate structural origin, which, due to its rarity, will be discussed in Section 4.3.

This pattern, whereby analytic constructions coalesce, become a single word, and eventually create new synthetic morphology, has of course been recognized for a long time (Bybee & Dahl 1989; Heine 1993; Hengeveld 2011), and the Sogeram data serve to further validate it as a strong cross-linguistic tendency.

The particular lexical sources that we observe in the Sogeram data also fit in rather well with the established expectations. Several forms began as constructions involving verbs for 'do', usually a reflex of Proto-Sogeram *anti-, *si-, or *=ri- (which originally cliticized to adjectives and meant 'be' but which came to mean 'do' in the western languages). Verbs for 'do' are commonly involved in the expression of continuous aspect (Heine & Kuteva 2002: 118), and most of the Sogeram suffixes formed from 'do' are habitual markers. Three exceptions are, interestingly, future tense markers: Kursav, Sirva, and Apaḷi formed new future suffixes from auxiliary verb constructions using 'do'. In Sirva and Apaḷi, though, the non-finite element was inherently irrealis (in Sirva it was a desiderative suffix, in Apaḷi an irrealis infinitive), which goes some way in explaining these developments. Only the Kursav combination of participle + 'do' does not fit neatly with our typological expectations.

Other common source verbs are *kinta 'walk', which formed a general imperfective aspect in Proto-Sogeram and which is now found marking habitual, continuous, and progressive aspect in various branches of the family; and *kiña 'stay',

5. I recognize that some authorities on auxiliary verbs define them differently, in particular rejecting the idea of a clear divide between auxiliary verb constructions and SVCs (such as Kuteva 2001 and Anderson 2006; but see Heine 1993: 24). I do not propose my definition as a challenge to them, but only as a convenient way to distinguish these constructions from SVCs, which is a useful distinction to make in the Sogeram context.

which marked stative aspect and now marks durative, continuous, and stative aspect as well as present tense. A form meaning 'stay' or 'remain' being used for durative aspect has been noted before (Heine & Kuteva 2002: 254), but 'walk' as a source for habitual or other imperfective marking may be new. More common sources are verbs like 'live' or 'sit' (Heine & Kuteva 2002: 331; Nurse 2008).

Finally, verbs meaning 'say' are frequently found in desiderative or purposive constructions (cf. also Daniels 2017b), which then sometimes become markers of future tense. This purposive-to-future pathway is famously exemplified by the history of English *gonna*.

It is also instructive to observe the interactions of different featural systems in the Sogeram data. Innovative constructions begin their grammatical journey at the lexical end of whatever grammaticalization cline they are embarking on, and as such they are fully morphologically productive when they begin. But as they grammaticalize, they enter one of the featural systems of the language. For purposes of our discussion, and for simplicity's sake, I will treat a language as having two separate featural systems, a tense system and an aspect system, while recognizing that this is a gross oversimplification that I will abandon as soon as it stops being useful.[6]

When a form grammaticalizes, it enters one of the featural systems, which limits its own combinatorial possibilities, since it can no longer be combined with other members of its own system. One expects, for example, that past tense would not be semantically compatible with future tense, nor would habitual aspect with punctual aspect. (There are, inevitably, counterexamples to these generalizations, but in the main the point stands.) But although the form's own combinatorial possibilities have been limited, its creation in one system can have a multiplying effect on the values marked in the language as a whole. A new aspect marker can, in principle, be combined with any tense, resulting in a whole new set of combined TA values that can be marked. This is what has happened with the Manat habitual suffix *-rha*. It has been incorporated into the aspectual system, but can still be combined with many of the tense markers. Thus the creation of one new morpheme has resulted, via the interaction between different featural systems, in the creation of three new paradigms: the present habitual, the middle past habitual, and the far past habitual. A similar process took place in Old Russian, where four original TA values (present, aorist, imperfect, and future) were doubled by the creation of a retrospective aspect which could be marked on any of them (Andersen 2006).

6. Indeed, recent research has been discovering ways in which the featural behavior of Madang languages is anything but straightforward (Daniels & Corbett 2019).

This does not have to happen, of course. The new gram can begin with less productivity, or it can lose productivity early on: the Manat habitual suffix, for example, cannot be combined with the recent past. And the endpoint of this process is often the loss of all combinatorial possibility. Thus the Gants present suffix *-ci*, which began as a serial verb that marked stative or durative aspect, could originally combine with any tense. Indeed, this archaic function is still preserved in Gants alongside the innovative one, and it has the combinatorial properties we would expect:

Gants

(21) *Wa-da, mi* *kiba kiba tama* ***ci-m-ek.***
say-SS thought long long put **stay-FPST-3SG**
'She said that and thought for a long time (lit. 'put a long, long thought')'.
(Christian_148)

But as it entered the tense system, it lost the ability to combine with other tenses, and now the tense marker *-ci* only occurs with (reflexes of) the immediate past suffixes.

There is a midpoint, though, between maximal combinability due to residing in a different feature system, and minimal combinability due to residing in the same one. This is the distributed exponence we see with the *s*-pasts in Mum (Section 3.4). Here a new morpheme, *-s*, was created, presumably with aspectual meaning and presumably with the ability to combine with any tense. That morpheme's meaning then changed when it entered the tense system, but some of its old combinatorial potential was retained. But since this morpheme now marked oppositions in the same featural system as the morphemes it combined with, the marking of those oppositions became distributed across two morphological sites.

These developments are illustrated in Table 26. At Stage I we have only the two tense markers *-ma* 'historic past' and *-Ø* 'immediate past'. At Stage II a new aspectual morpheme *-s* has been created, which can combine with either of the two tense markers. This state is analogous to what we saw with the Manat habitual and the Old Russian retrospective. Then in Mum this new aspectual morpheme has entered the tense system, but its ability to combine with both original tense suffixes has been retained. This creates a four-way tense contrast between historic past *-ma*, far past *-s-ma*, yesterday past *-s*, and immediate past *-Ø* – each value in the system marked via the presence or absence of the two suffixes involved.

Table 26. The development of the *s*-past in Mum

Stage I			Stage II			Stage III		
tense	*-ma*	*-Ø*	tense	*-ma*	*-Ø*	tense	*-Ø-ma*	*-Ø-Ø*
			aspect	*-s-ma*	*-s-Ø*	tense	*-s-ma*	*-s-Ø*

This sort of system can then be simplified again via loss. In fact the Sirva system contains three of the four tenses seen in Mum – all except the one marked with *-s-ma* – and this has resulted in a standard "one form, one meaning" system.

This point – about how featural meaning creates various combinatorial possibilities as it develops – takes us neatly from a discussion about the source constructions that we encounter in the Sogeram data to a discussion about the target constructions and how they pattern.

4.2 Generalizations about target constructions

What generalizations can we make about the kinds of forms that are created, the new tenses and aspects that are the result of this long diachronic drama? And how are the overall systems affected by these developments? I will make three points, although surely more could be said. First, from a systemic perspective, the impetus towards loss seems about equal to the impetus towards creation. Second, new tenses can enter the existing system anywhere. And third, not all tenses were equally likely to be retained.

As regards the first point, one might reasonably expect a language like Proto-Sogeram, which is reconstructed with five simple tenses, to exhibit a diachronic tendency to revert to the cross-linguistic mean by shedding old tenses more often than conscripting new ones. But this is not what we see. The average number of simple tenses represented in the timeline diagrams is 5.2, revealing a striking amount of diachronic stability. Of course individual languages can be more extreme: Kursav now has only two tenses, a future and a non-future, representing a significant simplification of the Proto-Sogeram system. Nend and Apalɨ each have eight tenses, each having innovated a present, a two-way contrast in futures, and an additional past. Moreover, we see clear patterns of areality and shared development around these two poles. The languages that share history with Nend and Apalɨ, such as Manat, Mand, and even Mum, also pattern with them in having innovated more new forms. Sometimes these are the result of shared inheritance, as with the *-iem* past tense that is found in Mand, Nend, and Apalɨ. But sometimes languages participate in this areal drive towards innovation on their own, as with the innovative Manat habitual paradigms, which are not found anywhere else.

Conversely, the languages around Kursav tend to have fewer tenses, notably Aisi with three and Sirva with four. Again, one can recognize areal tendencies towards certain kinds of TA systems. On the whole, though, the Proto-Sogeram system appears to have had a considerable amount of inertia. It was not immutable – indeed, it has changed in every language – but neither was it preordained to become impoverished, as we can see from the enrichment that has taken place in the west.

This mirrors what has been observed elsewhere. Nurse (2008: 22) remarks that 80% of the Bantu languages in his sample possess multiple past tenses, the vast majority of them two or three. This appears to match the reconstruction of Proto-Bantu, suggesting a similar level of inertia there. Hsiao (2013) observes a similar kind of dynamic stasis in the history of Mongolian, in which new forms are innovated at more or less the same rate at which old forms are lost. Of course individual languages always chart their own course, so cases of remarkable loss or innovation are not hard to find.

The second observation is that new tenses can enter the system anywhere. We see innovative forms as future tenses (e.g., in Manat), present tenses (Gants), near past tenses (Mand), middle past tenses (Mum), and far past tenses (Aisi). One might have supposed that a complex tense system like that seen in Proto-Sogeram might have been structured so as to allow innovation only at some sites and not at others, but this is not what we see. Perhaps the least frequent site of innovation is the present: only three languages, Gants, Apalɨ, and Nend, have present tenses. Each is the result of a separate grammaticalization pathway, so they are clearly independent developments. By comparison, there are ten new future paradigms throughout the family.

This brings us to the final observation, about persistence. The immediate past, for example, is inherited in one form or another into every Sogeram language. The historic past in *-ma is also inherited into six of the ten Sogeram languages, and is retained in every primary branch of the family. Other forms, however, have been far less persistent: the suffix *-ŋkɨ, which was involved in forming the far and recent pasts, has been lost in all but two languages. Ditto the future suffix *-ɨmpa. If we can make a generalization from this observation, it may be that the tense with present meaning (recall that the immediate past included present time reference in its semantic scope) and the most remote past are the most cognitively salient, as the two are located at the two ends of the realis portion of the timeline. The middle past tenses, by contrast, were more easily lost. While it is premature to declare that the most remote past tense is always more diachronically stable than intermediate past tenses, at least one cross-linguistic observation does support this suggestion. In Bemba, a Bantu language spoken primarily in Zambia, a change that Kula (2017) analyzes as a merger of the third- and fourth-most remote pasts was realized as the loss of the third-most remote and its replacement by the fourth-most remote, which is the maximally remote past tense in Bemba.

A more secure generalization, and one that is also supported by the Sogeram data, is that future tenses tend to be lost easily. We could not even have reconstructed the Proto-Sogeram future if it were not for some fortunate retentions in the related Josephstaal branch, and innovative futures are seldom cognate in more than a couple Sogeram languages. The observation that future tenses are often

replaced goes back at least to Meillet (1975 [1912]) and has been much discussed under the rubric of "renewal" (see Reinöhl & Himmelmann 2017 and citations therein). The Sogeram case, then, provides us with further confirmation of this cross-linguistic tendency.

4.3 What we do not see

Since we have attempted a rather comprehensive survey of the changes in TA marking throughout the reconstructible history of a family, we are in a position, not only to make generalizations about the patterns we see, but also about the patterns we do *not* see. Given the literature on this topic, and given the structural properties of the Sogeram languages, there are a number of developments one might reasonably have expected. In this section I point out three such developments that are notable for their non-appearance in the Sogeram tale.

First, we do not observe any tenses "crossing over" one another on the timeline. Whatever order two tenses have in one language, the cognate tenses also have in any other language where they are retained. This principle is exceptionless in this data. In Bantu, by contrast, we find contrasting ordering between reflexes of the TA markers *-a-…-ile* and *-a-…-a*, and also between *-Ø-…-ile* and *-a-…-a* (Nurse 2008: 300–301). Note, however, that though this could be the result of tenses changing their relative time reference, it could also be the result of aspectual forms grammaticalizing into different tense markers in different languages.

The latter possibility, that an innovative construction would grammaticalize into a tense marker with different meanings in different languages, is attested with the *s*-past in Mum and Sirva. This is as close as we get to a genuine case of "crossover" in the Sogeram data. Mum and Sirva both have an *s*-past that was formed with the immediate past, giving the modern template [root-*s*-SBJ]. In Mum this paradigm is now a yesterday past, having more recent time reference than the historic past. But in Sirva the *s*-past is a far past, and has more remote time reference than the historic past (recall that the historic past has become a yesterday past in Sirva). How this happened is unfortunately unclear.

Another observation is that phonological erosion does not appear to have played a significant role in the reshaping of the Proto-Sogeram TA system, as it has in other cases (e.g., Nahuatl, Dakin 1979; or Bantu, Nurse 2008: 286–287). This is presumably due to the structure of the Sogeram verb template, where TA morphology is shielded from the edge of the word, where much erosion takes place, by the subject agreement suffixes. Importantly, the two main sources of new TA morphology, serial verbs and auxiliary constructions, preserve this template by creating new morphology between the root and the agreement suffixes, so the structure of Sogeram grammar also reinforces this impenetrability.

A final observation is that medial morphology is hardly ever recruited to mark final TA distinctions. To discuss this absence it will be necessary to describe the grammar of the Sogeram languages in slightly more detail. The Sogeram languages possess clause chaining constructions that their speakers employ very frequently; this is a common feature of Papuan languages (Roberts 1997; Foley 2018). In these constructions some so-called 'medial' clauses, in which the verbs bear medial morphology, are chained into a 'final' clause in which the verb bears final morphology. All of the morphology we have discussed so far has been final, as absolute tense and aspect values are normally only marked on the final verb, from which position they exert scope over all preceding medial verbs. Medial morphology, by contrast, usually marks switch reference, some modal distinctions, and relative tense.

For example, the verb *airere* 'while it comes' in (22) is marked for different-subject switch reference, indicating that its own subject, the dry season, is different from that of the following verb. It is also marked for simultaneous relative tense, which means that its event – the dry season coming – is cotemporaneous with the following event. The next verb, *krake* 'she burns (tr.)', is also different-subject, indicating the non-identity of its own subject, the woman, with the subject of the following clause, the garden. Its relative tense value is sequential, though, not simultaneous, indicating that its event and the following event happen in sequence.

Gants

(22) *Pub awe* ***ai-re-re,*** *node, aŋa* ***kra-k-e*** *tu-ek.*
sun time **come-DS.SIM-3SG** woman go **cook-DS.SEQ-3SG** burn-3SG.IPST
'During the dry season, the woman goes and lights (the gardens) on fire'.
(Garden_25–26)

Gants also has a 'delayed sequential' suffix *-medi*, illustrated in (23) on *cɨmedi* 'stay a while and'. This is a same-subject suffix, meaning that the subject of *cɨmedi* is the same as the subject of the following verb, and its relative tense value indicates that a significant interval of time elapses between them. The same-subject sequential suffix *-da* on the following verb *aida* 'come and', however, indicates that its event is followed relatively soon by the following event.

Gants

(23) *Pakai, tripela wik aŋa* ***cɨ-medi,*** ***ai-da,*** *aba-me-naŋ.*
again three week go **stay-SS.DELAY come-SS** speak-FPST-2SG
'You stayed three more weeks, came back, and spoke'. (Translating_38–40)

Given such a rich inventory of temporal meanings marked on Sogeram medial verbs, then, we might expect some of these forms to make their way into the sys-

tem of final morphology. Indeed, Hengeveld's (2011) typology suggests that markers of relative tense should easily grammaticalize into markers of absolute tense. Surprisingly, this has not happened in Sogeram. The only case of medial morphology being incorporated into a final morpheme is the Sirva habitual suffix *-rava*. This suffix originated as a combination of the Proto-Sogeram same-subject suffix *-ta, retained in Sirva as *-ra* (cognate with Gants *-da* above) and the verb *va-* 'say, do.' The source construction *[V-*ra va*-TNS] would have meant 'SBJ V'ed and did that', which could plausibly have grammaticalized first as a periphrastic expression of imperfective or habitual aspect, and later as a synthetic suffix.

But why is this pathway so rare? One possibility is that Papuan clause chains tend to be syntactically coordinate structures (Foley 2010; Keine 2013), and it may be that coordinate constructions are less likely to be co-opted for grammaticalization than structurally subordinate ones. The rarity of phenomena like the Swedish 'sit and V' construction, in which a lexical verb V is marked for durative or progressive aspect by 'sit and' (Hilpert & Koops 2008), seems to support this generalization.

Instead of medial morphology becoming final, it seems that the more common path of innovation proceeds in the opposite direction. There are very few studies into the diachronic behavior of Papuan clause chaining structures, but those that exist suggest that it is more common for final morphology to enter the system of medial verb oppositions (de Vries 1997, 2010; Daniels 2014).

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Abbreviations

Grammatical abbreviations here largely follow the Leipzig Glossing Rules, including the use of a tilde ~ to indicate that a morpheme is formed by reduplication. The following less common abbreviations are used.

COM	comitative	EMPH	emphatic
CONT	continuous	FPST	far past tense
CTR	contrastive	HAB	habitual
DS	different subject	HPST	historic past tense

IFUT	immediate future tense
IPST	immediate past tense
LNK	linker
LOC	locative
MD	middle deictic distance
MPST	middle past tense
ND	near deictic distance
NMLZ	nominalizer
OBL	oblique
POSS	possessive
PROB	probable
PTCP	participle
SEQ	sequential
SIM	simultaneous
SS	same subject
TOP	topic
TPST	today past tense
YPST	yesterday past tense

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Development of aspect markers in Arandic languages, with notes on associated motion*

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1. Introduction and overview

1.1 Variety of sources of aspect marking

The Arandic languages display a variety sources of their markers of aspect. This follows to some extent from the fact that aspectual values are signalled in a number of different positions within the verb. Some of these markers are transparently related to free verbs (reflecting former auxiliary constructions); several involve reduplicated structures; some resemble nominalisations; and others seem to continue earlier tense inflections with shifted values. The origins of the aspect markers from former auxiliary constructions are well understood, but for the prehistory of the remainder we have only suggestions scattered throughout the descriptive literature on the languages.

1.2 Aims, methods, and limitations

My aim here is to explore the origins of all the main markers of aspectual values in all the Arandic varieties that have published descriptions. Very little has been written on the origins of aspect-markers, except for the continuous/imperfective markers that transparently originate in phrasal constructions with verbs of stance (e.g. Koch 2015: 296–297). Many of the relevant forms and functions are shared across most of the languages, which suggests a relatively recent origin. I describe verbal features of these languages, both those that are shared and those that differ, discussing especially the markers of aspect and their possible origins, arranged according to the presumed different kinds of etymological sources. Since there is some interaction between aspect and the more elaborated category of associated

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motion, there will be some mention of the latter where markers of the two categories are related historically. Since the Arandic languages have mostly been documented only since the twentieth century, and primarily the latter part of the twentieth century, it is not possible to follow the gradual development of grammatical forms and functions through recorded history in real time. The only way to study historical developments is through comparative and internal reconstruction, trying to establish the etymology of forms and inferring their subsequent history through plausibly related changes discerned among the languages, informed by the results of typologically related developments in other languages. It will therefore not be possible to prove definitively what has happened historically; many of our results are bound to remain to some extent hypothetical.

1.3 Associated motion

Associated motion was first described as a verbal category of Kaytetye in Koch (1984) and Arrernte in Wilkins (1989, 1991). Further refinement of the Kaytetye system is described in Koch & Turpin (in preparation) and Koch (2021), which also compares associated motion subcategories and their exponents across the Arandic languages. Koch (2019) discusses the origins of some of the Arandic forms. Associated motion systems are characteristic of a number of languages of Central Australia, including Adnyamathanha (Tunbridge 1988) and Arabana-Wangkangurru (Hercus 1994) to the south of Arandic and Warumungu to the north (Simpson 2001). Associated motion systems have more recently been reported for South American languages (Guillaume 2016; Rose 2015), and are increasingly being described for languages in other parts of the world (Guillaume & Koch 2021). Associated motion systems mark verbs grammatically for a motion path which is indicated in addition to the lexical semantics of the verb. Parameters that may be distinguished include: the moving argument (usually the subject), the relative timing of the motion vis-à-vis the main verbal event (prior, concurrent, or subsequent), the direction of the motion (toward or away from the speaker, back to a base, etc.), and sometimes further distinctions of speed of the motion or quasi-aspectual distinctions with respect to the timing relations between the main event and the motion path.

1.4 The Arandic languages and their literature

The Arandic languages[1] of Central Australia are a subgroup of the Pama-Nyungan language family, which in turn probably belongs to an Australian super-family.[2] The Arandic subgroup is subdivided into two branches, Kaytetye and the rest of the languages, which I call collectively "Aranda" (Koch 2004). Aranda subdivides into Lower Arrernte and the rest, which Hale (1962) called the "Upper Aranda dialect chain." Nowadays the "Upper Aranda" varieties are normally referred to as separate languages, as shown in Figure 1.[3] The two highest-level branches are different enough for the claim to have been made that what is shared is all due to contact (Dixon 2002: 670–672). Koch (2004), however, presents a justification of the Arandic subgroup by the criterion of common innovations.

Arandic
- Kaytetye
- Aranda
  - (Upper) Arrernte:
    - Alyawarr
    - Anmatyerr
    - Western Arrernte
    - EC Arrernte
  - Lower Arrernte

Figure 1. Arandic genetic relations

The Arandic languages have a somewhat aberrant phonological appearance compared to other Pama-Nyungan languages due to the drastic sound changes they have undergone (Koch 1997). Other typologically rare features are pronouns that mark social categories and a verbal category of associated motion.[4] Otherwise they have the agglutinative structure characteristic of the Pama-Nyungan language family.

1. Some varieties of Aranda might be called dialects, on the basis of mutual intelligibility, but current practice is to refer to them all as languages. I sometimes refer to them as "varieties."

2. For discussion of the issues surrounding Pama-Nyungan see Koch (2014) and references therein; on recent support for Proto-Australian as an Australian macro-family see Harvey & Mailhammer (2017).

3. For further named varieties, not mentioned here, see Breen (2001).

4. Koch (2006) highlights these typologically rare features for Kaytetye.

The data for this study comes mainly from grammatical descriptions of four languages: for Eastern and Central (EC) Arrernte, Wilkins (1989, 1991)[5] and Henderson (2013); for Alyawarr, Yallop (1977) and Moore (2012); for Lower Arrernte, Humphris (2017); for Kaytetye, Turpin (2000) and Koch & Turpin (in preparation). Some reference will also be made to Strehlow's (1944) grammar of Western Arrernte. The grammatical sources are supplemented by material from dictionaries: for EC Arrernte, Henderson & Dobson (1994); for Alyawarr, Green (1992); for Kaytetye, Turpin & Ross (2012), for Anmatyerr, Green (2010); and for Western Arrernte, Breen et al. (2000).

1.5 Arandic phonology and orthography

The system of consonant phonemes of all the Arandic languages and their orthographic representation are shown in Table 1. All phonemes have unrounded (U) and rounded (R) counterparts, indicated orthographically by *w* after the consonant symbol, except that the rounded counterpart of the approximant *h* is *w*. In homorganic clusters the letters *h, r* or *y* that indicate lamino-dental, retroflex, or palatal articulation respectively are given only once; i.e. *nth* for *nhth, rnt* for *rnrt*, and *nty* for *nyty*.[6]

Table 1. Consonant phoneme chart for Arandic languages

	Labial		**Lamino-Dental**		**Apico-Alveolar**		**Apico-Postalveolar**		**Palatal**		**Dorso-Velar**	
	U	**R**	**U**	**R**	**U**	**R**	**U**	**R**	**U**	**R**	**U**	**R**
Stop	*p*	*pw*	*th*	*thw*	*t*	*tw*	*rt*	*rtw*	*ty*	*tyw*	*k*	*kw*
Prestopped nasal	*pm*	*pmw*	*tnh*	*tnhw*	*tn*	*tnw*	*rtn*	*rtnw*	*tny*	*tnyw*	*kng*	*kngw*
Plain nasal	*m*	*mw*	*nh*	*nhw*	*n*	*nw*	*rn*	*rnw*	*nyw*	*nyw*	*ng*	*ngw*
Lateral			*lh*	*lhw*	*l*	*lw*	*rl*	*rlw*	*ly*	*lyw*		
Trill/tap					*rr*	*rrw*						
Approximant							*r*	*rw*	*y*	*yw*	*h*	*w*

5. Wilkins' study is specifically on the Mparntwe or Alice Springs subvariety of Eastern and Central Arrernte.

6. Earlier phonological analyses recognised a seventh place of articulation, prepalatalised apicals – *yn, yl, yt*, etc. These are now analysed as consonant clusters (see Harvey 2011). Note that I use a spelling *eyC* where Turpin & Ross use *iC* when these clusters occur after /e/.

The most common vowels are /a/ and a central schwa vowel /ə/, represented orthographically by *e*, an /i/ of more restricted distribution, and /u/ in some varieties only. A VC(C) syllable structure has been claimed for Arandic languages (Breen & Pensalfini 1999), and suffixes consequently cited as *-ek*, etc. rather than *-ke*. In consequence, the orthographies of Alyawarr, Anmatyerr, and Lower Arrernte do not represent word-final *e* orthographically. Kaytetye is rather analysed in terms of CV(C) syllables (Koch & Turpin in preparation), with all morphemes and words ending in *e*, which is regularly elided before a following vowel within a word. Here, for comparative purposes, I use the Kaytetye-style analysis for the presentation of forms in all Arandic varieties; examples cited from other languages are thus adapted orthographically.

1.6 Arandic verb structure and verbal categories

Kaytetye and Aranda differ in the number of slots in verbal morphology. The minimal structure of verbs in all the Arandic languages consists of a verb stem and an obligatory final suffix, which marks tense (sometimes combined with aspect), mood, negation, or one of a number of subordinating forms; e.g., Kaytetye *kwathe-nke* 'drink-PRS'. The final inflectional slot may contain a contrastive zero – in Aranda marking imperative and in Kaytetye signalling present tense in one grammatical environment, after the imperfective marker; e.g. *kwathe-rrantye-Ø* 'drink-IPFV-PRS'. Between the verb stem (VS) and the obligatory final suffix there are more ordered slots: one for (a typically large set of) markers of associated motion (AM), and a following position for aspect (mainly imperfective in Kaytetye and continuative in Aranda). Following this aspect slot and preceding the final inflection, the Aranda varieties other than Alyawarr allow a reduplicative formative that marks the aspectual notion frequentative. In addition, the Aranda varieties include a prefixed reduplication, which conveys an (apparently derivational) aspectual sense here called attenuative. In Alyawarr frequentative reduplication occurs in the prefix slot. In Kaytetye all reduplicated forms occur in the AM slot and have AM values. Table 2 sets out these main features of the verb. Not indicated here are the reflexive-reciprocal slot of Aranda varieties, which comes immediately after the verb stem, and the location of subject number agreement in Aranda, which has variable expression. Kaytetye lacks verbal inflection for both reflexive/reciprocal and subject number agreement.

Examples (1)–(4) illustrate some complex verbs. (1) shows the maximal structure for a Kaytetye verb. (2) is a similar structure from Lower Arrernte (Humphris 2017: 93),[7] showing an enclitic following the final inflection. The EC Arrernte

7. Here and elsewhere I have sometimes adapted the segmentation and glosses of my sources.

Table 2. Verb structure of Arandic languages

	Reduplication			Aspect	Reduplication	
EC Arrernte	ATT	VS	AM	CONT	FREQ	Final
Lower Arrernte	ATT	VS	AM	CONT	FREQ	Final
Alyawarr	ATT, FREQ	VS	AM	CONT		Final
Kaytetye		VS	AM	IPFV		Final

Example (3), from Wilkins (1989: 249), demonstrates that attenuative (glossed continuous inception) may co-occur with other aspect markers. (4), from Wilkins (1989: 226), is an EC Arrernte illustration of a verb that includes marking for reciprocal and dual subject agreement.

(1) *are-rrarerrapeynte-rantye-ngele*
see-ALONG-IPFV-SS
'watching while going along'

(2) *urlkw-arlp-an-ey=ay*
eat-DO.ALONG-CONT-HORT=EMPH
'eat (this food) while going along'

(3) *telpe-tanthe-panthe-me*
CONT.INCEP-spear-FREQ-NPST.PROG
'always making as if to spear (something), over and over again, without doing it'

(4) *angke-rr-intyalpe-rlene-rre-perr-me*
speak-RECIP-DO.COMING.BACK-CONT-DU.SBJ-FREQ-PRS
'(two people) are frequently speaking continuously to each other while coming back'

It can be seen that markers of aspect can be located in several different positions within the verb: in the prefixing reduplication and in up to two pre-final suffixal slots. Furthermore, some final suffixes include aspectual meanings in combination with a tense-marker. Most of the forms in both the aspect and associated motion slots can be traced back to a combination of a non-finite verbal suffix (called a "ligative" by Yallop 1977) and an erstwhile auxiliary verb root; in fact, the Alyawarr descriptions by Yallop (1977) and Moore (2012) treat the resulting verb forms as synchronic verb compounds. The reduplicative formations involve *V(C)Ce* copied from the relevant edge of the following or preceding part of the verb and (except in one of the Kaytetye constructions) separated from the rest by an increment *p(e)* or *-lp(e)*. Some of the final inflections with aspectual value bear

resemblances to nominal suffixes. Generally the markers described here are transparently cognate with one another, which suggests a relatively recent origin.

1.7 Nominalisation in Arandic languages

Since I propose to derive many of the markers of aspect and AM from non-finite verb forms, I present here some of relevant Arandic forms and constructions. As described in Wilkins (1989: 138–139), the major nominalising suffix of Aranda is *-ntye* or *-tye*.[8] The variant with the (homorganic) nasal is more frequently used synchronically, but the variant *-tye* (or its lenited reflex *-ye*) is more prevalent in our reconstructed aspectual forms. In EC Arrernte it can denote "a person or thing involved in the performance of an action," a reified verbal action, or an "adjectival function," such as *unte-ntye* 'fast' of a horse, literally 'hurry.off-NMZR'. (There is no real word class difference between adjectives and nouns in the Arandic languages.) This flexibility of nominalisation forms – able to mark agent or action nominalisations as well as the subordination of a clause – as well as the typical absence of a copula in predicate nominal constructions allows for multiple developments from nominalised forms. Wilkins (1989: 139) comments on the prevalence of *-tye* in verb inflections:

> These include *-tyeke* 'purposive', *-tyekenhe* 'verb negator', *-ntyele* 'negative imperative' (cf. Kaytej *-ntyele*), *-tyenhe* 'non-past completive', *-tyerte* 'remote past habitual', *-ty.antye* 'do while going up', *-tye.kerle* 'do while going down', *-tye.lhe* 'go and do' and *-ty.alpe* 'go back and do'. It is quite possible that these inflections are all based on nominalizations of the verb, but this is not a suitable synchronic analysis.

In Alyawarr the *-ntye* form may be used, without further suffixation, in the nominalised simultaneous clause serving as a complement of perception verbs, as in (5) (Yallop 1977: 136). For its use in subordinate clauses with other case-marking, see Section 7.3.

(5) *Antenh=aneme* *are-yalhe-ke* *iylpwere-le* *ane-rlane-ntye*
possum(ACC)=THEN see-GO&DO-PST hollow-LOC sit-CONT-NMZR
'Then (I) found a possum sitting in a hollow tree'.

8. A cognate suffix *-ntya* or *-ntha* is found in many Pama-Nyungan languages, in some of which the nasal is lost by dissimilation with a previous nasal+stop cluster, according to the pattern described in McConvell (1988). This dissimilation pattern is no longer active in Arandic languages.

In Kaytetye, such complement clauses are marked by means of simultaneous different subject marker *-ngewarle*, consisting of a nominalising suffix *-nge* followed by the allative case suffix *-warle*. Same subject simultaneous clauses are marked by a verbal suffix *-ngele*, consisting of the same nominalising suffix *-nge* followed by the locative case suffix *-le*, illustrated in (7) and (10) below. In contemporary Aranda varieties the equivalent construction involves a verbal suffix *-mele*, which does not involve a nominalisation suffix but rather consists etymologically of the present tense suffix *-me*, marking simultaneity, followed by the locative case suffix *-le*. Non-simultaneous action in the subordinate clause substitutes other tense markers in the place of *-me*, using these as markers of relative tense. Subordinate clauses that don't share a subject with the main clause have different subject markers consisting of a tense suffix plus *-nge* or *-arlenge*, or a suffix *-rlenge* or *-rleke* not preceded by a tense suffix.

Given that the simultaneous same subject forms differ between Aranda *-mele* and Kaytetye *-ngele*, it is probable that earlier stages of the Arandic languages used some other form in this participial function. I claim that there is evidence, primarily from aspectual and AM markers, for a participial forms *-rle* in Aranda and *-rre* and *-le* (conditioned by transitivity) in Kaytetye. These perhaps have continued as traces of lost verb classes in the Arandic languages. They would have resembled the so-called "serial" suffixes *-la*, *-rra*, and *-ra* (dependent on the verb conjugation) occurring with similar functions in the Western Desert language (see Goddard 1985: 90). I propose that the Arandic forms presuppose functions of marking both simultaneous and preceding dependent action, whereas the Western Desert serial forms are used only for preceding actions, as in (6), from Goddard (1985: 103).

(6) *paluṟu nyiinyii yanku-**la** ura-ṉu*
DEF.ERG zebra.finch(ACC) go- **SERIAL** get-PST
'She went and got zebra finch (droppings)'.

1.8 Overview of the paper

Section 2 concerns those aspect markers that apparently descend from periphrastic constructions involving stance verbs. Section 2.3 describes the interesting development of an aspect marker from a periphrastic phrase with a motion verb, which I claim results from a shift from an associated motion subcategory. In Section 2.5 it is argued that a DO.QUICK aspectual is derived from a periphrastic phrase that may owe its existence to language contact rather than intralinguistic grammaticalisation. Section 3 is a brief excursus on markers of associated motion that similarly derive from periphrastic constructions. This discussion is necessitated by the

observations that one of the aspect markers appears to have shifted functionally from a marker of associated motion (in EC Arrernte) and that one of markers of aspect has become a marker of a subcategory of associated motion (in Kaytetye).

Section 4 introduces Aranda aspectual markers that involve reduplication supplemented by further elements. Section 4.2 and Section 4.3 discuss frequentative and attenuative reduplication constructions respectively, signalling the iconic features of their semantics and arguing for enclitic origins of the supplementary elements. In Section 4.4 it is claimed that a Kaytetye reduplication construction originating as a relatively transparent marker of continuous action linked to a motion event evolved into a marker ALL.ALONG of a quasi-aspectual contrast that developed within the associated motion subcategory of concurrent motion. Section 4.5 argues that another reduplicated construction, cognate with the Aranda attenuative marker, was also recruited into this emergent subcategory as a marker of ONCE.ALONG, a further (punctual) aspectual value within concurrent motion. Section 4.6 makes a proposal of how this new sub-paradigm may have been elaborated.

Section 5 explores the sources of aspectual markers that are found in the final verb inflection, usually in combination with a tense value. Section 5.2 argues that markers of past habitual and possibly past progressive originated as agent nominalisations. Section 5.3 proposes that some inherited suffixes developed aspectual senses through a process of refunctionalisation of excess past tense markers. Section 5.5 proposes that a generic suffix originated as a participial form marking dependent clauses. In Section 5.6 it is claimed that an imperfective > present marker of Alyawarr and Eastern Anmatyerr represents the main clause usage of a former locative-marked subordinate clause. Finally, a summary is presented in Section 6 of the kinds of sources that have been inferred for markers of aspect in the Arandic languages.

2. Aspect markers from periphrastic constructions

Table 3 presents the forms that are discussed in Section 2. Specific meanings are given in the following discussion. The first set of terms derive from stance verbs and mark continuous aspect and the second set derive from a motion verb and signal concurrent motion with or without aspectual value.

Table 3. Aspect markers derived from auxiliary verb constructions

	Continuous	(Continuous) while going along
Lower	*-ane-*, *-rlane-?*	*-rlape-*
Western	*-rle.ne-*, *-rle ne-*	*-rlape-*
EC	*-rle.ne-*	*-rle.pe-*
Anmatyerr	*-rl.ane-*	*-rlape-*
Alyawarr	*-rl.ane-*, *-(rl)aynte-*	*-rlape-*
Kaytetye	*-rrane-*, *-yane-*, *-rrantye-*	*-rrape-*

2.1 Aranda *-rle ane- continuous

All varieties of Aranda have forms marking continuous aspect that precede the final verbal suffix. This typically consists of *-rle* plus *ane-* or *ne-*. (The element *-rle* is missing from most examples in Lower Arrernte (Humphris 2017: 107) and in Western Arrernte after long verb stems). These forms transparently include as the second element the verb *ane-/ne-*[9] 'sit, stay, be'. (Alyawarr has a second continuous form, with virtually the same meaning as *-rl.ane-*, that involves another stance verb, *aynte-* 'lie', both with and without a preceding *-rle*.) The whole verb including *-rlane* is considered by Yallop to be a compound verb that continues an earlier phrase, the second element being an auxiliary verb. The first element of the *-rlane* complex is considered by Yallop (1977: 63) to be a participial suffix.[10] Strehlow (1944: 172) calls such forms in Western Arrernte "periphrastic verbs," and writes them either as a single word or with a space between the elements; e.g., *tula nama* [*twe-rle ne-me*] 'be hitting'. Wilkins (1989) pioneered the use of a dot to separate the two elements recognisable within the "complex morphemes." Evidence for earlier phrasal status comes from the fact that it is possible to insert an enclitic, such as *=aneme* 'then' after the element *-rle*; e.g. *twe-rl=aneme ne-me* (Strehlow 1944: 175). Furthermore plural subject marking in EC Arrernte indirectly attests the presence of an enclitic in the same position; it consists of *-rlte.ne* in place of *-rle.ne*; this sequence represents a reduction from *-rle=te ne-, the element *-te* being attested in other complex forms, those with linking element *-tye*

9. The initial vowel is typically absent in the free verb of Western and Lower Arrernte.

10. Yallop introduced the term "ligative" for the linking element in such constructions.

(Henderson 2013: 285), and deriving ultimately from a third person plural pronoun **ate*, which is attested in Kaytetye free pronouns (Koch 2004: 139–140).

The aspect construction just described represents the result of a common historical development involving reanalysis of a biclausal structure as monoclausal, downgrading of the stance verb to an auxiliary, treatment of the erstwhile dependent verb as the main verb for purposes of argument selection, and phonological reduction of the resulting verb phrase into a single word (e.g. Harris & Campbell 1995: 172–194). In Australia, Austin (1998) demonstrates the recurrent tendency among Pama-Nyungan languages to develop a (typically continuous) aspect-marker by grammaticalising a verb 'sit'. A prerequisite for such a reanalysis is the practice of positioning the dependent verb, marked for simultaneous same subject, immediately before the stance verb, as occurs in the Kaytetye text example shown in (7).

(7) *Kwerepenharte=pe atanthe weye kwerarte=lke alkwe-ngele=lke ane-yayne.*
after.it=TOP 3PL.NOM meat 3SG.DAT=THEN wait-SS=THEN sit-IPFV.PST
'After that they would sit waiting for the meat'. (Koch, Kaytetye Texts 11.33)

2.2 Kaytetye *-rre ane- imperfective

Kaytetye, the most divergent of the Arandic languages, forms its imperfective stem (for most intransitive verbs) by appending the same verbal root *ane-* 'sit, stay, be' to an element *-rre* rather than *-rle*. The Kaytetye imperfective stem is followed in principle by any of the final inflections – except that the present can be zero (instead of *-nke*), and the combination of imperfective and past meanings is rather supplied by the portmanteau *-yayne* (see below Table 8). The same kind of prehistory of the formation can be posited for Kaytetye *-rrane* as for Aranda *-rlane*.

It is rather difficult, however, to find good evidence for *-rre* as a former participial suffix apart from its occurrence, in conjunction with former verbs, in aspectual and associated motion formatives. But the etymology of 'fish' words supplies some evidence. The word for 'fish' in Arandic languages appears to be derived from 'enter'. Kaytetye 'fish' *aylperre* also occurs in Eastern Anmatyerr and Western Alyawarr, where *aylpe-* is the verb 'enter' (Kaytetye 'enter' is a noncognate verb *atnywe-*). This relationship recurs elsewhere in Arandic: *irrpenge* 'fish' in Western Arrernte and Anmatyerr is similarly derived from *irrpe-* 'enter', by means of a suffix *-nge*, which is a (relatively rare) nominalising suffix in Aranda, meaning "something which does that action or to which the action is done" (Henderson & Dobson 1994: 492–493). To go for a swim is to enter the water; to swim along in Anmatyerr is *irrpe-nhe-me* 'enter-ALONG-PRS' (Green 2010: 352). Now Arandic languages do not distinguish substantives from adjectives, so the

same deverbal nominal form can mean either 'swimming' (participle) or 'swimmer' (agent noun). Thus the earlier construction VERB-*rre ane-* could have meant 'be VERB-ing', yielding for example *angke-rrane* 'speak-IPFV'.

There are two variant forms of the Kaytetye imperfective marker. After transitive verbs the suffix is *-rrantye*.[11] This presumably involves the same erstwhile participial suffix *-rre*, but the following verb root is different, and no satisfactory etymon has yet been proposed. (The free verb *antye-* 'jump' is not a plausible source. Nor can the form be related to *ane-* 'sit', since the nasal is here palatal, homorganic with the following *ty*.) The second variant marker is *-yane*, which occurs after intransitive verb stems containing an apical nasal as their last consonant. The most prominent of these are the stance verbs *ane-* 'sit', *atne-* 'stand', and *enwe-* 'lie'. Furthermore a homorganic stop is inserted after the nasal of the root. Thus the imperfective of *ane-* 'sit' is *ante-yane*. Cognate verbs in other Pama-Nyungan languages, especially Kaytetye's northern neighbour Warumungu, have allomorphs ending in *nta*. The suffix *-yane* involves the same auxiliary root *ane-*, but the preceding *y* probably reflects a lenited reflex of the nominalisation suffix *-tye which occurs in other Arandic verb suffixes, including complex markers of prior motion – in Kaytetye always in the form *-y(e)*; see Table 4 below.

The Kaytetye imperfective marker, though sharing a similar origin to the Aranda continuous, has progressed further along the grammaticalisation path. This is shown by three of its characteristics. First, the elements *-rre* and *ane* are more tightly fused than are *-rle* and *ane-* in Aranda: it is not possible for a clitic to interrupt *-rrane*. Second, the formation is less transparent, since there are two variant forms of the erstwhile auxiliary, *ane-* and *antye*, the latter not corresponding to a synchronic verb; furthermore the *y* "ligative" and correlated infixed stop are synchronically unmotivated. Third, the semantics is more abstract: the imperfective includes senses of habitual and repeated action as well continuing action and action in progress. An imperfective grammatical meaning typically represents a later development from a progressive (Bybee & Dahl 1989: 83).

2.3 Aranda *-rle ape-: From associated motion to aspect

In EC Arrernte there is a second continuous marker *-rle.pe-* DO.ALONG, meaning 'do verb action continually while moving along' (Wilkins 1989: 253).[12] This is the form given in the rightmost column of Table 3. The meaning of the form in EC Arrernte includes both aspectual (continuous) and (concurrent) associated

11. The *rr* of both suffixes is replaced by *r* in certain phonological environments.

12. The element *pe* is cognate with the *ape* that occurs in some other Arandic varieties: the variability between *ape* and *pe* across Arandic varieties is like that between *ane-* and *ne-*.

motion senses. In spite of its gloss, it is not treated as one of the fifteen contrasting values within the inflectional category of associated motion (Wilkins 2006: 49). It occurs in the same verbal slot – after the AM slot – as the other continuous marker *-rle.ne-*, and like it has a plural subject form *-rlte.pe-*.[13] Wilkins' EC Arrernte analysis in terms of aspect is followed by Green (1992) for Alyawarr and Green (2010) for Anmatyerr. Strehlow's (1944: 172) description of Western Arrernte includes among his "periphrastic verbs" the form *tulabama* [i.e. *twe-rle.pe-me*] of his model verb 'hit' and provides a gloss 'keep on hitting, hit while going along', which includes both the aspectual and the motional senses. Humphris (2017: 115–116) glosses Lower Arrernte *-rlape-* as DO.GOING, which "encodes the notion of continuous motion concurrent to the action encoded by the main verb (e.g. 'going along doing X')", or it "may also encode repetition of the action encoded by the main verb (e.g. 'going from place to place and doing X')." It is treated as belonging to the set of associated motion rather than aspect markers. Moore (2012: 111) also treats Alyawarr *-rlape-* as one of the markers of associated motion. His gloss is 'CONV' and he defines its function as 'X does V while being conveyed or while conveying Y along a path'. This definition is unnecessarily restrictive; a better gloss would be 'do while the subject is going along'. He does not treat it as an aspect-marker but claims that the actions with this marking are typically durative or repeated: "CONV is inherently imperfective and combines with imperfective or present tense-aspect marking" (Moore 2012: 112). It is not certain that *-rlape* is incompatible with perfective marking, however. While no such examples are cited in Moore (2012), an example from Anmatyerr, (8), is given in Green (2010: 294).

(8) *kere alwewatyerre renhe atwe-rlapetye-he.*[14]
meat goanna 3SG.ACC kill-GOING.ALONG-PST.COMP
'killed a goanna as they travelled along'.

Relevant to the possible aspectual nature of *-rle.pe*, Wilkins (1989: 275) notes that this form "does *not* permit the interpretation that the verb action happens only once in the midst of motion" [emphasis in original]. This is in contrast to one of the concurrent motion forms, *-nhe*, that means 'do on the way past or through' in EC Arrernte (Wilkins 1989: 273), and 'do at a point along a motion path' in Alyawarr (Moore 2012: 91). There would thus be an implied aspectual contrast if both forms were treated as markers of concurrent motion.

13. See Wilkins (1991: 221) on reasons for treating *-rle.pe* as a marker of aspect rather than associated motion.

14. *-he* results from the phonological development of *-ke* in certain dialects.

These cognate formatives in the Aranda varieties appear to have the same kind of origin as that of *-rle ane; i.e. a participial in *-rle* combined with a verb *ape-, which should mean something like 'go along VERB-ing'. The only problem is that there is no independent verb 'go' of this form in Aranda. But in Kaytetye *ape-* is well attested in the meaning 'go along'. There are traces of the former existence of this verb in Aranda in the verb *(a)petye-* 'come', which consists of this verb root followed by a derivational 'hither' suffix *-tye*, which occurs on motion verb roots. There is also evidence for an earlier phrasal structure in the possibility of interrupting the *-rlape* sequence; e.g. Moore's (2012: 85) *rtne-rl<am>ape-yele*, where the 'discrete event' clitic *=ame* intervenes in the 'going along' form of the present tense of 'stand'. The plural subject marked *-rltepe-* (< *-rle=te ape-) likewise indirectly attests the former presence of a clitic between the two elements.

Although motion verbs have been found to be a possible source for progressive aspectual markers (Bybee & Dahl 1989: 58), my interpretation of these Aranda forms is that they originated as markers of associated motion but have moved part way along the path to developing into a marker of aspect. Further support for an origin of *-rle.pe* as an AM marker comes from the parallel formation in Kaytetye, discussed in the next subsection.

2.4 Kaytetye *rre ape- ALONG

Kaytetye shows a similar formation to that of Aranda *-rle ape. As with the imperfective marker *-rrane*, the linking consonant is *rr(e)*, and the whole is uninterruptible. I reconstruct for *-rrape* ALONG a source 'VERB-ing go'. There is a slight variant for transitive verb stems; here there is an extension to *-rrapereyne-*. The sequence *apereyne-* is identical to the free verb indicating the transitive motion 'take'. The conditioning of these markers is an example of what has been called "transitivity harmony" (Valenzuela 2016).

I propose that Kaytetye and Aranda both grammaticalised a participle plus a verb of general motion *ape (subsequently lost as an independent verb in Aranda)[15] as a marker of concurrent associated motion, but that this form later shifted to a marker of aspect in at least EC Arrernte. This development then represents a kind of origin for an aspect-marker that differs from all the other sources we have considered previously. (See below Section 4.6 for the development of aspectual distinctions within concurrent motion in Kaytetye.)

15. Being replaced by *(a)lhe-*.

2.5 Aranda *-*rle iwe*- DO.QUICK

There is one further marker of aspect that appears to have been derived from a periphrastic construction. There is in EC Arrernte a suffix *-rl.iwe* DO.QUICK, which occurs in the same verbal slot as the continuous motion aspect marker *-rle.pe* DO.ALONG.[16] Like the latter, it apparently derives from the same suffix *-rle* followed by a verb; the apparent related verb is *iwe-* 'throw away'. A variant of the same suffix, *-rltiwe*, has the function of marking plural (but not dual) subject with a few basic motion verbs – deriving from *-*rle-te iwe*, where *-te* is a former enclitic signalling plural. The same suffix *-rl.iwe* is attested in Anmatyerr and Alyawarr, sometimes in the form *-rlewe*, but without the inserted plural-marking *t*. Green (2010: 757) glosses the formative as '(do something) quickly, suddenly, or only for a short time', as well as 'more than two are doing the action'. Moore (2012: 107) glosses what he considers a separate, homophonous morpheme *-rl.iwe* as 'SIDE' and treats it as a subcategory of associated motion meaning 'move from the path rapidly to do V and then move back to the path'. He notes that speakers "describe the event as 'quick one' and there is typically a short distance between the path and the point where the verb action takes place".[17] It is possible, in my opinion, that the sense of deviation from a path may be an implicature that occurs where motion is involved, and that the basic sense may be quick action as elsewhere in Aranda. Then his example (Moore 2012: 108) of its "figurative" use with 'forget' may simply refer to a temporary forgetting. There is a related form that involves *-rl.iwe* and reduplication that Wilkins (1989: 244) for EC Arrernte interprets in terms of sporadic action and Moore (2012: 108) analyses as involving repetition with small movements.

It is difficult to see how the combination of a participle in *-rle* plus 'throw away' could yield a sense of speedy action. Perhaps the prior sense 'having VERB-ed throw away' fits better than a simultaneous sense 'while VERB-ing throw away'. At any rate it seems that the prior construction must have had an idiomatic sense. This construction, moreover, is not restricted to the Aranda varieties. It occurs in the south-eastern neighbouring language Arabana-Wangkungurru. Hercus (1994: 210) describes how the combination into a single word of the verb stem *thawi-* 'throw' with the participial form of a verb implies speedy movement, as shown by the Wangkangurru example in (9).

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16. It does not involve motion nor is it attached to motion verbs.

17. Note that, unlike EC Arrernte, motion may be involved. Moore (2012: 108) has an example of this suffix added to 'see': "there is a kind of zig-zag motion from one waterhole to another to inspect them and see whether they contain water. After quickly assessing their state, the subject diverts back to the motion path."

(9) *Kathi mani-rna-thawi-nha.*
meat get-PPL-throw-NPST
'(He) should hurry up getting some meat together'.

It therefore seems possible that Aranda may have copied its construction from that of Arabana-Wangkangurru rather than inheriting it by a slow process of grammaticalisation. For languages of Central Australian, both Austin (1989) and Wilkins (1991) have emphasised that formations which appear to be the result of grammaticalisation may in fact represent rather the adoption of strategies from neighbouring languages. This kind of calquing imitates the result of grammaticalisation in the language from which the construction was copied, as described in Heine & Kuteva (2005).

3. Associated motion markers derived from periphrastic phrases

Having introduced in Section 2.3, by means of *rle ape- and related forms, one of the Arandic values of associated motion (AM), I here make a brief excursus on other associated motion markers that derive from similar combinations of non-finite verb forms followed by verbs of motion. Table 4 shows those AM forms which most transparently derive from such combinations. Note that all varieties contrast subcategories of subsequent and prior motion (in addition to concurrent motion, which is not discussed here). Within subsequent motion all varieties contrast a return path with a general departure; within prior motion there is a distinction between return and general movement. Only Kaytetye has motion toward the speaker within the prior motion subcategory. Various languages have further markers of speedy motion within either subsequent or prior motion (not discussed here).

Table 4. Arandic associated motion forms derived from phrases

	Subsequent motion		**Prior motion**		
	DO&RETURN	**DO&GO**	**RETURN&DO**	**GO&DO**	**COME&DO**
Lower	*-rl.alpe*	*-rle.lhe*	*-ty.alpe*	*-tye.lhe*	
Western	*-rl.alpe*	*-rle.lhe*	*-ty.alpe*	*-tye.lhe*	
EC	*-rl.alpe*	*-rle.lhe*	*-ty.alpe*	*-ty.alhe*	
Anmatyerr	*-rl.alpe*	*-rl.alhe*	*-ty.alpe*	*-ty.alhe*	
Alyawarr	*-rl.alpe*	*-rl.alhe*	*-y.alpe*	*-y.alhe*	
Kaytetye itr.	*-rr.alpe*	*-rr.ayte*	*-y.alpe*	*-yene*	*-yetnye*
Kaytetye tr.	*-l.alpe*	*-l.ayte*			

The directional contrasts are supplied by the recognisable verb roots *alpe-* 'return' in all languages, *(a)lhe-* 'go' in Aranda, and *ayte-* 'rise, set off' in Kaytetye. The first element (for which Yallop used the term "ligative" in his description of Alyawarr) differs according to the temporal relation between the main action and the motion: action preceding subsequent motion is signalled by *-rle* in Aranda and *-rre* or *-le* (according to the transitivity of the verb stem) in Kaytetye.[18] In all languages *-ty(e)* – lenited to *-y(e)* in Alyawarr and Kaytetye and with its vowel deleted before a following vowel – signals that the main event follows a prior motion. These *-rle* and *-rre* elements are obviously the same participial suffixes we encountered, preceding *ane- 'sit' in the aspect markers and *ape- in the concurrent motion 'do while going along' marker. Kaytetye here has a separate suffix *-le* (which may be cognate with Aranda *-rle*, since *-rle* and *-le* are phonologically conditioned variants in various environments) after transitive verb stems.

The prior sense of the erstwhile participial forms which occur in the subsequent motion of Table 4 can be reconciled with the simultaneous sense required in the forms discussed in Section 2.1–4. The simultaneity has to be interpreted as an immediately prior event; i.e., 'VERB-ing go' is used for 'having VERB-ed go'. The contemporary Kaytetye marker of simultaneous same subject action, *-ngele*, is used in this way, as illustrated in (10).

(10) *nharte=pe re* *alarre-**ngele**, alpereyne-yayne.*
then=TOP 3SG.ERG kill- **SS** take.back-IPFV.PST
'Then when he had killed it he would take it back'. (Koch, *Kaytetye Texts* 11.17)

It is harder to motivate *-tye in the prior motion forms. This is obviously the nominalisation suffix, a variant of the more regular *-ntye*. One might expect that the associated motion form derives from a subordinate purposive clause by means of the reanalysis of a (reduced) biclausal structure such as the Kaytetye sentence in (11). The problem is that there is no reflex of a case marker following the nominalisation suffix. A parallel to the posited Arandic source is however citable from the nearby Warlpiri language. Here a tightly bound construction has precisely the form we have posited for Arandic. A Warlpiri "inceptive" form *ma-ninja-parnka-* meaning 'run and get' consists of the non-finite form[19] of the verb *ma-* 'get' followed directly (without any case-marking) by the motion verb root *parnka-* 'run' (Simpson 2001: 181).

18. It is possible that Kaytetye *-rre* and *-le* reflect variant participles that differed according to earlier verb conjugation classes (cf. Section 5.3.)

19. Warlpiri *-nja*, occurring in the allomorph *ninja*, is cognate with Arandic *-ntye*.

(11) *Weye=lke kwere pwe-wethe, alpereyne-nke.*
meat=THEN 3SG.ACC cook-PURP take.back-PRS
'To cook the meat then, he takes it back'. (Koch, *Kaytetye Texts* 13.6)

4. Reduplicated aspectuals

4.1 Aspectual forms from reduplicated structures

This section discusses the sources of four kinds of verb formations that involve reduplication plus other elements (see Table 5). Reduplication has been claimed as a source of aspectual markings having more or less iconic values such as iterative, frequentative, continuative, habitual, and progressive (Bybee, Perkins & Pagliuca 1994: 166–174). Two of the Arandic constructions involve a clearly iconic value: the Aranda (including Alyawarr) frequentative and the Kaytetye ALL.ALONG form. The other two appear to encode the opposite value, that of attenuation, Aranda attenuative and Kaytetye ONCE.ALONG. Fabricius (1998: 96–135) surveys the use of verbal reduplication in Australian languages, including its role in marking aspectual values, with reference to a scale of iconicity. She proposes that the difficult sense of attenuation, 'do something a little, more or less, or half-heartedly', which is found in a few languages of her sample, may be understood as iconic from the viewpoint that the reduplicated form is somewhat like but not wholly identical to its base (Fabricius 1998: 106). The two Aranda formations are aspectual in their semantics, but the two Kaytetye constructions belong to the associated motion category. The historical questions that concern us here are accounting for the form and position of the reduplicate, the formal and semantic source of supplementary elements, and the semantic developments, especially those resulting in associated motion values.

Table 5. Arandic reduplicated forms involving aspect

Language	Form	Gloss	Subsection
Aranda	VS-*pe.RED-*	frequentative	4.2
Alyawarr	*RED.pe*-VS-	frequentative	4.2
Aranda	*RED.lpe*-VS-	attenuative	4.3
Kaytetye	VS-*lpe.RED-*	ONCE.ALONG	4.5
Kaytetye	*-rre.RED.rr.etnye* *-le.RED.l.arre*	ALL.ALONG	4.4

4.2 Aranda frequentative: *-pe* plus reduplication

In Aranda there is a reduplicated aspectual form which since Strehlow (1944: 173) has been labelled frequentative or frequentive (Wilkins 1989: 243; Moore 2012: 63). The sense is described as continuous or repeated. Humphris (2017: 107) for Lower Arrernte uses the label "iterative." The reduplicated part is described by Wilkins (1989: 243) as *(V)(C)Ce*. With short verb stems consisting of only a verb root of the shape *(V)(C)Ce* the whole root is reduplicated; e.g. (words cited with the present *-me* inflection) *ne-pe.ne-me*, from *ne-* 'sit', *angke-p.angke-me* from *angke-* 'talk', *ilwe-p.ilwe-me* from *ilwe-* 'die', *unte-p.unte-me* from *unte-* 'run'. (Note that the *e* of *pe* is deleted by a general morphophonemic rule.) It is impossible to tell from these forms alone whether the reduplication process proceeds leftward or rightward. The direction of copying is made clear from longer forms, however: the copy is added to the right and need not reproduce the whole verb stem. This can be seen in Lower Arrernte examples *nterne-pe.rne-me*, from a verb root *nterne-* 'spear', which is longer than the minimal *(V)(C)Ce*, and *ane-ty.alpe-p.alpe-me*, from 'stay' followed by a prior associated motion formative *-ty.alpe-* (Humphris 2017: 108), and in EC Arrernte *angke-rre-pe.rre-*, where the reduplicate follows the root *angke-* 'speak' and the reciprocal suffix *-rre* (Wilkins 1989: 244). Example (4) above (in Section 1.6) illustrates the frequentative formative following an associated motion formative plus the continuous aspect formative and the marker *-rre* of dual subject. This (rare) example also suggests that both the continuous and the frequentative can co-occur in the same verb form, as does *inkerre-rl.ape-p.ape-me* 'is rustling around every now and then', where the frequentative is preceded by the root *inkerre-* 'rustle' plus the continuous moving aspect-marker *-rl.ape* (Henderson & Dobson 1994: 518).

Alyawarr differs from the other Aranda varieties; here the reduplication copies *(V)(C)Ce* leftward and inserts *p(e)* after it, as can be seen from examples like *aknge.p-akngane-yele* 'RED-stay.in.one.place-PRS' and *ipe.p-ipare-yewe* 'RED-clean-PURP' (Moore 2012: 63). I suspect that this change to the Aranda pattern was influenced by the *-lpe-* pattern of leftward reduplication (see next section). It is easy to see how a symmetrical reduplication (of short verb stems) can have been reanalysed from rightward copying to leftward copying, and how a rule originally applying to a whole verb stem *(V)(C)Ce* can be extended to one that applies to just that sequence occurring at the edge of the verb stem. (The sequence *(V)(C)Ce* plays a role in a number of morphological formations in Arandic languages; I suggest that this is related to the fact that *(V)(C)Ce* is the phonological form of a minimal prosodic word in these languages.)[20]

20. I therefore disagree with the hypothesis of Bybee, Perkins & Pagliuca (1994: 167) that partial reduplication always results from the phonological reduction of total reduplication.

With respect to the possible origin of this aspect-marker, I suggest that its repetitive (or durative) sense can be attributed to reduplication according to the principle of iconicity. But what is the source of *-pe*? Wilkins (1989: 244) suggests that it may derive from the Proto Arandic verb *ape- 'go' which is found in the *-rle ape that signals continuity while the subject is in motion. This is unlikely for several reasons. First, the other complex verb forms involving *-ape are preceded by a marker of non-finiteness, *-rle* or *-tye*, whereas the *-pe* of the reduplicated forms is never preceded by anything other than part of the verb stem. Second, the *-pe* never appears as *-ape*, with the historic vowel. Third, when complex verbs involving this *-pe* are split by an enclitic (12) or even a series of enclitics (13), this appears to the right of *-pe*; if *-pe* were of verbal origin one would expect intrusive material to occur to its left.

(12) *ayenge ane-p<antey>ane-me*
1SG.NOM sit-STILL+FREQ-PRS
'I'm still here.' (EC Arrernte: Henderson & Dobson 1994: 519)

(13) *angke-p<ante-pek-antem>angke-me*
speak-[ONLY-MAYBE-NOW]+FREQ-NPST.PROG
'now might only keep on speaking' (EC Arrernte: Wilkins 1989: 381)

I rather suggest that *-pe* was itself an enclitic, which is used to separate the two parts of the reduplicated verb stem. The enclitic *-pe* is extremely common in Kaytetye, where it marks old information. There is in the Arandic languages a pattern of including an enclitic in the middle of reduplicated nominals to mark increment qualities, e.g., *anyent-am-anyente* 'one by one'. Moore (2012: 85–86) identifies this *am(e)* with a "discrete" marker that occurs in some Alyawarr erstwhile compound verbs, such as *amperl-am-are-nhe* 'track-DISC-see-IPFV.PST and *rtne-rl<am>ape-yele* 'stand-DISC+GOING.ALONG-PRS' (mentioned in Section 2.3 above). A rare example of *-p(e)* in the middle of a close-knit reduplicated nominal form is EC Arrernte *ulye-le-p-ulye-le* 'shade-LOC-*pe*-shade-LOC', translated by Henderson (2013: 259) as '(moving) from shade to shade'. The sense contributed here by *-pe* bears some resemblance to the repetition seen in the *-pe* plus reduplication verbal aspect marker.

4.3 Aranda attenuative: Reduplication plus *-lpe*

A second reduplicating formative that has an aspectual value in Aranda is formally identical except that the element intervening between the reduplicated parts of the verb is *-lpe* instead of *-pe*. Another difference is that the reduplicated *(V)(C)Ce* is attached to the left rather than to the right of the rest of the verb stem; i.e. it is

prefixed. The form is described as continuous inception (Wilkins 1989: 247) for EC Arrernte, indicating "that the verb stem action continues to be in its beginning stages but is never achieved within the time frame considered." Green (2010: 756) for Anmatyerr says the formation "shows that the action is just starting, is happening bit by bit or repeatedly, or to a lesser degree (than the normal action of the verb)." Moore (2012: 60) labels the Alyawarr form attenuative and claims that the "meaning covers an inceptive sense 'be at the beginning of the verb event' and an attenuative sense 'doing X repeatedly with less intensity'," but that both senses need not be present at the same time. Humphris (2017: 107) for Lower Arrernte also uses the label attenuative, noting that Breen (2002: 63–64) states the formation may mean "partly or sort of doing the action." Some examples quoted by Moore (2012: 59–62) include *nge.lpe-ngane-yele* 'begins to climb', with an inceptive sense; *atwe.lp-atwe-yele* 'knocks, pats', with an attenuated sense vs. *atwe-yele* 'hits'; *aytne.lp-aytne-yele* 'staggers', with a repetitive and attenuated sense vs. *aytne-yele* 'falls'; and *ane.lp-ane-rl.alhe-ye* ATT-sit-DO&GO-HORT 'should sit a while before going', which seems to indicate attenuation without repetition, indeed short duration of *ane-* 'sit'. The first example shows that the portion reduplicated from the verb stem *ngane-* is *(V)(C)Ce* is *nge*, not *nga*; morphemes necessarily end in *e* in the analysis used here (see Section 1.5).[21]

The etymology of the *-lpe* element is not certain. Wilkins (1989: 248) suggested that it might derive from the motion verb *alpe-* 'return'. Moore (2012: 62) suggests a possible relation with an element *-(e)lpe* of the Alyawarr markers of quick associated motion, *-yelpe* RUN&DO and *-rlelpe* DO&RUN. This fits better phonologically (since the formation lacks the vowel /a/) and perhaps semantically, if the attenuated sense can be related to the speed component of *-(e)lpe*. Both explanations, however, presuppose an erstwhile verb; if this were the source one would expect a preceding non-finite marker, which usually occurs in complex markers that descend from verb phrases. Kaytetye *elpere* 'quick' could also be mentioned; this may be an extended form of an earlier *elpe* of the same meaning, which may have been cliticised to the first part of the reduplicated form.[22] Reduplicated forms with *-lpe*, like other complex verb forms, can be interrupted by clitics. Wilkins (1989: 380) quotes an EC Arrernte form *ke.lpe-rlke-kaltyirre-*

21. Descriptions of the Aranda varieties by other scholars account for the prefixed reduplication in terms of *(V)(C)C.elp(e)*; i.e., with the /e/ vowel assigned to the *-lpe* element.

22. Another possible example of an erstwhile clitic marking speed is the element *-artne* that occurs between the EC Arrernte verb stem and the directional element of the subsequent motion formatives *-artn.alhe* QUICKLY DO&GO and *artn.alpe-* 'QUICKLY DO&GO.BACK and the concurrent motion *-artn.akerle* QUICKLY.DO.DOWNWARDS (see Wilkins 2006: 49). Although the etymology of *-artne* is unknown, its distribution does not suggest a verbal source; an enclitic source is a possibility.

CONT.INCEP-TOO-learn 'to also be on the verge of learning', where the enclitic *=rlke* is placed after the reduplicated partial plus *-lpe*. This makes it more plausible, in my opinion, that *-lpe* was also earlier a clitic, placed in the same position, than that it had a verbal origin.[23]

Reduplication alone can be responsible for the semantic sense of attenuation. Note that "approximation of quality" is one of the functions of nominal reduplication: Wilkins (1989: 150) cites *irrkay-irrkaye* 'faded' vs. *irrkaye* 'invisible' and *arert-arerte* 'inattentive, heedless, stupid' vs. *arerte* 'deaf, crazy'. However, since reduplication in the verb may signal either augmentation (in the frequentative) or attenuation, we must conclude that the choice of the intervening element (*-pe* vs. *-lpe*) serves to distinguish these senses. There is a parallel in nominal reduplication. We noted in the previous subsection that the element *-ame-* in reduplicated forms signals incrementation. There is an element *-nge-* that marks approximation or lesser quality; for example, compared to Kaytetye *errtyarte* 'spear', *errtyarte-ng-errtyarte* is 'boy's toy spear' (Turpin & Ross 2012: 357); cf. EC Arrernte *irrtyarte-ng-irrtyarte* 'playing with toy spears' vs. *irrtyarte* 'spear' (Henderson & Dobson 1994: 493).

4.4 Kaytetye ALL.ALONG from reduplicated participle plus motion verb

The ALL.ALONG form of Kaytetye has two variants, which differ according to the transitivity of the preceding verb stem. The verb stem is first extended by means of *-rre* if intransitive or *-le* if transitive. These are the same elements as occur in the subsequent motion forms (see Table 4), which I claimed derive ultimately from participial forms marking simultaneous action. This simultaneous function suits the concurrent motion sense here. Next is a reduplication of the final *(V)(C)Ce* of the verb stem plus the *-rre* or *-le* element. To the right of this is then added an element *-etnye* after intransitive stems or *-arre* after transitive stems. On the basis of parallels with other associated motion forms involving "ligatives," one would expect these to be verbs of motion. But they do not correspond to any contemporary verbs with a suitable sense. (The free verb *arre-* 'put' and the bound verb *-arre-* 'become' lack plausibly related senses.) The element *-(e)tnye*, which forms part of *-yetnye* COME&DO (see Table 4), may be identical in origin to this *-etnye*, although the hither direction of the former does not apply. I nevertheless posit that these elements reflect erstwhile verbs that combined with a reduplicated present participle to create a sense of 'VERBing while going along'. The reduplication may be responsible for the aspectual sense of continuity of the action.

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23. Hercus (1994: 201) suggests that an Arabana verbal suffix *-alpa* 'not quite', which marks unsuccessful action, is cognate with Aranda *-lpe*. This cannot be confirmed.

I suggest the following diachronic developments. The original structure would have been a compositional construction consisting of a total reduplication of a verb inflected with a simultaneous same subject subordination marker (participle) *-rre* or *-le*, which varied according to the transitivity of the verb stem, followed by a verb of motion. The participial suffix would have provided the sense of simultaneity, the reduplication the sense of continuity of the action, and the inflected verb the fact of motion (and perhaps the direction of motion, if there were two separate motion verbs that were freely used in this construction). A formally parallel construction is described in Turpin & Ross (2012: 491), with a meaning of gradual action or starting an action. Examples are *ape-ng-ape-ng-arre-nke* and *angke-ng-angke-ng-arre-nke*, both used of a baby starting to walk (*ape-*) and talk (*angke-*). A verb is suffixed with the modern subordinating suffix *-nge*, then the verb plus *-nge* is repeated, and combined with an element *arre-* (identical to the inchoative marker) that receives the final inflection, here *-nke* PRS. Another parallel formation is the Lower Arrernte example cited in (27) in Section 5.5 below, where a reduplicated, apparently non-finite form of 'talk' is linked to a motion verb, indicating simultaneous action, with reduplication apparently marking continuity.

The formal changes that I hypothesise to have taken place are as follows: the combination of repeated participles and the motion verb were fused into a single word, the reduplication changed from total to partial, the relevant free forms of the verbs disappeared from use, and (perhaps) the choice of former auxiliary came to be restricted according to the transitivity of the main verb. With loss of transparency the formation entered into a contrast of an aspectual nature with the form VERB-*rrape-*, which marked concurrent associated motion. The new, reduplicated, AM formation signalled total overlap of the main verbal event with the motion path, and the pre-existing form was relegated to a default meaning which implied lack of total overlap.

4.5 Kaytetye ONCE.ALONG from attenuative reduplication

An additional form also came to have an aspect-like value within the Kaytetye concurrent motion sub-system. Kaytetye has a reduplicated formative involving *-lpe* and a copy of *(V)(C)Ce* from the verb stem which is similar to the Aranda attenuative marker. There are two important differences, however, one formal and one functional. Formally, the direction of reduplication is left to right. For short verb stems consisting of *V(C)Ce* the reduplicated form is ambiguous between leftward and rightward copying; e.g. *angkelpangke-nke*, from *angke-* 'speaks', is potentially analysable as either *angke.lp-angke-nke* or *angke-lp.angke-nke*. With longer stems such as *kwathe-nke* 'drinks', however, the product of

this reduplication, *kwathe-lp.athe-nke*, makes it clear that the copied *(V)(C)Ce* is attached to the right of the final part of the verb stem and follows rather than precedes *-lpe*. I posit that in Kaytetye there was a switch from leftward to rightward reduplication, made possible by the ambiguity of formations from short verb stems. Like the cognate Aranda construction, the Kaytetye formation is capable of being interrupted by a clitic; witness the form of *eyle-nke* 'get', *eyle-lpe<lk>eyle-nye* 'get-ONCE<THEN>ALONG-PST', 'gathered then on the way'.[24]

The formal reanalysis was accompanied by, and perhaps motivated by, a change in the semantics of the formation. The *-lpV(C)Ce* formative occurs in the same slot of verb structure as all the (fifteen) markers of associated motion values. In fact it expresses a value within the subsystem of concurrent motion, i.e. action that takes place in the course of a motion path. It contrasts with the form derived from *-rre ape 'ALONG', 'do while going along', in that it typically denotes a single occurrence of the action, whereas the latter generally connotes repeated action concurrent with some motion. I gloss this form as ONCE.ALONG. It seems likely that this 'do once on the way' sense is somehow related to the attenuative sense attested in the Aranda varieties. Instead of 'do a bit of VERB' the new meaning is 'do a bit while going', which makes sense once the formation is included in the system of concurrent motion subcategories. However, I have no clear proposal for why the attenuative form would have been transferred to the AM situation and cannot think of a relevant bridging context for the functional shift. I can only offer a textual example (from Koch, *Kaytetye Texts* 126.127) of a situation where a little look is a look merely in passing; note also the reference to speed.

(14) *Awer=aperte=lke Arntarltere mentye=lke are-lpare-nhe*
quick=JUST=THEN White.Hill(ACC) leave.it=THEN see-ONCE.ALONG-PST
akanper=aperte re artnpe-nhe.
straight.past-JUST 3SG.NOM run-PST
'Quickly he ran then and saw White Hill on the way; he ran straight past it.'
(Koch, *Kaytetye Texts* 98.2)

4.6 The elaboration of a sub-paradigm

In fact Kaytetye, I claim, has developed a quasi-aspectual contrast within the subcategory of concurrent associated motion (Koch 2021). Table 6 shows the four markers of concurrent motion. There are three forms that mark concurrent motion in a non-specific direction, i.e. 'while going along' or 'on the way', and one, glossed 'COMING,' that signals that the action takes place on a motion path toward

24. Note that this verb is spelled *ile-* in Turpin & Ross 2012; see note 7.

the speaker. The ONCE.ALONG form signals single, quick action, the ALL.ALONG form emphasises total overlap between the timing of the main action and the motion, and the ALONG form is not specific about the relation of the action to the motion but typically connotes repeated action. The use of these three forms is illustrated in (15–17). The COMING form indicates only the direction of the motion and is compatible with punctual, repeated, or totally overlapping action. It may be relevant that this form too has apparently shifted its function: according to its form it should have indicated prior motion 'RETURN&DO': i.e. *-y.alpe* RETURN&DO (see Table 4) with an intervening clitic *-rn(e)* 'hither'. The semantic shift has included the loss of the return direction and change of the relative timing of the motion from prior to simultaneous; only the deictic sense has been preserved.

Table 6. Semantic contrasts within concurrent motion in Kaytetye

Direction of motion	Aspectual	Gloss	Form
unspecified	(recurrent)	ALONG	*-rrape(reyne)*
unspecified	once	ONCE.ALONG	*-lpeRED*
unspecified	continuous	ALL.ALONG	*-rreREDrretnye, -leREDlarre*
hither	unspecified	COMING	*-yernalpe-*

(15) *Weye akely-akelye alarre-**rapeynte**-rantye.*
animal little-little(ACC) kill- **ALONG**-IPFV(PRS)
'He kills little animals as he goes along'. (Koch, *Kaytetye Texts* 98.2)

(16) *Arwengerrpe re alarre-nke, weye arwengerrpe, alarre-**lparre**-nke.*
turkey(ACC) 3SG.ERG kill-PRS animal turkey(ACC) kill- **ONCE.ALONG**-PRS
'It (the eaglehawk) kills a turkey, it kills it while on the move'.
(Koch, *Kaytetye Texts* 93.11)

(17) *weye alarre-**larrelarre**-rantye-penhe=pe elye-warle*
animal(ACC) kill- **ALL.ALONG**-IPFV-SEQ=TOP shade-ALL
antethene-yalpe-nke.
sit.down-RETURN&DO-PRS
'After killing animals all the way along, he goes back and sits down in the shade'. (Koch, *Kaytetye Texts* 82.6)

Two of the three potentially overlapping concurrent motion forms created in Kaytetye were distributed in a manner which reflects some of the inherent senses of the forms – *-lpe* as attenuated action and the reduplicated participle as extended action, with the 'doing go' form being relegated to the default sense of

just doing while going along, but in contrast to the other forms implying repeated action. Aspect-like distinctions within the system of associated motion subcategories have not been noted before for Australian languages, but have been noted within associated motion systems in languages of western Amazonia (Rose 2015; Guillaume 2016).[25]

5. Sources of final inflections with aspect values

This section discusses the possible origins of all the final verb inflections which may involve aspectual meanings. Other final inflections include markers for various moods, negative, as well as clause subordination; these will not be considered here. There are some differences between the descriptions of different varieties of Aranda, and it is not always clear which represent real differences in linguistic structure vs. alternative descriptive accounts. After introducing the various past tense markers in Section 5.1, I discuss in Section 5.2 those that include a habitual or progressive function, deriving them from agent nominalising forms. Section 5.3 offers a hypothesis on how verbal suffixes inherited as tense markers may have acquired an aspectual value. Section 5.4 describes non-past tense forms which may involve aspectual values. In Section 5.5 I trace a generic suffix back to an earlier participle that properly marked a dependent clause. In Section 5.6 I relate an imperfective/present marker found in two adjacent varieties to a locatively marked subordinate clause.

5.1 Final inflections marking past tense plus other values

Table 7 presents the final inflections that mark past tense plus other values in the Arandic languages; the labels are approximate indications of the grammatical meanings. Note the alternative habitual forms in the last two columns. These will be discussed first.

25. Koch (2021), however, points to a number of other cases of aspectual contrasts within concurrent associated motion in Pama-Nyungan languages.

Table 7. Final inflections marking past tense plus other values

	Completive	?	Recent	Progressive	Habitual	Habitual
Lower	*-ke*	(*-nhe*)	*-rne*		*-tyarte*	*-tyangerre*
Western	*-ke*				*-tyerte* *	
EC	*-ke*		*-rne*	*-tyeme, -tyame*	*-tyerte, -tyarte*	*-tyunkerne*
Anmatyerr	*-ke, -he*			*-tyame*	*-tyarte*	*-tyinkwerne*
Alyawarr	*-ke,-we*	*-nhe*				*-yinkwerne, -yartingkerre*
Kaytetye		*-nhe*			*-yayne* **	

* This form is inferred from Strehlow's (1944: 132) *-tjita*.
** There is a variant *-yaynenke* coming into use, which involves the addition of *-nke* PRS to the traditional suffix.

5.2 Past habitual from agent nominalisation

Here I make a case for deriving the habitual suffixes from nominalised agent forms. Although lexical verbs are more frequently mentioned as sources of grammaticalisation (e.g., Bybee, Perkins & Pagliuca 1994: 154–155; Heine & Kuteva 2002: 331; Anderson 2006: 369–371), "agent nominalization > HABITUAL" is one of the manifestations of new tense-aspect-mood markers deriving from subordinate constructions mentioned by Gildea (2008: 67; see Gildea 1998: 236 for an example from Panare). The restriction of new habitual forms to the past tense is well attested, and motivated by the necessity of explicit reference to habitualness in the past, which is not required in the present since this meaning can be included by present tense (Bybee, Perkins & Pagliuca 1994: 153–160). An Australian example of the use of the same form to signal a habitual agent noun and habitual verbal action is the "characteristic" suffix of the Western Desert language. Examples (18) and (19) from the Yankunytjatjara dialect, taken from Goddard (1985: 77), illustrate the nominal derivational suffix and the verbal inflection respectively. The verbal form is unrestricted in tense, but here interpreted as past because of the temporal 'long ago'.

(18) *tjinguṟu witil-payi-ngku nyuntu-nya nyaku-ku*
maybe catch-CHAR-ERG 2SG-ACC see-FUT
'Maybe the policeman will see you'.

(19) *Wati tjuṯa-ngku iriti maḻu wakal-payi*
man many-ERG long.ago kangaroo(ACC) spear-CHAR
'In the old days the men used to spear kangaroos'.

All the Arandic languages include a verbal form capable of marking past habitual. Kaytetye, however, lacks a dedicated habitual form; the habitual sense is just one of the functions of the past imperfective *-yayne*, which expresses progressive and durative senses as well. In Alyawarr as well the past imperfective form *-nhe* may be used for habitual events. All Aranda varieties use one or more suffixes whose function has been described in terms of 'past habitual' or 'used to'. In Lower Arrernte this is glossed 'remote past (habitual)'. The most widely used form is *-tyarte* or *-tyerte*. Alyawarr lacks this form (or its lenited variant *-yarte*), but some older speakers use a longer form, *-yartingkerre* or *-yinkwerne*, rather than the normal past imperfective *-nhe* (Moore 2012: 136 and pers. comm. 3 Jan. 2019). The form *-yartingkerre* consists of the expected *-yarte* plus a further suffix *-ingkerre*. The form *-yinkwerne* has cognates in other varieties. Several varieties have an alternative past habitual form which consists of the addition of an element, not to *-tyarte*, but to *-ty(e)* or its lenited variant *-y(e)*. (Remember that a final vowel automatically deletes before a following vowel.) For EC Arrernte, Anmatyerr, and Alyawarr this element is *unkerne* or *inkwerne*, which is otherwise unknown. Here the phonological differences suggest that this was originally an independent word *unkerne, in which the roundedness of the initial vowel was transferred dialectally to the following consonant. Lower Arrernte has a further variant, *-tyangerre*, which is attested only once.

A clue to the origin of these verbal suffixes is the fact that all the explicitly past habitual forms, plus the Kaytetye past imperfective *-yayne*, can be analysed in terms of -*tye plus an additional suffix. This was noted by Humphris (2017: 97) for Lower Arrernte, and she compares past habitual markers to two nominal forms. First, she compares *-tyarte* to the 'habitual agentiviser' *-tyampernenhe*; their parallel usage is illustrated in (20).

(20) *Wetyarnt=inp tyerre-mele urlke-**tyarte**… irrparlpe tekerre ipeke*
pigweed=CN cook-SS eat- **REM.PST** irrparlpe root however
*urlke-**tyampernenhe**, arlpe-nge.*
eat- **HAB.AGT** sandhill-LOC
'We cook and eat *wetyarnt* too…on the other hand we eat the root of *irrparlp*, on the sandhill'.

We can add that a cognate suffix, spelled *-tjambananha*, is attested in Western Arrernte, where it is described as a "frequentative noun," meaning "one who always does" (Strehlow 1944: 69). Humphris (2017: 57) gives *angke-tyampernenhe,* glossed 'talk-HAB.AGT; talker, chatterbox' as a habitual derived from a verb, and *ah-ampernenhe* 'anger-HAB.AGT; bully, fighter, looking for a fight' as a habitual derived from a noun. These forms show that *-ty(e)* effects the nominalisation and *ampernenhe* provides the semantic augmentation that accounts for the habitual sense. There is evidence, however, that *tyampernenhe* also functions as a verbal

suffix. This is demonstrated by the ergative case marking of the subject in (21), from Humphris (2017: 73). The time reference here is omni-temporal; another example, (22), from Humphris (2017: 57), shows that the habitual event may be in the past. A more appropriate gloss for the verb suffix would thus be just 'habitual'.

(21) *Lekere alenhe-le kere aherre ine-**tyampernenhe***
dog that-ERG meat kangaroo(ACC) get- **HAB.AGT**
'That dog kills kangaroos'.

(22) *Arlpe-nge ilerne Anna Creeke-nge ane-**tyampernenhe***
sandhill-LOC 1DU.NOM Anna.Creek-LOC live- **HAB.AGT**
'We used to live on the sandhill at Anna Creek'.

Humphris (2017: 97) compares the other past habitual suffix, *-tyangerre*, to the EC Arrernte nominalisation "verb *-ntye akngerre* 'a thing or person that is typically involved with the verb action…often, but not always, the one that does the action'," quoting Henderson & Dobson (1994: 510). Actually, the latter give as a variant *-tye akngerre*; *-ntye* and *-tye* are variant nominalisation suffixes. An example sentence from Henderson & Dobson (1994: 519) is (23).

(23) *Name lhere itere-le lyape-ntye akngerre.*
grass(NOM) creek side-LOC grow-NMZR big
'The grass grows next to creeks'.

Wilkins (1989: 139) comments on the propensity of *-(n)tye* nominalisations "to be modified by the adjectival nominal *kngerre* 'big; large amount of', and such phrases translate into English with a sense that the verb action is 'always', or 'continually' happening," citing Example (24). A similar usage is attested in Western Arrernte by the dictionary entry *ngkentyekngerre* 'good talker' (Breen 2000 et al.: 37).

(24) *Re angke-ntye kngerre.*
3SG.NOM speak-NMZR big
'He's always speaking (or he's a big talker)'.

Moore (2012: 158) compares to this EC Arrernte form the Alyawarr nominalised form *-yangkere*, which marks "characteristic behaviour." This suffix consists of a nominal suffix *-angkere*, which supplies a sense 'really, properly' to descriptive nominals such as *mwerre* 'good', and, following *-y(e),* "changes a verb to a nominal which shows that the person or thing usually does the verb action" (Green 1992: 46). The same suffix *-angkere* occurs in Eastern Anmatyerr as an alternative to *-angerre*, the bound form of *a(k)ngerre* 'big' (Green 2010: 100, 103).[26] Given the

26. This raises the possibility that the *-angerre* element in Lower Arrernte *tyangerre* might also be a reduced form of *akngerre*, glossed as 'big; a lot, many, a mob' (Humphris 2017: 76),

sense of these longer habitual forms, it should be noted that the extension *-ingkerre* of Alyawarr *-yartingkerre*, is identical to the free word *ingkerre* 'all' (Moore 2012: 136). The comparison of all these forms supports a hypothesis that the past habitual verbal forms probably also all derive from variable extensions to an agent nominalising suffix *-tye, which lenited to *-ye* in Alyawarr and Kaytetye.

Note the ambiguity in the descriptions of some of these habitual agent forms, between nominal derivatives and verbal inflections. A nominal predicate could easily have been reanalysed as verbal given the typical absence of a copula with nominal predicates. The (complex) suffixes have changed their sense from 'characteristic of a nominal' to 'characteristic of a period of time', with further restriction to past time, since habituals in the present are adequately covered by the present tense.

The origin of the other elements occurring after *ty-* or *y-* in past tense forms is not clear. The patterns we have discussed suggest earlier meanings that provided some similar augmentation to an agent nominalisation. The Aranda element *-arte* (of *-tyarte*) can perhaps be equated with an emphatic enclitic *=arte*, which is attested in Alyawarr and Kaytetye. The sense 'really' (Green 1992: 99) seems similar enough to the other extensions, deriving from 'a lot' or 'all', to suggest that *arte* was another reinforcing element added to the agentive suffix *tye to convey the habitual sense.[27]

A past progressive form *-tyeme/-tyame* is attested only in EC Arrernte and Anmatyerr, where it contrasts aspectually with the past completive *-ke*. This may therefore be a local innovation. It is possible that this suffix was formed by adding an enclitic to the same agent nominalising suffix *-tye from which the various habitual markers were formed. The clitic *=ame*, attested in EC Arrernte, Anmatyerr, and Alyawarr, has a sense of incremental change: "shows that the action happens bit by bit over a period of time (?)" (Green 1992: 33). If this was one of several extensions of a nominal agent form, it seems possible that it represents a specialisation of one such form as a marker of past progressive, in contrast to the habitual sense of the other forms.[28]

The etymology of the Kaytetye element *-ayne* (of the past imperfective *-yayne*) is not known. Since *y* here could be a reflex via lenition of *ty*, it is likely

27. For an association between *-arte*, 'big' (in the sense 'very' when modifying a quality), and habitual agent, compare Kaytetye *mpwenye* 'love, sex, romance, promiscuity', *mpwenye alkenhe* 'someone who is always chasing people of the opposite sex' (*alkenhe* 'big'), and *mpwenyarte-mpwenyarte* 'lover boy, someone who finds a new lover at every place he goes' (Turpin & Ross 2012: 481–482).

28. The case for such a development is strengthened by the observation by Myfany Turpin (pers. comm. 22.12.2018) that *-tyame* and *-tyarte* are used interchangeably in some contexts and dialects.

that *-yayne* is derived by a similar extension to a nominalised verb form ending in *-*tye*. If the earlier original sense was past habitual, one must assume a generalisation of the semantics to include progressive and durative senses, resulting in a general imperfective function.

5.3 Residual past markers: Refunctionalisation

We now turn our attention to the suffixes in the first three columns of Table 7. None of these appear to show any formal evidence of including former verbal roots, reduplication, or nominalisation suffixes. Here I can do no more than suggest a possible mechanism for the creation of aspectual distinctions.

The suffix *-ke* (and its dialectal variants *-he* in Anmatyerr and *-we* in Alyawarr) occurs in all Aranda varieties (but not in Kaytetye). It is described as marking past perfect (Lower Arrernte), past perfective (Alyawarr) or past completive (EC Arrernte and Anmatyerr), in contrast to other suffixes which indicates past time. This form (but not necessarily its aspectual value) is clearly reconstructible to Proto Aranda. The form *-rne* is attested in Lower Arrernte as recent past and EC Arrernte as immediate past. The contrast with *-ke* is purely a distinction of tense rather than of aspect. The suffix *-nhe* occurs in Alyawarr as past imperfective, with progressive, iterative, habitual and customary senses, providing an aspectual contrast to *-ke* 'completed' (Moore 2012: 133–135). There are traces of a past tense marker *-nhe* in Lower Arrernte, but its specific value, possibly past imperfective, cannot be determined (Humphris 2017: 95). In Kaytetye *-nhe* is the basic past tense contrasting with past imperfective *-yayne*. This distribution suggests that the form *-nhe is reconstructible to Proto-Arandic, the ancestor of all the Arandic languages.

From the preceding we can conclude that the lower-level Proto-Aranda (not including Kaytetye) must have had at least two non-habitual past tense markers, which may have been distinguished aspectually. The fact that *-rne* seems to mark a distinction other than aspect makes us cautious, however. Another possible explanation for the presence of *-ke*, *-nhe*, and *-rne* in Aranda varieties is that the languages may have inherited a number of synonymous past tense markers, which were then assigned different tense and/or aspect values in particular varieties. This is plausible (although not demonstrable) as an outcome of the loss of earlier conjugation classes. I have elsewhere (Koch 2015: 293) argued that the ancestral language had (at least two) conjugation classes, of the type found in other Pama-Nyungan languages, each of which would have had distinctive verb suffixes for each inflectional category (Koch forthcoming). Thus it is possible that the aspectual contrast in Alyawarr between past imperfective *-nhe* and past perfective *-ke* developed as a refunctionalisation of two suffixes which earlier had identical functions, distributed according to a conjugational class distinc-

tion that was subsequently abandoned. This would be an example of what Lass (1997: 316–317) calls "exaptation" in language change.

5.4 Non-past aspectual contrast?

Table 8 presents non-past final inflections involving aspect. The column headings indicate only the notional content of the majority of suffixes. Apart from the past tense, there is a limited amount of aspectual contrast indicated by suffixes in the final inflectional slot. The most widespread marker of present tense in Aranda is *-me*. This is labelled non-past in Lower Arrernte, since it can also indicate events in the near future (Humphris 2017: 97). The same applies to EC Arrernte, where Wilkins (1989: 230) labels it non-past-progressive, in contrast to *-tyenhe* non-past-completive; while both may refer to future events, the latter refers to a complete rather than an on-going event. The non-past suffixes *-me* and *-tyenhe* thus make the same aspectual contrast between progressive and completive as the past tense suffixes *-tyeme* and *-ke*. *-tyenhe* is used to express future events in EC Arrernte, Western Arrernte, Anmatyerr, and Alyawarr (in the lenited form *-yenhe*). Moore (2012: 131) finds no aspectual contrast in Alyawarr between *-yenhe* (< *tyenhe) future and *-me*, which he analyses as potential. The future function is expressed in Lower Arrernte by *-nye*, labelled potential by Humphris (2017: 99), because of its use to mark possible events. In Kaytetye the future marker is *-ye*, which is cognate with a modal suffix of identical form, labelled permissive in EC Arrernte and hortative in Alyawarr and Lower Arrernte. The 'generic' inflection stands apart, as a suffix that makes no specific time reference. Its development is the subject of Section 5.5. The forms labelled "imperfective" in Table 8 are discussed in Section 5.6.

Table 8. Non-past final inflections involving aspect

	Present	**Future**	**Imperfective**	**Generic**
Lower	*-me*	*-nye*		*-rle*
Western	*-me*	*-tyenhe*		*-rle*
EC	*-me*	*-tyenhe*		*-rle*
Anmatyerr	*-me*	*-tyenhe*	*-tyele*	*-rle*
Alyawarr	*-me*	*-yenhe*	*-yele*	
Kaytetye	*-nke*	*-ye*		

5.5 Generic *-rle* from non-finite simultaneous marker

All the Aranda varieties except possibly Alyawarr (but see below) have a final suffix *-rle*, which has a distinctive role in the tense-aspect system. (In Kaytetye there is no unique form for a generic event; a same subject marker is co-opted for this function, as will be argued below.) Wilkins (1989: 231–232) glosses it 'generic event' and notes that it specifies not a particular event but one that "would (or should) occur in the normal course of events." He describes three uses: (1) in independent clauses, for omni-temporal statements; (2) where the time reference is already understood (perhaps given by a previous verb) to signal "a general habitual action which would be expected to happen during the time period indicated"; and (3) on verbs used – in code-switching – with English modals such as *can, can't, gotta,* and *should*. Henderson & Dobson (1994: 534) add *don't, could*, and *will*. A Western Arrernte example of this third usage is (25), from Breen (2002: 32), illustrating two verbs both meaning 'grow', *lyape-* and *mangke-*.

(25) People or animals don't *lyaperle* they *mangkerle.*

There are several indications that this suffix is in origin a marker of a dependent clause – in fact the same *-rle* that has combined with verbs to form the suffixes *-rl.ane* and *-rl.ape*, where it indicated simultaneous action by the same subject as that of the main clause, and *-rl.alhe* and *-rl.alpe*, where it signalled prior same-subject action (see Table 4). First, its use with English modals suggests dependent marking. Second, a possibly cognate form in Alyawarr is described in dependent terms. Yallop's (1977: 130) verbal suffix *-ila* is exemplified by *ayntila* in (26), to be analysed now as *aynte-rle* (Moore 2012: 156). Yallop calls it a "participle," Moore "relative (same subject)." Note that it marks "lie" as simultaneous with and sharing the same subject as the main verb "eat."

(26) *antemerne* ***aynte-rle*** *arlkwe-ke.*
honey(ACC) **lie-PPL** eat-PST
'Lying down, (I) ate the wild honey'; '(I) ate the wild honey while lying down.'

A third indication of its dependent status comes from Lower Arrernte. Although Humphris (2017: 98) describes it as an "unmarked tense/mood" indicator, used when tense is implicit or not necessary, and provides some examples of its use in independent clauses, some instances suggest dependent usage. In (27), it occurs on a (reduplicated) verb dependent on a finite main verb. In (28) the translation suggests a dependent clause. In another example, (29), describing customary events and introduced with the English words *we always* (Humphris 2017: 130), verb forms in *-rle* are used in the same way as those in the productive (dependent) same-subject simultaneous marker *-mele*.

(27) *Ila lhe-m=aneme, ngke-**rle**-ke-ngke-**rle**.*
3SG.NOM go-NPST=NOW talk- **UNM**-LINK-RED-**UNM**
'He's walking along talking'.

(28) *antethe-le intelhe-**le**=we*[29] *ngkwaperre-ke=we*
feathers-INS decorate- **UNM**=EMPH dance-DAT=EMPH
'decorating yourself with feathers for the corroboree'

(29) *ute-**rle** an' urlke-me ute-**mele** urlke-me*
kill- **UNM** and eat-NPST kill- **SIMULT.SS** eat-NPST
'[We always…] kill and eat, kill and eat'.

There are similar examples in Kaytetye of a dependent verbal form marking customary actions. Example (30), from Koch (*Kaytetye Texts* 59.2–5) is part of a procedural text in which every sentence is in the *-ngele* form, which normally marks that a dependent clause has the same subject and same time reference as that of the main clause. This is a description of how one gathers termite larvae; note that no particular subject is indicated.

(30) a. *Ngkwepeye are-yene-**ngele**.*
antbed(ACC) see-GO&DO-**SS**
b. *Atneme-le alpwarte-**ngele** .*
yamstick-LOC root.out- **SS**
c. *Kayt-eynenge eyle-**ngele** .*
grub-COLL(ACC) get- **SS**
d. *Akwerr-arle arre-**ngele**, akwerre-le aynpe-ngele.*
coolamon-ALL put- **SS** coolamon-LOC yandy-SS
'Sees (comes upon) a termite mound (antbed).
Roots it out using a yamstick.
Gets out the grubs (larvae).
Puts them into a coolamon and yandies them with the coolamon'.

The finite 'generic event' inflection in independent clauses, *-rle*, thus apparently represents the use of a subordinate clause structure as a main clause in circumstances where the dependence on a separate event is merely implicit or even nonexistent.[30]

29. *-le* is here a phonologically conditioned allomorph of *-rle*.

30. There is a possible parallel in the Western Desert language: the forms that mark (dependent) serial constructions in Yankunytjatjara (see (6) above) occur as the regular present tense inflections in the Ngaanyatjarra dialect (see Glass 1980: 84).

5.6 Alyawarr and E Anmatyerr progressive/present from subordinate clause

Another possible aspectual contrast is found between Eastern Anmatyerr *-tyele* and the cognate Alyawarr *-yele* (with *ty* lenited to *y*) and *-me* in the respective languages. Anmatyerr *-tyele* includes among its uses a durative sense "action is continuing for some time or will probably go on continuously" or a habitual sense "action is something that typically happens" (Green 2010: 300). For Alyawarr Yallop (1977: 52) notes the overlap with *-me* 'present' but states that *-yele*, which he labels 'present continuous', "is certainly preferred for the description of present happenings." In fact, *-yele* is sufficiently prevalent to be used as the citation form of the present in the Alyawarr dictionary (Green 1992). In Moore's (2012: 129) analysis, however, Alyawarr *-yele* is treated as simply the marker of present and it is claimed that *-me* is better analysed as marking potential mood.[31] According to this analysis there is no aspectual contrast. Nevertheless I explore the possible source of *-tyele/-yele*, on the assumption that there was a shift (of a common typological nature) from imperfective to present in modern Alyawarr.

Yallop (1977: 54) suggested an etymology for *-yele*; it may incorporate the locative suffix *-le*, just as the purposive *-yeke* (and *-tyeke* in other Aranda varieties) may include the dative suffix *-ke*. The base to which these case suffixes are added would be the nominalisation form in *-tye. The current productive nominalisation marker is *-ntye*, and case markers can be added to it. The use of locative case to indicate a temporal circumstance is expected in Arandic languages. The use of *-ntye* to nominalise a clause is also expected; it occurs without case inflection especially in clauses which form the complement of 'see'. An example of a nominalised verb marked with locative in a subordinate clause is (31), from Moore (2012: 149).[32]

(31) *Antywere arrtye-yenhe arrpeme kwatye apetye-**ntye-le** .*
grass burn-FUT again rain come- **NOMSN-LOC**
'We will burn grass whenever it rains'.

To get from the locative of a nominalised clause to an (imperfective) present marker requires two additional assumptions. First, we need to assume that the alternative nominalisation suffix *-tye (rather than *-ntye) served as the base. This is plausible in light of the fact that a number of other Aranda verb inflections also appear to be extensions of this suffix, including: purposive *-tyeke* (*-ke* being dative); *-tyenhe* future; negative *-tyange* (EC Arrernte), *-yange(nhe)* (Alyawarr),

31. In Kaytetye *-me* is a marker of potential mood and the basic present tense marker is *-nke*, a form not found in Aranda.

32. Moore glosses *-ntye* as 'irrealis' because of its occurrence without a case-marker in conditional clauses. He says it also occurs in independent clauses, but no examples are cited.

-tyanhe (Lower Arrente), *-tyakenhe* (EC Arrernte) *-tyekwenye* Western Arrernte; negative imperative *-tyale* (EC Arrernte, Lower Arrernte). All of these presumably represent action nominalisation of a whole clause, as opposed to the agent nominalisation we saw above in the markers of habitual and characteristic. The nominalisation suffix can have both interpretations.

The second assumption required is that such nominalised clause can come to be used as main clauses. This diachronic "insubordination" process is common in Australian languages (Evans 2007).[33] In particular the purposive is typically used as a main clause, with the inflection signalling intention, and even in some languages evolving into the main marker of future tense. The hypothesis, then, is that locative subordinate clauses marked with *-tyele, and specifying circumstances occurring simultaneously with the main clause, were used as main clauses, with the temporal reference by default being present and the aspect typically progressive. A possible example of *-yele* being used in a subordinate ('while') clause, like *-ntyele* in (31) above, is (32) – although Moore (2012: 131) treats it as a "historic present", used when the time reference is already established. I assume the second clause means literally 'while the boy, still unaware, was singing'.[34]

(32) *Artwamp=ane apetye-nhe ilep-akerte awey aylelhe-**yele** apal=anteye.*
old.man=FOC approach-IMPP axe-COM boy sing-**PRS** unaware=STILL
'The old fella was approaching, carrying an axe. The boy is singing and still unaware.'

6. Summary and conclusions

The Arandic languages exemplify a surprising large number of diachronic developments involving verbal aspect. The development of continuous and imperfective senses from periphrastic phrases (Section 2.1, 2) containing stance verbs is well known elsewhere. A parallel development of phrases including motion verbs into markers of various subcategories of associated motion (Section 2.3, 4) is relatively rare, although paralleled in other Australian languages (Koch 2021). Functional shifts between aspect and associated motion are only possible in

33. The pragmatic motivations, however, are not always understood.

34. The diachronic process at work here appears not to be like the development of European progressives from 'be at VERB-ing' constructions, nor like the changes involving loss of copula of the kind described by Gildea (2008). The difference between my interpretation and Moore's of (32) rather suggests the independent usage may have resulted from the ambiguity of the role of a clause in discourse: is the second clause to be interpreted as 'while (subject) was VERB-ing' or 'meanwhile (subject) was VERB-ing'?

grammatical systems that have both categories: here we have a change from concurrent motion to continuous aspect (Section 2.3), as well as the development of aspectual distinctions within the concurrent associated motion subcategory, out of forms previously marking aspect (Section 4.4–6). One aspectual form, DO.QUICK transparently derived from an auxiliary verb construction, seems to lack a motivated grammaticalisation pathway and may be the result of calquing from another language (Section 2.5).

The creation of aspect markers from reduplicated verbal forms is typologically well attested. The Arandic peculiarity is for these aspectual forms to include internal clitics and to have the potential to shift between prefixing and suffixing reduplication (Section 4).

A number of aspect markers derive from subordinating forms of verbs. Past habituals have their origin in agent nominalisations, typically augmented with a marker of 'much' (Section 5.2). A tense-less 'generic event' marker shows traces of a dependent, participial form without an accompanying independent clause (Section 5.5). Another dependent clause structure, a nominalised clause marked for locative case, has become an independent imperfective-marked clause in one part of the Arandic subgroup (Section 5.6).

Finally, some past tense markers that include aspectual senses are hypothesised to have developed their aspectual senses by a process of refunctionalisation of redundant past tense markers, where a number of inherited forms entered into competition as a result of the collapse of verb conjugations.

Australian languages, with their rich agglutinative verbal structures, provide a fertile ground for exploring the historical development of aspectual and other verbal morphology. This kind of diachronic study, however, is limited by such factors as the virtual absence of data from different historical stages, inadequate documentation of many languages, and the dearth of good text collections for most languages. This results in our findings being necessarily more speculative than those based on languages with a richer historical documentation.

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Abbreviations

1	First person	FUT	Future
2	Second person	GOING.ALONG	Do while going along
3	Third person	HAB	Habitual
ACC	Accusative	HORT	Hortative
AGT	Agentiviser	IMPP	Past imperfective
ALL	Allative	INCEP	Inceptive
ALL.ALONG	Do continuously while going along	INS	Instrumental
		IPFV	Imperfective
ALONG	Do while going along	LINK	Linker
CHAR	Characteristic	LOC	Locative
CN	Conjunction? [My source failed to give an explanation; this is my guess]	NMZR	Nominaliser
		NOM	Nominative
		NOMSN	Nominalisation
COLL	Collective	NPST	Non-Past
COM	Comitative	ONCE.ALONG	Do once on the way
COMING	Do while coming	PL	Plural
COMP	Completive	PPL	Participle
CONT	Continuous, continuative	PROG	Progressive
CONV	Convey	PRS	Present
DAT	Dative	PST	Past
DEF	Definite	PURP	Purposive
DISC	Discrete	RECIP	Reciprocal
DO.ALONG	Do while going along	RED	Reduplication
DO.COMING.BACK	Do while coming	REM	Remote
DO.GOING	Do while going	SBJ	Subject
DO.QUICK	Do quickly	SEQ	Sequential
DU	Dual	SG	Singular
EMPH	Emphatic	SIMULT	Simultaneous
ERG	Ergative	SS	Same subject
FOC	Focus	TOP	Topic
FREQ	Frequent(at)ive	UNM	Unmarked

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Kisikongo (Bantu, H16a) present-future isomorphism*

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1. Introduction

In many Bantu languages, a lack of overt tense/aspect (TA) morphology in the dedicated prefix slot of the verb, combined with the so-called "neutral" final vowel *-a*, is typically one way of expressing present tense (Nurse 2008: 117–120). This is also the case in many varieties belonging to the Kikongo Language Cluster (KLC) (Dom & Bostoen 2015: 172–173), a genealogically related group of language varieties spoken in an area that stretches from southern Gabon to northern Angola and from the Atlantic coast to the Bandundu province in Congo-Kinshasa (see the map in Appendix). The KLC constitutes a distinct clade within a higher-level Bantu subgroup known as West-Coastal or West-Western Bantu (de Schryver et al. 2015; Grollemund et al. 2015). The vocabulary-based phylogenetic classification of the KLC by de Schryver et al. (2015) shows that the 40-odd Kikongo varieties can internally be further divided into four subgroups: North, East, West and South Kikongo, all of which surround a linguistic convergence zone labeled Central Kikongo.

The aim of this article is to describe and reconstruct the diachrony of an innovation in the present- and future-tense paradigm that is shared by four Kikongo varieties, namely Kisikongo, Kisolongo, Kizombo and Kindibu. Unlike most other varieties of the KLC, these four Kikongo varieties use a morphologically unmarked TA construction *Ø-R-a* for future time reference (Dom & Bostoen 2015: 193–194). Present tense is expressed mainly by means of a TA construction with the suffix *-ang*, i.e. *Ø-R-ang-a*. This construction can be used in episodic, generic and habitual expressions (see Section 2.1 for definitions of these categories). However, in other Kikongo varieties the *Ø-R-ang-a* construction is restricted to habituality and

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genericity only (Dom & Bostoen 2015: 173–174). The *Ø-R-ang-a* and *Ø-R-a* constructions are illustrated in Examples (1) and (2), respectively, with fieldwork data from Kisolongo as spoken in the Democratic Republic of the Congo.

(1) The *Ø-R-ang-a* construction in Kisolongo
   a. Episodic (progressive)
   Nkyáma ***besálánga?***
   *nkyama be-**Ø**-sal-**ang**-**a***
   what SP$_{2}$-PRS-do-IPFV-PRS [1]
   'What are they doing?'
   b. Generic
   Asólóngo ***bedyánga*** *mbóm'e?*
   *a-solongo be-**Ø**-di-**ang**-**a** N-boma e*
   2-Solongo SP$_{2}$-PRS-eat-IPFV-PRS 9-snake Q
   'Do the Solongo eat snake?'
   c. Habitual
   Tukélánga *béène.*
   *tu-**Ø**-kel-**ang**-**a** béène*
   SP$_{1PL}$-PRS-quarrel-IPFV-PRS often
   'We often quarrel'. (KongoKing 2012, fieldwork by S. Dom)

(2) The *Ø-R-a* construction in Kisolongo
   Future
   Oyáwu mbízi ***bedyá.***
   *oyawu N-bizi be-**Ø**-di-**a***
   PRON$_{2}$ 9-meat SP$_{2}$-FUT-eat-FUT
   'They will eat (the) meat'. (KongoKing 2012, fieldwork by S. Dom)

In this article we will mainly focus on Kisikongo, which is spoken in and around the city of Mbanza Kongo (Angola), the former capital of the ancient Kongo kingdom. This is because Kisikongo has an exceptionally rich historical documentation status, beginning as early as the mid-17th century.[2] Alongside grammatical descriptions written in the mid-17th, late-19th, and late-20th centuries, a digitized diachronic corpus exists which consists of texts from the mid-17th, late-19th,

1. The verbal ending *-a* is typically analyzed as a functionally neutral final vowel in Bantu linguistics, and thus commonly glossed as FV 'final vowel'. However, we take a constructionist approach to Bantu TA morphology analyzing the prefix-suffix combination as a single, morphologically complex, construction which is reflected in our glossing of *-a*.

2. The only other Bantu language whose historical documentation equals the time depth of that of Kisikongo is Kimbundu, also spoken in Angola (Doke 1935).

early-20th, and early-21st centuries.[3] Kisikongo is therefore a unique language for the field of Bantu diachronic linguistics, in that grammatical changes can be observed empirically on the basis of data from three distinct time periods. The present study draws from both language descriptions and corpus texts, in order to investigate the development of the Kisikongo present- and future-tense paradigm. In addition to the historical Kisikongo data, comparative data from several other Kikongo varieties such as Kindibu (Central Kikongo), Kintandu (East Kikongo), Kisolongo, Kizombo, Dihungu and Kitsotso (South Kikongo) will be discussed.

Section 3.1 shows how three distinct TA constructions are attested in mid-17th-century Kisikongo: (i) *Ø-R-a*, with present progressive and generic meaning, (ii) *Ø-R-ang-a* attested with present habitual meaning, and (iii) *ku-R-a* used for future time reference. In Section 3.2 we show that by the end of the 19th century the present- and future-tense paradigms were changing. In the late-19th and early-20th century, the *ku-R-a* construction is no longer attested and future time reference is expressed by means of a construction without a TA prefix, namely *Ø-R-a*. Moreover, while an *Ø-R-a* construction is still used in this period for present progressive and generic aspect, the *Ø-R-ang-a* construction is now also attested with both habitual, generic and episodic meaning. In the third time period (Section 3.3), an *Ø-R-a* construction expressing present tense is only found with two irregular verb roots and some auxiliaries. In Section 3.4, a short overview of the three historical stages is provided as well as a brief discussion on the tone pattern of the *Ø-R-a* construction(s) in present-day Kisikongo.

The main question, then, is whether the mid-17th century *Ø-R-a* (present tense) or *ku-R-a* (future tense) construction is the source of the later *Ø-R-a* used for future time reference. In other words, it needs to be established whether this isomorphism is the outcome of the semantic broadening/shift from present to future (in case *Ø-R-a* would be the source) or rather reflects (segmental) homonymy due to the phonological reduction of the older future construction, viz. *ku-R-a* > *Ø-R-a*. Given that the documentation provides only momentary snapshots of Kisikongo language history, we cannot empirically study the gradual development of these changes. Therefore, Section 4 presents two possible explanations for the observed facts. In Section 5 we conclude by discussing that the two historical scenarios presented in Section 4 should not be seen as mutually exclusive, and we consider the possibility that the processes of change from both hypotheses occurred and worked together.

3. For a more detailed overview of the 17th-century documentation, see Bostoen & de Schryver (2015: 140).

2. Definitions and methodology

This section briefly introduces the main concepts and categories used in this study (2.1), and describes the methodology (2.2).

2.1 Concepts and definitions

The historical innovations discussed in this article pertain to the TA paradigm, and more specifically to the present- and future-tense paradigms. In our analysis, we distinguish between a number of aspectual categories which are specifically relevant for the semantic changes of the forms under investigation in the present-tense paradigms. The categories in question are *episodic* (predicates, sentences or aspect), *progressive*, *habitual* and *generic* aspect. The term *episodic* refers to sentences or predicates that express specific eventualities – dynamic events and stage-level, i.e. bounded, states (e.g., *be asleep*, *be scared*, *feel sick*) – as opposed to general states-of-affairs which refer to characterizing properties of their referents. *Progressive aspect*, defined as "[conveying] the idea that an event is progressing dynamically over a time frame opened up by an utterance" (Mair 2012: 804), typically construes an episodic sentence. *Habitual aspect* refers to an eventuality that is habitually performed by one or more specific individuals. *Generic aspect* expresses a characterizing property of a non-specific, i.e. generic, referent. Habitual and generic aspect are thus closely related to each other in that they construe gnomic sentences, yet a defining difference between a habitual and generic sentence is the specific vs. generic status of the referent (e.g., *That dog barks all the time* vs. *Dogs bark*). For more detailed discussions of these concepts, see Bertinetto & Lenci (2012), Carlson (2012) and references therein.

2.2 Methodology

2.2.1 *Data sources*

The two main types of written sources used for data are grammatical descriptions and corpora. The oldest documents from the 17th century on Kisikongo – also the oldest written records on and in a Bantu language – are an interlinear Portuguese-Kisikongo catechism (Cardoso 1624), a manuscript of a Latin-Spanish-Kisikongo dictionary (Van Gheel 1652, cf. also De Kind et al. 2012), and a Kisikongo grammar written in Latin (Brusciotto à Vetralla 1659). Both the catechism and the grammar provide valuable information for the purpose of this study: the latter succinctly discusses the forms of the future and present tenses (Brusciotto à Vetralla 1659: 48–50), and the former is an extraordinary corpus that allows for a

detailed assessment of the form and usage of the future and present tenses. The grammar by Brusciotto à Vetralla (1659) was translated into English by Guinness (1882a). An annotated critical re-edition of the 1624 catechism was prepared by Bontinck & Ndembe Nsasi (1978), with an additional version of the Kisikongo text in modern spelling, a French translation, and a modern version of the original Portuguese text. We have mainly used these re-editions for both sources, although we rechecked all obtained data against the originals.

The available documentation on Kisikongo as spoken around the turn of the 20th century consists of a combined dictionary and grammar from the late-19th century (Bentley 1887, 1895), a translation of the New Testament (Bentley & Nlemvo 1895) as well as a revised edition (Anonymous 1926), a translation by Lewis (1929) of John Bunyan's (1678) English novel *The Pilgrim's Progress from this World, to That which is to Come,* [4] and a hymn book (Various 1917). All texts except the hymn book have been included in the diachronic Kisikongo corpus.[5]

For late-20th- and early-21st-century Kisikongo, which we will refer to as "Modern" Kisikongo, the documentation consists of one grammatical description (Ndonga Mfuwa 1995) and a corpus of online-accessible publications by the Watch Tower Bible and Tract Society; that is, six monthly issues of the journal *Eyingidilu* 'Watchtower' and two books. An overview of all texts included in the diachronic corpus is given in Table 1 with the number of types (total number of different words) and tokens (total number of words).

As for the grammatical descriptions, we not only consulted those sections on the TA constructions that are relevant to this study but rather looked at all linguistic examples provided to get as rich an overview and dataset from these documents as possible.

As a caveat, we wish to highlight that the data studied here do not always represent natural and/or spoken language. The historical documents were written in the context of European exploration and colonization, and it has to be further determined whether the authors' intention was descriptive or prescriptive in nature. Moreover, most Kikongo corpus texts are religious materials published by foreign organizations. We have carried out our linguistic analyses in the awareness of the inherent limitations that such data have.

4. The English version used for this study is an online reprint of the original work (Bunyan 2013 [1678]).

5. The hymn book is not included because it constitutes a collection of many different songs translated from foreign languages into Kisikongo. There is thus no complete, one-to-one parallel version of this work in another language which could allow us to interpret the data relatively easily.

Table 1. Overview of the diachronic Kisikongo corpus

Title	Year	Document type	Tokens	Types
Doutrina christaã	1624	Catechism	14,620	2,793
Ekangu diampa	1895	New Testament	162,508	17,307
Luwawanu luampa	1926	New Testament	144,392	17,297
Ngyend' a mundutianzila	1929	Story	40,575	6,175
Eyingidilu ('Watchtower'): Six monthly issues from February to October	2011	Religious magazines	88,551	7,775
Mbumba ya zingu kia nzo ya nkiese ('The secret of family happiness')	2012	Religious lifestyle	61,393	6,042
Fimpanga e sono lumbu yawonso ('Examining the Scriptures daily')	2013	Religious lifestyle	48,230	5,619

2.2.2 *Corpus queries*

Different corpus query methods have been used depending on whether the corpus text was tagged for relevant information or not, and whether the relevant TA construction has overt morphology. The only text in the diachronic Kisikongo corpus that is tagged for TA is the Portuguese-Kisikongo catechism (Cardoso 1624). Given its unique status as the oldest source on a Bantu language, the searchability of the text has been optimized for corpus research. Every finite verb has been tagged for TA morphology in a word-processor version of the catechism. Examples could then be extracted straight from that document into a database.

From the second time period onwards, the two relevant TA forms are the *Ø-R-ang-a* and *Ø-R-a* constructions. Data for the former construction was queried automatically with the software WordSmith Tools (Scott 1996–2018). The *Ø-R-a* construction has no overt distinctive morphology which can be used in a search term. Therefore, sentences with present and future time reference were queried in a parallel English corpus. This was done manually for present tense and automatically – using WordSmith Tools – for future tense by searching for the English Future auxiliaries *shall* and *will* in a subset of the corpus. For the automated query, a randomized sample was extracted of 100 attestations from the subcorpus of the New Testaments, and one randomized sample of 50 attestations from the present-day Kisikongo corpus. Because several sentences in the randomized sample contained more than one verb inflected with the relevant TA construction, the total number of future-tense attestations is 118 for the second time period and 68 for the third time period.

3. Grammars vs. corpus data: A diachronic assessment of the Kisikongo Present and Future constructions

This part consists of three subsections based on the three time periods into which the documentation has been divided. The first section deals with mid-17th-century Kisikongo, the second looks at the late-19th and early-20th centuries, and the third section is on late-20th- and early-21st-century Kisikongo. In each subsection, we first present the forms and functions of the present and future tenses as provided by the author of the grammar from that period, and subsequently discuss the data from the collection of examples from the grammars and the diachronic corpus.

3.1 Mid-17th-century Kisikongo

Simple present Ø-R-a[6]

In his Kisikongo grammar, Brusciotto à Vetralla (1659: 48–49) states that present tense is denoted by an *a-R-a* construction, which he illustrates with the verbs *kuzi-tissa* 'to love' and *kulonga* 'to teach', as seen in (3).

(3) a. *y-**a**-zitiss-**a*** '*ego amo*, I love'
*ü-**a**-zitiss-**a*** '*tu amas,* you love'
*a-**a**-zitiss-**a*** '*ille amat,* he loves'
b. *y-**a**-long-**a*** '*ego doceo,* I teach'
*ü-**a**-long-**a*** '*tu doces,* you teach'
*a-**a**-long-**a*** '*ille docet,* he teaches'
(Brusciotto à Vetralla 1659: 48–49; Guinness 1882a: 53–54)

This construction is also found in the mid-17th century corpus, illustrated in (4).

6. As one reviewer pointed out, our construction labels, i.e. simple present, present imperfective and future, do not neatly reflect the uses of each construction. For example, the present imperfective *Ø-R-ang-a* is attested only with habitual meaning in the 17th-century data, whereas in the same period the simple present *Ø-R-a* covers multiple other imperfective categories such as progressive and generic aspect. However, we do use these labels to make it easier for the reader to track the different constructions throughout the article, and by extension throughout time. Moreover, as the meaning and use of the constructions change over time, it is impossible to provide function-based names that fully hold for the three time periods.

(4) *Onguêye quiâquiûma* ***cualuluquila*** *mobo mampondi?*[7]
*ongeye kia ki-uma ku-**a**-luluk-il-**a** mo bo ma*
PRON $_{2SG}$ CONN $_{7}$ 7-thing NEG.SP $_{2SG}$ -PRS-call-APPL-PRS PRON $_{6}$ 14 CONN $_{6}$
N-pondi
9-killing
'Why don't you call them (*masuumu* 'sins') mortal?'
(Cardoso 1624: 59; Bontinck & Ndembe Nsasi 1978: 162–163)

However, it is rather intriguing that, when looking forward in time, there is no attestation of an *a-R-a* construction used for present tense in the data of the subsequent documented time periods. It must be stated that, at present, our understanding of the semantics, distribution and history of this construction is incomplete and that more research is needed.

Moreover, two other but segmentally identical constructions are attested in Cardoso's (1624) catechism which can occur in sentences with present time reference. These are the dissociative past completive *a-R-a*, which can be used to refer to a present state as in (5) (for a detailed analysis of this TA construction, see Dom et al. 2018), and the subjunctive *a-R-a*, as shown in (6).

(5) *Aue Maria,* ***üafulucua*** *oucundi, (…)* ***yaucua*** *embongo, yaquiuûmu quiâcu, (…).*
*Ave Maria u-**a**-fuluk-u-**a** o-u-kundi*
Ave Maria SP $_{2SG}$ -DPC-overflow-PASS-DPC AUG-14-grace
*i-**a**-uk-u-**a** o-N-bongo ya ki-vuumu ki-aku*
SP $_{9}$-DPC-bless-PASS-DPC AUG-9-fruit CONN $_{9}$ 7-womb 7-POSS $_{2SG}$
'Ave Maria, you are full of grace, (…) blessed is the fruit of your womb, (…).'
(Cardoso 1624: 19; Bontinck & Ndembe Nsasi 1978: 90–91)

(6) *(…) cutuambulaco* ***tuabua*** *munâ lueleco,* (…).
*ku-tu-ambul-a ko tu-**a**-bu-**a** muna lu-eleko*
NEG.SP $_{2SG}$ -OP $_{1PL}$ -let-FV NEG SP $_{1PL}$ -SBJV-fall-SBJV LOC $_{18}$ 11-temptation
'(…) don't let us fall in temptation, (…)'
(Cardoso 1624: 13; Bontinck & Ndembe Nsasi 1978: 80–81)

The *Ø-R-a* construction, commonly used for present tense in present-day Kikongo varieties (Dom & Bostoen 2015: 172–173) and throughout Bantu (Nurse 2008: 118), is not discussed in Brusciotto à Vetralla's (1659) description of mid-17th-century Kisikongo.[8] However, the *Ø-R-a* construction is regularly attested in various con-

7. In the first line of the examples, the sentences are represented as they are written in the original work. In the gloss lines we present our own interlinear analysis where we write the morphemes in a more standard manner.

8. The simple present *Ø-R-a* construction might be identified in a small number of examples scattered throughout the grammar, although not straightforwardly so. In the example *Neútam-*

texts in Cardoso's (1624) catechism. Example (7) illustrates the simple present construction being used in a stage-direction sentence (Binnick 1991: 248), which describes the action(s) that have to be performed by the priest at a certain point during the ceremony.

(7) *Baüaba* ***vtûma*** *odongui alêque ole* (…).
*bauaba u-**Ø**-tuum-**a*** *o-Ø-dongi* *a-leeke* *a-ole*
now SP$_{1}$-PRS-order-PRS AUG-9-teacher 2-youngster 2-two
'Now the teacher orders two youngsters (to …)'
(Cardoso 1624: 5; Bontinck & Ndembe Nsasi 1978: 64–65)

It also appears with progressive meaning, as in (8). This example comes from a part in the catechism where the priest questions the student about the act of making the sign of the cross. During the questioning, the priest gives the student the following order.

(8) *Vfonga* ***oubanga*** ?
u-song-a [9] *o* *u-**Ø**-bang-**a***
SP$_{2SG}$-show-SBJV PRON$_{6}$ SP$_{2SG}$-PRS-do-PRS
'Show what you're doing?'
(Cardoso 1624: 8; Bontinck & Ndembe Nsasi 1978: 68–69)

The *Ø-R-a* construction is also used in generic expressions as illustrated in (9), which is an example from the same part of the catechism as the sentence in (8). The first person plural subject is generic in that it does not refer only to the priest and the student, but to Christians in general.

(9) *Munquianfûcu,* ***tuicanduîla*** ?
mu nki a *N-suuku tu-**Ø**-ikandwil-**a***
18 Q CONN 9-reason SP$_{1PL}$-PRS-make_sign_of_cross-PRS
'For what reason do we make the sign of the cross?'
(Cardoso 1624: 9; Bontinck & Ndembe Nsasi 1978: 70–71)

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bula ezinbongo 'I receive fruits' (Brusciotto à Vetralla 1659: 7) the verb *tambula* 'receive' clearly does not take an *a-R-a* construction, but seems to have a subject prefix *ne-* (possibly an older form of the present-day SP$_{1SG}$ *N-*) and an unknown prefix *u-*. On page 61 the verb root *in* 'be (with)' is discussed, as in *ina riúúlu* 'I have a book' or *ina múzala* 'I'm hungry (literally: 'I have hunger'). However, this is a defective verb stem only used in the present tense conjugation, i.e., *i-Ø-in-a* in both examples, with the verb *kal* 'be (with)' being used for past and future tenses.

9. Note that the imperative here has segmentally the same surface form as the present tense construction on the second verb. A difference in tone pattern most likely distinguished both constructions from each other. Other related modal categories for which a morphologically unmarked construction is used are the hortative and optative.

The corpus data thus evinces that an *Ø-R-a* construction existed in mid-17th-century Kisikongo and was used in various present-tense contexts, even though the sole grammatical description of the language at that time does not mention it. Moreover, if a second present construction did exist, namely *a-R-a*, neither its origins nor its semantic character and difference with respect to the *Ø-R-a* construction are clear.

Present imperfective Ø-R-ang-a

The verbal suffix *-ang* is only mentioned once in the grammar of Brusciotto à Vetralla (1659), in Chapter 17 '*De formatione verborum mandatiuorum, & negatiuorum*' ('On the formation of verbs mandative and negative'). In a subsection on the formation of "reciprocally communicative" verbs, it is stated that the addition of the "particle" *nga* makes the reciprocal verb *cubhobhesiana* [*ku-vov-esian-a* '15-speak-RECP-FV'] frequentative, i.e., *cubobhesiananga* 'loqui multoties' (to speak often) (Brusciotto à Vetralla 1659: 46; Guinness 1882a: 51–52).

The number of attestations of the suffix *-ang* in the catechism is also small. It appears only seven times throughout the entire text in five different TA(M) constructions. Each of these constructions is used in a sentence in which the event denoted by the verb is a habit, either overtly specified by means of temporal adverbials or implied through social conventions. The present imperfective *Ø-R-ang-a* construction is attested three times, as shown in Examples (10) and (11). The example in (10) is a line of the student on what one has to do to show devotion towards a certain sacrament.

(10) *(…)* ***vquingulanga****yo quilumbu yaquilumbu (…); (…)* ***utambalanga****yo cumbu zazingui munâ muuu (…).*
*u-**Ø**-kingul-**ang**-**a*** *yo* *ki-lumbu ya* *ki-lumbu*
SP $_{2SG}$-PRS-visit-IPFV-PRS PRON $_{9}$ 7-day CONN 7-day
*u-**Ø**-tambul-**ang**-**a*** *yo* *Ø-kumbu za-zi-ingi* *muna* *mu-vu*
SP $_{2SG}$-PRS-receive-IPFV-PRS PRON $_{9}$ 10-time CONN $_{10}$-10-many DEM $_{18}$ 3-year
'(…) you visit it every day (…); (…) you receive it multiple times a year (…)'
(Cardoso 1624: 68; Bontinck & Ndembe Nsasi 1978: 178–179)

The sentence in (11), which is the priest speaking, comes from a discussion on the Salve Regina. The context is such that the sentence does not have a single-event reading, but the priest advices the student to pray the Salve Regina regularly as a Christian.

(11) *(…) quieleca onguêye icutumini omêno* ***vbanganga*** *ô, (…).*
kieleka o-ngeye i-Ø-ku-tum-idi o-meno
really AUG-PRON $_{2SG}$ SP $_{1SG}$ -CPC-OP $_{2SG}$ -recommend-CPC AUG-PRON $_{1SG}$
*u-Ø-bang-**ang**-a oyo*
SP $_{2SG}$ -PRS-do-IPFV-PRS DEM $_{9}$
'(…), really I recommend you do it, (…)'
(Cardoso 1624: 24; Bontinck & Ndembe Nsasi 1978: 100–101)

In none of the attestations is the *Ø-R-ang-a* construction used for progressive aspect.

Future ku-R-a

In both Brusciotto à Vetralla's grammar and Cardoso's catechism a future construction with the form *ku-R-a* is attested. In Brusciotto à Vetralla (1659) the realization of the prefix *ku-* varies between its full form in the first person singular and a reduced form containing only the consonant in all other persons, as shown in the conjugational paradigm in (12a).[10] However, further in the description the full prefix form is given throughout the paradigm for the same verb *kuzitissa* 'to love' (Brusciotto à Vetralla 1659: 63), or with the verb *kwikala* 'to be' as illustrated in (12b) (Brusciotto à Vetralla 1659: 57).

(12) a. *n-**cu**-zitiss-**a*** 'I will love'
*u/o-**c**-zitiss-**a*** 'you will love'
*o-**c**-zitiss-**a*** 's/he will love'
*tu-**c**-zitiss-**a*** 'we will love'
*nu-**c**-zitiss-**a*** 'you will love'
*e-**c**-zitiss-**a*** 'they will love'
(Brusciotto à Vetralla 1659: 49–50; Guinness 1882a: 55)

b. *n-**cu**-ical-**a*** 'I will be'
*o-**cu**-ical-**a*** 'you will be'
*o-**cu**-ical-**a*** 's/he will be'
*tu-**cu**-ical-**a*** 'we will be'
*nu-**cu**-ical-**a*** 'you will be'
*e-**cu**-ical-**a*** 'they will be'
(Brusciotto à Vetralla 1659: 57; Guinness 1882a: 64)

10. Three other verbal prefixes with the same form exist in Kisikongo and many other Kikongo varieties. One is the second person singular object prefix (OP $_{2SG}$ *ku-*). The second is used only in combination with an object prefix and immediately precedes it and is called 'expletive' (EXPL *ku-*). The third prefix with this form is the reflexive (REFL *ku-*), which has a complementary distribution with the reflexive prefix *yi-*/*di-*.

In Cardoso's (1624) catechism the future construction is only attested with the full prefix *ku-*, as shown in (13). The example in (13a) is the reply of the student to the priest's counsel to serve God to the best of their abilities, so that they will be among the chosen ones on judgment day. Example (13b) is part of a reply given by the student in a conversation on the Apostle's Creed, saying that s/he does not know the Church's interpretation of the mysteries discussed in the Creed, but that religious scholars hold such information.

(13) a. *Quieleca* ***tucubangaô*** *Enganga (…).*
*kieleka tu-**ku**-bang-**a** yo e-N-ganga*
yes SP $_{1PL}$-FUT-do-FUT PRON $_{9}$ AUG-9-Father
'Yes we will do that, Father, (…)'
(Cardoso 1624: 40; Bontinck & Ndembe Nsasi 1978: 130–131)

b. (…) *atangui (…)* ***ecuzâa*** *cucuuutulaüaüôte.*
*a-tangi e-**ku**-zaa-**a** ku-ku-vutul-a ua u-oote*
2-scholar SP $_{2}$-FUT-know-FUT 15-OP $_{2SG}$-answer-FV CONN $_{14}$ 14-goodness
'(…) scholars (…) who will know to answer you well'.
(Cardoso 1624: 30; Bontinck & Ndembe Nsasi 1978: 112–113)

Summary

In this section three 17th-century Kisikongo TA constructions have been discussed: (i) *Ø-R-a*, (ii) *Ø-R-ang-a*, and (iii) *ku-R-a*. The first construction, although absent in Brusciotto à Vetralla's (1659) grammar, has been shown to occur in at least three sentence types in the catechism (Cardoso 1624), namely stage directions, progressives and generics. Secondly, the *Ø-R-ang-a* construction occurs only a few times in the corpus, and thus its use cannot be described in detail. Nevertheless, in the small dataset the construction is used in sentences which describe habitual eventualities. Finally, the construction *ku-R-a* is found in both the grammatical description and the corpus.

3.2 Late-19th- and early-20th-century Kisikongo

Simple present Ø-R-a

Bentley (1887: 648–649) discusses three constructions that have present time reference: (i) the indefinite, "which simply denotes the time of the action", (ii) the perfect, "which indicates that the action was accomplished and complete", and (iii) the continuous, "which speaks of the action as prolonged or continued whether still imperfect or perfect". Bentley's present indefinite constitutes what is called here the simple present *Ø-R-a* construction. Although the description of the semantics of this construction by Bentley (1887: 648–649) is rather vague, there

are many examples in his grammar from which one can obtain a good idea of the uses of the simple present *Ø-R-a* in late-19th-century Kisikongo. In the following paragraphs, we discuss some of the sentence types in which the simple present construction is attested with examples from both Bentley's grammatical description and the corpus.

The first type are episodic expressions, which describe specific eventualities and refer either to dynamic events or stage-level, i.e. temporary, states (Carlson 2012: 830). The simple present *Ø-R-a* construction is used to indicate that the eventuality occurs at topic time, which can be either the moment of speech as in (14), or another time established in context as in (15).

(14) a. *Nkovolo andi **keyela**.*
*Ṉ-kovolo andi ke-**Ø**-yel-**a***
3-cough POSS $_1$ SP $_1$-PRS-be_sick-PRS
'He is suffering from a cough'. (Bentley 1887: 209)

b. *Kadi diadi elongi **mvava**.*
*kadi diadi e-Ø-longi Ṉ-**Ø**-vav-**a***
CONJ DEM $_5$ AUG-5-counsel SP $_{1SG}$-PRS-seek-PRS
'For I'm seeking such counsel'. (Lewis 1929: 14)

(15) *Ngwidi o muntu **oyatana**.*
*N-Ø-w-idi o-mu-ntu o-**Ø**-yatan-**a***
SP $_{1SG}$-CPC-hear-CPC AUG-1-person SP $_1$-PRS-scream-PRS
'I heard someone scream'. (Bentley 1887: 187)

Secondly, the simple present construction is also attested in generic expressions, as shown in (16).

(16) a. *Asolongo (…) **betunga** e nzo nzau e mpila moxi.*
*a-solongo be-**Ø**-tung-**a** e-N-zo nz-au e-N-pila*
2-Solongo SP $_2$-PRS-build-PRS AUG-10-house PP$_{10}$-POSS $_2$ AUG-9-manner
mosi
one
'The Asolongo (…) build their houses in the same manner'.
(Bentley 1887: 708)

b. *(…) e nuni z'ezulu (…) ke **zikuna** ko, (…).*
*e-Ø-nuni za e-Ø-zulu ke zi-**Ø**-kun-**a** ko*
AUG-10-bird CONN $_{10}$ AUG-5-heaven NEG SP $_{10}$-PRS-plant-PRS NEG
'(…) the birds of the air (…) sow not, (…)'
(Matthew 6:26; Bentley & Nlemvo 1895: 15)

Lastly, the simple present *Ø-R-a* is used with a number of auxiliaries, such as the modal auxiliary *lenda* 'can' in (17), and with the verb root *(i)n* 'be (with)' shown in (18).

(17) a. ***Tulenda*** *kio nata.*
*tu-**Ø**-lend-**a*** *kio* *Ø-nat-a*
SP $_{1PL}$-PRS-can-PRS PRON $_{7}$ 15-carry-FV
'We can carry it'. (Bentley 1887: 693)

b. *Mpova-zitu, on'* ***olenda*** *kusadisa (…).*
Mpova-zitu ona *o-**Ø**-lend-**a*** *Ø-ku-sal-is-a*
Civility REL $_{1}$ SP $_{1}$-PRS-can-PRS 15-OP $_{2SG}$-do-CAUS-FV
'[whose name is] Civility, who can help you (…)' (Lewis 1929: 16)

(18) a. *E lekwa* ***kina*** *e kekete.*
e-Ø-lekwa *ki-**Ø**-in-**a*** *e-Ø-kekete*
AUG-7-thing SP $_{7}$-PRS-be-PRS AUG-7-hardness
'The thing is crisp'. (Bentley 1887: 295)

b. *Nuyangalela ina* ***nuna*** *yau: (…).*
nu-yangalel-a *ina* *nu-**Ø**-n-**a*** *yau*
SP $_{2PL}$-be(come)_happy-SBJV REL $_{9}$ SP $_{2PL}$-PRS-be-PRS PRON $_{9}$
'Be happy with the things you have: (…)'
(Hebrews 13:5; Bentley & Nlemvo 1895: 434)

Thus, data from both Bentley's (1887) grammatical description and the diachronic corpus provide evidence for the attestation and diverse usages of the simple present *Ø-R-a* construction in Kisikongo as written around the turn of the 20th century.

Present imperfective Ø-R-ang-a

Bentley (1887: 644–645) labels the TA suffix *-ang* as the "continuative form," which "imparts the idea that the action is or was being continued at the time mentioned." As Bentley's description suggests, the morpheme occurs in TA constructions denoting all three temporal distinctions, i.e., past, present and future. However, we focus here specifically on the present imperfective *Ø-R-ang-a* construction, which Bentley (1887: 649) calls the present indefinite continuous. His description is strongly based on the grammatical analysis of the English language at that time. This is evident from (i) the fact that the sole semantic property given for the present imperfective is its progressive and continuous meanings; (ii) comparative statements such as "[it] has the same force as the termination *-ing* in English" (Bentley 1887: 644), and (iii) the fact that not a single mention is made of the construction's present habitual meaning, which is an aspectual category without grammatical coding in English. Nevertheless, throughout the grammar many examples of the

construction can be found illustrating it is used in episodic, generic and habitual expressions (see the (a) examples in (19)–(21) and (22)–(24)). All of these uses have also been attested in the Kisikongo corpus for this time period.

Thus, despite the fact that habituality is not included in the semantic description of the suffix *-ang* in Bentley (1887), examples illustrating the habitual meaning of the present imperfective construction are attested both in the grammar and the corpus. This is shown in Examples (19) and (20). In (19), the repetition of the habitual event is overtly specified by the adverbial of frequency, whereas this is not the case in (20).

(19) a. *Lumbu yawonso* ***kekwizanga*** *aka.*
*Ø-lumbu ya-onso ke-Ø-kwiz-**ang-a** aka*
7-day CONN-every SP $_{1}$-PRS-come-IPFV-PRS always
'He comes every day'. (Bentley 1887: 709)

b. *(…) oyu* ***kevavanga*** *ko (…) o kel' e yimeng' e lumbu ya lumbu, (…).*
*oyu ke-Ø-vav-**ang-a** ko o-Ø-kel-a*
REL $_{1}$ NEG.SP $_{1}$-PRS-need-IPFV-PRS NEG AUG-15-pour_out-FV
e-i-menga e-Ø-lumbu ya Ø-lumbu
AUG-8-sacrifice AUG-7-day CONN 7-day
'(…) [a high priest][11] who needeth not daily (…) to offer up sacrifice, (…)'
(Hebrews 7:27; Bentley & Nlemvo 1895: 423)

(20) a. *Vana zandu dieto* ***tusumbanga*** *zo.*
*vana Ø-zandu di-eto tu-Ø-sumb-**ang-a** zo*
REL $_{16}$ 5-market 5-POSS $_{1PL}$ SP $_{1PL}$-PRS-buy-IPFV-PRS PRON $_{10}$
'We buy them at our market'. (Bentley 1887: 610)

b. *Okala vo kadi, ondion'* ***ovelelesanga*** *(…).*
*okala vo kadi o-ndiona o-Ø-velel-es-**ang-a***
CONJ AUG-REL $_{1}$ SP $_{1}$-PRS-be(come)_pure-CAUS-IPFV-PRS
'For [both] he that makes holy (…)'
(Hebrews 2:11; Bentley & Nlemvo 1895: 416)

The construction is furthermore attested in generic expressions (21). This use was not found in the mid-17th century for the present imperfective, but was attested only with the simple present *Ø-R-a* construction (see Example (9) in Section 3.1).

11. As one reviewer noted, without context, the subject noun phrase 'a priest' can be interpreted as either a generic or a specific referent. In this particular case, however, one is referring specifically to Jesus.

(21) a. *Muna nxi eyina o wantu* ***bekwendanga*** *e kimpene.*
*muna N-si eyina o-Ø-antu be-**Ø**-kwend-**ang-a***
REL $_{18}$ 9-country DEM $_{9}$ AUG-2-person SP $_{2}$-PRS-15.go-IPFV-PRS
e-ki-mpene
AUG-7-nakedness
'In that country the people go naked'. (Bentley 1887: 603)

b. *(…) konso nti ambote, mbongo ambote* ***uyimanga****;*
konso N-ti a-N-bote N-bongo a-N-bote
every 3-tree CONN-3-goodness 9-fruit CONN-3-goodness
*u-**Ø**-yim-**ang-a***
SP $_{3}$-PRS-bear-IPFV-PRS
'(…) every good tree bears good fruit'.
(Matthew 7:17; Bentley & Nlemvo 1895: 17)

The *Ø-R-ang-a* construction is furthermore attested in episodic expressions, denoting that the eventuality is on-going at topic time. In this function, the present imperfective occurs with dynamic (22a) and stage-level stative (22b) verbs, as well as with emotive predicates (22c).

(22) Episodic use of *Ø-R-ang-a*

a. with dynamic predicate
Adieyi ***nutokanisinang****'o nkento?*
*adieyi nu-**Ø**-tokanis-il-**ang-a** o-N-kento*
why SP $_{2PL}$-PRS-annoy-APPL-IPFV-PRS AUG-1-woman
'Why trouble ye this woman?' (Matthew 26:10; Bentley & Nlemvo 1895: 59)

b. with stage-level stative predicate
Ovo yayi i nkal' aku, adieyi ***odingalelanga*** *e?*
*ovo yayi i N-kala aku adieyi o-**Ø**-dingalel-**ang-a***
if DEM $_{9}$ COP 9-condition POSS $_{2SG}$ why SP $_{2SG}$-PRS-stand_still-IPFV-PRS
e
Q
'If this is your condition, why are you standing still?' (Lewis 1929: 7)

c. with emotive predicate
Wete monanga *muna ndebwa walebwa wakungikama.*
*u-ete N-**Ø**-mon-**ang-a** muna N-debwa*
14-happiness SP $_{1SG}$-PRS-see-IPFV-PRS REL $_{18}$ 9-be_persuaded
u-a-leb-u-a u-a-ku-N-yikam-a
SP $_{2SG}$-DPC-persuade-PASS-DPC SP $_{2SG}$-SBJV-EXPL-OP $_{1SG}$-accompany-SBJV
'I am glad you are persuaded to go along with me'. (Lewis 1929: 9)

The topic time can be the moment of speech as in the examples in (22), a longer period of time coincidental with the moment of speech as in (23), or a moment dissociated from the moment of speech, which is established in context, as in (24).

(23) a. *Tukamena kiakadila e nsona, vava* ***nkalanga****.*
tukamena ki-a-kal-il-a e-N̩-sona vava
since SP$_{7}$-DPC-be-APPL-DPC AUG-3-nsona DEM$_{16}$
*N-****Ø****-kal-****ang-a***
SP$_{1SG}$-PRS-live-IPFV-PRS
'I have been living here since *nsona* (weekday name)'. (Bentley 1887: 194)

b. *Adieyi* ***nutelamenanga*** *vo o mwini amvimba, (…).*
*adieyi nu-****Ø****-telamen-****ang-a*** *vo o-mu-ini amvimba*
what SP$_{2PL}$-PRS-stand_up-IPFV-PRS CONJ AUG-3-day complete
'Why stand ye here all the day, (…)'
(Matthew 20:6; Bentley & Nlemvo 1895: 44)

(24) a. *Muntu* ***olundumukanga*** *oviokele e nzo ame.*
*mu-ntu o-****Ø****-lundumuk-****ang-a*** *o-Ø-vyok-idi e-N-zo ame*
1-person SP$_{1}$-PRS-run-IPFV-PRS SP$_{1}$-CPC-pass-CPC AUG-9-house POSS$_{1SG}$
'A man running has passed my house'. (Bentley 1887: 707)

b. *Nutoma tala ke nukumvakwil' o nkalu ndiona* ***ovovanga****.*
nu-tom-a Ø-tala ke nu-Ø-ku-N̩-vakul-il-a
SP$_{2PL}$-do_well-SBJV 15-look NEG SP$_{2PL}$-FUT-EXPL-OP$_{1}$-give-APPL-FUT
*o-N-kalu ndiona o-****Ø****-vov-****ang-a***
AUG-9-refusal REL$_{1}$ SP$_{1}$-PRS-speak-IPFV-PRS
'See that ye refuse not him that speaketh'. (Lewis 1929: 17–18)

Future Ø-R-a

In 19th- to 20th-century Kisikongo a number of constructions are used for future time reference – including both simple, single-verb and complex verbal constructions involving auxiliaries or free preverbal morphemes – but not the future *ku-R-a* construction attested in 17th-century Kisikongo. The most frequently attested in the corpus, however, is the prefix-less future *Ø-R-a* construction.[12] According to Bentley (1887: 649), "[the] Indicative mood in Kongo has no future tense. Whenever future time is spoken of, the time or circumstance of the action is distinctly mentioned, and the action is represented as being then present," alluding to the fact that, at least segmentally, this future construction is identical to the simple

12. By "prefix-less" we mean specifically the lack of a TA prefix. Other verbal morphemes, such as the subject and object prefixes, do still occur in this construction.

present *Ø-R-a*.[13] The examples in (25) from both grammar and corpus illustrate the use of the future *Ø-R-a* construction.

(25) a. *O mbaji nkele mieto* ***tukala*** *miau.*
o-mbaji *Ṇ-kele mi-eto* *tu-**Ø**-kal-**a*** *myawu*
AUG-tomorrow 4-gun 4-POSS $_{1PL}$ SP $_{1PL}$ -FUT-be-FUT PRON $_4$
'Tomorrow we shall have our guns'. (Bentley 1887: 286)

b. *Kadi, se tadi, e lumbu* ***ikwiza****, ina* ***bevova*** *vo, (…).*
kadi *se tadi* *e-Ø-lumbu* *i-**Ø**-kwiz-**a*** *ina* *be-**Ø**-vov-**a*** *vo*
CONJ behold AUG-8-day SP $_8$-FUT-come-FUT REL $_8$ SP $_2$-FUT-say-FUT that
'For, behold, the days will come, in which they shall say, (…)'
(Luke 23:29; Bentley & Nlemvo 1895: 169)

Summary

In this section three 19th- to 20th-century Kisikongo TA constructions have been discussed: present *Ø-R-a*, present imperfective *Ø-R-ang-a* and future *Ø-R-a*. Compared to the mid-17th century (see Section 3.1), the present imperfective *Ø-R-ang-a* construction is now attested in a wider range of sentence types, including habituals, generics, and episodic expressions. The multiple aspectual meanings it conveys overlap entirely with those of the simple present *Ø-R-a*. As for the future tense, the mid-17th-century future *ku-R-a* construction is no longer attested, and future time reference is now denoted by multiple constructions of which the future *Ø-R-a* is by far the most frequently attested in the corpus.

3.3 Late-20th- and early-21st-century Kisikongo

Simple present Ø-R-a

In present-day Kisikongo the simple present *Ø-R-a* construction has almost completely disappeared, being used only with (i) the verb *yeel* 'be sick', (ii) the verb root *(i)n* 'be (with)', and (iii) a small number of auxiliary verbs. This is illustrated in Examples (26)–(30).

13. Because Bentley (1887) neither discusses tone patterns nor writes tone on Kisikongo examples, we cannot determine whether the constructions had identical or different tone patterns.

(26) *yeel* 'be sick'
[O Yesaya wa nguza wayika e ntangwa ina vo] "O ntungi kevova ko vo, ***Yela nyela****".* [14]
o-N̩-tungi ke-Ø-vov-a ko vo Ø-yeel-a
AUG-3-resident NEG.SP$_1$-FUT-say-FUT NEG that 15-be_sick-FV
*N̩-****Ø****-yeel-****a***
SP$_{1SG}$-PRS-be_sick-PRS
'[The prophet Isaiah pointed forward to the time when] "no resident will say: I am sick"'.
(Mbumba ya zingu kia nzo ya kiese; Watch Tower Bible and Tract Society 2012: 126–127)

(27) *(i)n* 'be (with)'
[Mun'elongi diadi, tuvovela vonza tatu. (…).] Kiezole, muna nitu eto ***kina****.*
*ki-ezole muna N̩-itu eto ki-****Ø****-in-****a***
7-two in 3-body POSS$_{1PL}$ SP$_7$-PRS-be-PRS
'[In this article, we will discuss three negative influences. (…).] The second [is] an internal one' (Lit.: 'The second is in our body').
(Eyingidilu 15 July 2011, p. 10)

(28) *toma* 'do well, often' (lexical meaning)
Nkia ngindu zatekama ***zitoma*** *longwanga kuna sikola?*
nkia N-gindu zi-a-tekam-a
Q 10-thought SP$_{10}$-DPC-be(come)_distorted.POS-DPC
*zi-****Ø****-tom-****a*** *Ø-long-u-ang-a kuna Ø-sikola*
SP$_{10}$-PRS-do_often-PRS 15-teach-PASS-IPFV-FV at 9-school
'What distorted views are often taught in schools?'
(Mbumba ya zingu kia nzo ya kiese; Watch Tower Bible and Tract Society 2012: 94)

(29) *luta* 'pass, go beyond/by/past, surpass' (lexical meaning)
*O Yave ng'****oluta*** *yangalela muna tukau ye yimenga, [ke mu wila nding'a Yave ko e?]*
*o-Ø-Yave nga o-****Ø****-lut-****a*** *Ø-yangalel-a muna tu-kau ye*
AUG-1-Yave Q SP$_1$-PRS-pass-PRS 15-be(come)_happy-FV in 11-offer and
yi-menga
8-blood
'Does Jehovah have much delight in offerings and sacrifices, [but not in (people) obeying the voice of Jehovah?]' (Eyingidilu 15 February 2011, p. 23)

14. A special predicate-centered focus construction is used here, i.e., the "fronted infinitive construction" (De Kind et al. 2015).

(30) *lenda* 'can'
Konso muntu una ye fu ***ilenda*** *fungisa o nkw'andi makasi.*
*ki-onso mu-ntu u-Ø-n-a ye Ø-fu i-**Ø**-lend-**a***
7-each 1-person SP$_1$-PRS-be-PRS with 8-flaw SP$_8$-PRS-can-PRS
Ø-fung-is-a o-Ṉ-kwa andi ma-kasi
15-be(come)_angry-CAUS-FV AUG-1-partner POSS$_1$ 6-anger
'Each one has flaws [that] can irritate one's partner'.
(Fimpanga e sono lumbu yawonso; Watch Tower Bible and Tract Society 2013: 12)

Although Ndonga Mfuwa (1995: 358) states that *yeela* 'be sick' occurs with the simple present *Ø-R-a*, which is indeed found in the corpus as shown in (26), the present imperfective *Ø-R-ang-a* can also be used to express the state of being ill. This is illustrated in Example (31), which is the title of a chapter on how to deal with a sick family member.

(31) *Vava o mwisi nzo* ***keyelanga*** .
v*ava o-mu-isi N-zo ke-**Ø**-yel-**ang-a***
when AUG-1-inhabitant 9-house SP$_1$-PRS-be_sick-IPFV-PRS
'When a member of the household is sick'.
(Mbumba ya zingu kia nzo ya kiese; Watch Tower Bible and Tract Society 2012: 116)

Present imperfective Ø-R-ang-a

It has been shown that in late-19th- and early-20th-century Kisikongo the present imperfective construction was used in multiple sentence types. These were the same types in which the present *Ø-R-a* was commonly found, namely habitual, generic and episodic expressions. In present-day Kisikongo, however, due to the decline of the simple present the present imperfective *Ø-R-ang-a* has become the main present-tense construction.

In his grammar, Ndonga Mfuwa (1995: 383–386) describes an aspectual suffix *-ngV*, which occurs in combination with various other TA morphemes, expressing a number of meanings such as *le révolu* (the author's term referring to a completed and irreversible situation), progressivity and habituality. Because the description assumes a morphological approach to the TA system of Kisikongo instead of a constructional approach, the present imperfective *Ø-R-ang-a* construction as such is not discussed in the grammatical description. However, the corpus examples in (32) show that in present-day Kisikongo the present imperfective *Ø-R-ang-a* is found in the same sentence types as it was in Kisikongo from the turn of the 20th century.

(32) a. Habitual
Ntangwa zawonso ***mvovananga*** *yau.*
n-tangwa za-onso *N̩-**Ø**-vov-an-**ang**-**a*** *yau*
10-time CONN$_{10}$-every SP$_{1SG}$-PRS-talk-RECP-IPFV-PRS PRON$_{2}$
'Every time I talk to them.'
(Mbumba ya zingu kia nzo ya kiese; Watch Tower Bible and Tract Society 2012: 108)

b. Generic
O unu Akristu ke ***bevananga*** *yimenga ko (…).*
o-unu *A-kristu* *ke* *be-**Ø**-van-**ang**-**a*** *yi-menga* *ko*
AUG-today 2-Christian NEG SP$_{2}$-PRS-give-IPFV-PRS 8-sacrifice NEG
'Christians today do not make the sacrifices (…)'
(Fimpanga e sono lumbu yawonso; Watch Tower Bible and Tract Society 2013: 65)

c. Episodic
Nuyuvulanga kana nkia mambu ***belongokanga****, (…).*
nu-yuvul-ang-a *kana nkia ma-ambu* *be-**Ø**-longok-**ang**-**a***
SP$_{2PL}$-ask-IPFV-SBJV REL$_{7}$ Q 6-matter SP$_{2}$-PRS-learn.SEP.INTR-IPFV-PRS
'Ask what they (*wan'eno* 'your children') are learning, (…)'
(Mbumba ya zingu kia nzo ya kiese; Watch Tower Bible and Tract Society 2012: 95)

Future Ø-R-a

Ndonga Mfuwa (1995: 359–360) distinguishes three future constructions: the simple future (*futur simple*) *Ø-R-a*, the imminent future (*futur imminent*) *sè Ø-R-a* and the near future (*futur proche*) *sè a-R-a*. In addition, he also describes two future-tense auxiliaries, namely *aza* (used in a remote future construction) and *singa* (which the author calls *projectif*) (Ndonga Mfuwa 1995: 402–404).

The future *Ø-R-a* was first attested in the late-19th century (cf. Section 3.2), and is still the most commonly attested future-tense construction in the present-day Kisikongo corpus. In the randomized sample of 68 future-time-reference contexts, *Ø-R-a* occurs 49 times. Examples from Ndonga Mfuwa's grammar and the corpus are provided in (33).

(33) a. *Kya lúmíngu* ***n'túnga*** *énzo.*
kya *Ø-lumingu* *N̩-**Ø**-tung-**a*** *e-N-zo*
CONN$_{7}$ 7-Sunday SP$_{1SG}$-FUT-build-FUT AUG-9-house
'On Sunday I will build the house.' (Ndonga Mfuwa 1995: 359)

b. *(…)* ***dikusadisa*** *kuna sentu, vava* ***osompa.***
*di-**Ø**-ku-sal-is-**a*** *kuna* *Ø-sentu* *vava*
SP $_{5}$-FUT-OP $_{2SG}$ -do-CAUS-FUT DEM $_{17}$ 9-future DEM $_{16}$
*o-**Ø**-somp-**a***
SP $_{2SG}$ -FUT-marry-FUT
'(…) it will be helpful for you in the future, when you will marry'.
(Mbumba ya zingu kia nzo ya kiese; Watch Tower Bible and Tract Society 2012: 18)

As for the other future-tense constructions discussed by Ndonga Mfuwa (1995: 359, 360), only the auxiliary construction with *singa* is attested in the corpus, as in (34). It occurs much less frequently in the corpus than the future *Ø-R-a* construction, having only five attestations out of 68 in the randomized sample of future-time-reference contexts.

(34) *O nsilu wau* ***usinga lungana*** *muna nz'ampa eyi ifinamene.*
o-N̩-silu *wau* *u-**singa*** *Ø-lungan-a* *muna* *N-za* *a-N̩-pa*
AUG-3-promise DEM $_{3}$ SP $_{3}$-FUT 15-be_fulfilled-FV DEM $_{18}$ 9-world CONN-3-new
eyi *i-Ø-finam-idi*
DEM $_{9}$ SP $_{9}$-CPC-approach.POS-CPC
'That promise will be fulfilled in the approaching new world'.
(Mbumba ya zingu kia nzo ya kiese; Watch Tower Bible and Tract Society 2012: 127)

While a grammatical morpheme *se* is attested in the corpus, it is not found as part of a dedicated future-tense construction. The function of the particle as found in the present-day Kisikongo corpus is more accurately captured by the characterization given in Bentley (1887: 416), who writes that "[it] calls attention to a change of circumstances; some other state having previously existed, *now* something else has ensued or will ensue" (italics in original). Therefore, it typically occurs with verbs whose lexical meaning refers to a change-of-state, as shown in (35). Note that its position in the sentence is not fixed. It can occur immediately before the conjugated verb, as in (35a), or before a noun phrase, as in (35b). Moreover, as the example in (35a) illustrates, it can be used with non-future TA constructions such as the locative infinitive construction (*mu INF ina*) which has present progressive meaning (De Kind et al. 2015: 131–135).

(35) a. *E zingu kia nzo mu soba* ***se*** *kina.*
e-Ø-zingu kia N-zo mu Ø-sob-a ***se*** *ki-Ø-in-a*
AUG-7-family CONN $_7$ 9-house 18 15-change-FV COS SP $_7$-PRS-be-PRS
'The family is changing'.
(Mbumba ya zingu kia nzo ya kiese; Watch Tower Bible and Tract Society 2012: 7)

b. *(…) Kintinu kia Nzambi (…) kitula ntoto* ***se*** *paradiso.*
ki-N-tinu kia N-zambi Ø-kitul-a N-toto ***se*** *Ø-paradiso*
7-3-king CONN $_7$ 9-God 15-transform-FV 3-earth COS 9-paradise
'(…) God's Kingdom (…) [will] transform the earth into a paradise'.
(Eyingidilu, 15 August 2011, p. 2)

Summary

In this section it was shown that, in present-day Kisikongo, the present imperfective *Ø-R-ang-a* is used for present tense in general, whereas the simple present *Ø-R-a* construction is restricted to a small number of verbs, most of which are auxiliaries. Compared to Kisikongo at the turn of the 20th century (see Section 3.2), where both constructions had overlapping uses, the present-tense paradigm in present-day Kisikongo has thus been simplified to one main construction. For future time reference, the prefix-less *Ø-R-a* construction is the most frequently attested in the corpus data, although other constructions – such as the auxiliary construction *-singa* INF – are also used.

3.4 Overview and discussion

In Sections 3.1 to 3.3 we have discussed the use of four Kisikongo TA constructions in three time periods, spanning some 400 years, on the basis of grammatical descriptions and corpus data. The simple present *Ø-R-a* construction is attested throughout the diachronic documentation. It functioned as an important present-tense construction from the mid-17th century to at least the early-20th century. It was used in two major present-tense sentence types, i.e. episodic and generic expressions. In the third and last period, i.e., the late-20th and early-21st centuries, the simple present is no longer used as productively as in previous times. It occurs only with the verb stems *in* 'be' and *yeel* 'be sick' and some auxiliaries.

In theory, these few verbs can be used to compare the tone patterns of the simple present and future *Ø-R-a*. Although Ndonga Mfuwa (1995) does note tone, he provides no examples of the simple present *Ø-R-a*. Out of the ten examples of the future *Ø-R-a* construction that are found in the grammatical description, there are nine instances where the vowel of the verb root is marked with a high tone. Eight of these nine high-toned future-tense verbs are disyllabic with either a

short or long root vowel, as in (36a). One of these nine is a trisyllabic verb where the root is extended with a derivational suffix. As illustrated in (36b), the derivational suffix also carries a high tone. From this small dataset, one might infer that the tone pattern of the future construction is characterized by a high tone on the root vowel which undergoes rightward spread to the next syllable or any other syllable that is not word-final. This hypothesis is of course in need of further corroboration.

(36) a. disyllabic: CV́CV or CV́:NCV
   i. ***okóta*** 'you will enter' (p. 219)
   ii. ***otú:nga*** 'you will build' (p. 219)
   b. trisyllabic: CV́CV́CV
   osónéka 'you will write' (p. 460)

However, the tone pattern in one example differs from that of these nine in that a high tone is noted on the subject prefix and not on the first syllable of the verb root. This is shown in (37).

(37) *Nzen(a)* ***ókwiza****ko dyanu kelámbilanga.*
*N̩-zenza o-Ø-kwiz-**a** ko dyanu ke-Ø-lamb-il-ang-a*
1-stranger SP $_1$-FUT-come-FUT LOC $_{17}$ CONJ SP $_1$-PRS-cook-APPL-IPFV-PRS
'A visitor will come to visit [him] there, hence he is cooking'.
(Ndonga Mfuwa 1995: 469)

Through personal communication with Ndonga Mfuwa, we have nevertheless found out that the simple present construction with the verb *yeela* 'be sick' does have the same tone pattern as that of the future construction, namely a high tone on the first syllable of the verb root, as in (38).

(38) *Yeela* ***beyéél****a* .
*Ø-yeel-a be-Ø-yeel-**a***
15-be_sick-FV SP $_2$-FUT-be_sick-FUT
i. 'They are sick'.
ii. 'They will get sick'. (Ndonga Mfuwa, p.c.)

We have checked the possibility of using both the simple present and future *Ø-R-a* with the auxiliary verbs with Ndonga Mfuwa and another male Kisikongo language consultant who currently lives in Luanda. However, they were reluctant to accept the future *Ø-R-a* with these auxiliaries and prefer to use alternative future constructions, most often the *se a-R-a* construction.

The currently available data is too limited for a detailed tone analysis. However, the simple present and future constructions seem to have identical tone patterns. This could be because the two constructions are actually historically one

and the same, which would be an additional argument for the polysemy hypothesis presented below in Section 4.1. Analogical leveling of distinct tone patterns between the simple present *Ø-R-a* and the future *Ø-R-a* constructions might be a different explanation, which would fit the homonymy hypothesis as discussed in Section 4.2. This could have taken place either at an early stage, in which case the tone pattern of the newly developed future construction was remodeled after the older simple present construction due to the segmental similarity, or at a later stage, in which case the simple present construction had become severely restricted in usage and its tone pattern was remodeled after the then productive future construction. As a third possibility, it might have been that the original future *ku-R-a* and simple present *Ø-R-a* constructions had identical tone patterns, as is common in Bantu (Marlo 2013; Odden and Bickmore 2014). The tone pattern of the former would then have remained unchanged despite the possible loss of the prefix *ku-*.

The second construction which we tracked through time is the present imperfective *Ø-R-ang-a*. In the 17th-century documentation the construction is only attested in habitual expressions. However, from the late-19th century onwards the construction is also found in episodic, generic and habitual expressions. Thus, at the turn of the 20th century the simple present and present imperfective seem to have been used to convey largely the same aspectual meanings, apart from habituality. In present-day Kisikongo this is no longer the case, as the simple present has become unproductive and the present imperfective *Ø-R-ang-a* is now the main construction used for present tense in general, expressing all imperfective values.

Finally, two single-verb future constructions are attested in different periods of time. In mid-17th-century Kisikongo, future time reference was conveyed by means of a *ku-R-a* construction. However, this construction is not found in the grammatical description of late-19th-century Kisikongo, nor is it attested in the early-20th-century Kisikongo corpus. Rather, in the last two time periods, a prefix-less *Ø-R-a* construction is attested for future time reference.

Table 2 gives a schematic overview of the four main constructions of the present- and future-tense paradigms for the three time periods in Kisikongo.

Table 2. Overview of four Kisikongo TA constructions and their attested usages over the course of three time periods

		Mid-17th c.	**Late-19th and early-20th c.**	**Late-20th and early-21st c.**
Present	*Episodic*	*Ø-R-a*	*Ø-R-a* AND *Ø-R-ang-a*	*Ø-R-ang-a*
	Generic	*Ø-R-a*	*Ø-R-a* AND *Ø-R-ang-a*	*Ø-R-ang-a*
	Habitual	*Ø-R-ang-a*	*Ø-R-ang-a*	*Ø-R-ang-a*
Future		*ku-R-a*	*Ø-R-a*	*Ø-R-a*

The main question now is which construction can be identified as the source of the future *Ø-R-a* as first attested in late-19th-century Kisikongo. The simple present *Ø-R-a* is a likely candidate. Two arguments in favor of this scenario are: (i) the simple present and future constructions have the same segmental morphology; (ii) future constructions have been reported to originate from older present constructions in several unrelated language families (Haspelmath 1998). The second possibility is that the prefix-less future construction is historically related to its functional predecessor from the mid-17th century, namely *ku-R-a*. Due to the unavailability of historical data for much of the late-17th, 18th and 19th centuries, however, the evolution of the future *Ø-R-a* cannot be studied on the basis of empirical evidence. Therefore, we will work out both scenarios in Section 4 and discuss the likelihood of each.

4. Reconstructing paradigmatic change

In this section we discuss and assess the two scenarios which might explain the paradigmatic change which occurred mainly between the mid-17th and late-19th centuries. In the first scenario, the simple present *Ø-R-a* evolved into a dedicated future construction through the expansion of its temporal meaning (present > present + future > future). We will call this scenario the "polysemy hypothesis." In the second scenario, the original future construction *ku-R-a* is assumed to have undergone a formal change which resulted in the prefix-less future *Ø-R-a* construction in the late-19th and early-20th centuries. In that second time period, then, the simple present *Ø-R-a* and the future *Ø-R-a* were segmentally identical but historically unrelated. This scenario is called the "homonymy hypothesis."

4.1 The polysemy hypothesis

In this scenario, the first "micro"-change assumed is that the simple present *Ø-R-a* came to be used for future time reference alongside the other available future-tense constructions, such as the future *ku-R-a*. In time, the simple present became the dominant future-tense construction resulting ultimately in the loss of the older *ku-R-a* construction. This assumed change created an ambiguous paradigm with both present and future tense expressed by the same construction, namely *Ø-R-a*. The semantic expansion of the present imperfective *Ø-R-ang-a* from habitual to general present tense can then be explained as a development in order to resolve that ambiguity. In a first stage, the present imperfective would have come to be used with gradually increasing frequency for the same functions as the simple present, in addition to its original habitual meaning. This is observed in

late-19th- and early-20th-century Kisikongo (see Section 3.2). From thereon, the present imperfective became the main present-tense construction and the older simple present was reinterpreted as the future *Ø-R-a*. Traces of the simple present in present-day Kisikongo can still be found with a number of auxiliaries and the verb stem *yeela* 'be sick'.

The polysemy hypothesis is rather straightforward and plausible from a cognitive and typological perspective. Present-tense constructions are often used for future time reference in languages of the world, and this is also found in present-day Kikongo varieties. For example, the East Kikongo variety Kintandu has a dedicated future-tense construction *si Ø-R-a*, illustrated in (39a). However, the Kintandu language consultant which uttered the sentence in (39a) used the simple present *Ø-R-a* for the same time reference in (39b).

(39) Kintandu

a. *Wunú mu kookilá mwamba* ***sí tudyá****.*
wunu mu kookila mwamba ***si*** *tu-**Ø**-di-**a***
today in evening moambe FUT SP$_{1PL}$-FUT-eat-FUT
'This evening we will eat moambe'.

b. *Nkí* ***túdyá*** *kookilá?*
*nki tu-**Ø**-di-**a** kookila*
what SP$_{1PL}$-PRS-eat-PRS evening
'What will we eat this evening?' (KongoKing 2015, fieldwork by S. Dom)

In Haspelmath (1998) a similar scenario is offered as an explanation for a number of languages where the present-tense construction is morpho-phonologically "heavier" than the future-tense construction, as is the case in Kisikongo, or where future-tense constructions have a future/habitual polysemy. In Haspelmath's diachronic hypothesis, a language starts out with a TA paradigm in which future tense is not expressed by means of a dedicated construction. Instead, the present-tense construction is commonly used for future time reference. The pivotal change is characterized by a restriction of the temporal semantics of the present-tense construction to future time reference. This shift occurs as the result of the grammaticalization of a progressive construction into a general present-tense construction, a development extensively discussed in Bybee et al. (1994: 140–149).

The polysemy hypothesis outlined at the beginning of this section is comparable but not identical to Haspelmath's scenario. Thanks to the historical data, we know that mid-17th-century Kisikongo did have a dedicated future-tense construction different from the simple present *Ø-R-a*. Moreover, given that the simple present *Ø-R-a* is not attested with future time reference in the mid-17th century documentation, this scenario assumes either that the construction developed future-tense semantics after the mid-17th century, or that it already was

polysemous at that time but was simply not used with that meaning in the limited number of texts now available. The second difference pertains to the new present-tense construction. In the case studies discussed in Haspelmath (1998), periphrastic progressives grammaticalize into the general present-tense construction, whereas in Kisikongo it is the present imperfective *Ø-R-ang-a*, a single-verb TA form and a dedicated habitual construction.

The main problem of this scenario is that it assumes the rather drastic change of the future *ku-R-a* being lost completely in Kisikongo over the course of two centuries due to a new, competing future-tense construction, namely the simple present *Ø-R-a*. One would expect that when a newer construction takes over the function(s) of an already existing construction, the older form is retained with specialized uses or still occurs with a small set of irregular verbs. This is for example the case with the simple present *Ø-R-a* in present-day Kisikongo, and is also proposed by Haspelmath (1998) to account for some semantic irregularities in the similar cases he discusses. However, no traces of the older future *ku-R-a* construction are found in the late-19th- and early-20th-century documentation.

4.2 The homonymy hypothesis

The assumption in the homonymy hypothesis is that the mid-17th-century future *ku-R-a* construction has become the prefix-less future *Ø-R-a* construction attested from the late-19th century onwards. The pivotal change leading from *ku-R-a* to *Ø-R-a* would then be a loss of the TA prefix *ku-*. This loss can be accounted for through another morphological change which happened within the same time period, i.e., in-between the mid-17th and late-19th centuries, namely prefix reduction.

Prefix reduction is a change in which prefixes undergo morphophonological attrition, possibly leading to complete loss. As described in detail by Bostoen & de Schryver (2015), in a number of Kikongo varieties prefix syncope has occurred specifically in nominal prefixes of the noun-class system. One of the nominal prefixes which has been targeted by prefix reduction is that of noun class 15, *ku-*. This nominal prefix attaches to verb roots to form deverbal nouns, which are commonly analyzed as infinitives. As reported by Bostoen & de Schryver (2015: 166–168), this infinitive construction is still attested in mid-17th century Kisikongo, e.g., *cudia* [*ku-di-a*] 'eat' (Van Gheel 1652). However, by the late-19th century the class 15 prefix *ku-* had completely disappeared and a now prefix-less infinitive construction is attested which consists of just the root and the default final vowel *-a*, e.g., *dia* [*di-a*] 'eat' (Bentley 1887). We can thus formalize the specific change of prefix syncope of the deverbal nominal prefix *ku-* in the infinitive construction as [*ku-R-a*] > [*R-a*].

There is not only an obvious formal similarity between the noun-class prefix *ku-* and the prefix of the future *ku-R-a* construction, but it is furthermore quite likely that the latter is historically related to the deverbal nominal prefix. Although no empirical evidence is available to substantiate this, the mid-17th-century future *ku-R-a* construction is possibly the outcome of a grammaticalization process of an auxiliary (AUX) construction with an infinitive in complement position, i.e., [*SP-AUX ku-R-a*] > [*SP-ku-R-a*]. The loss of the TA prefix *ku-* could be related to the loss of the infinitival prefix *ku-* as an analogical change of prefix syncope.

Additional cross-linguistic data strongly corroborate the connection between the two morphophonological changes (i.e. the loss of nominal vs. verbal morphology). Only a handful of other Kikongo varieties share the prefix-less future construction with Kisikongo. These are Kindibu (spoken to the north of Kisikongo; see the map in Appendix), Kisolongo (to its west) and Kizombo (to its east). In these three Kikongo varieties, prefix syncope also affected the infinitive construction which thus also has the form *R-a* (Bostoen & de Schryver 2015: 163). The co-occurrence of the future *Ø-R-a* and infinitive *R-a* constructions is furthermore attested in three late-19th-century grammars on South-Kikongo varieties which were reportedly spoken along the part of the present-day Congolese-Angolan border that cross-cuts the KLC. Table 3 gives an overview of all Kikongo varieties in which the future *Ø-R-a* and the infinitive *R-a* are attested, with Examples (40)–(42) illustrating the future construction in three of these varieties.

Table 3. Overview of varieties (and sources) with both cognate Future *-Ø-R-a* constructions and prefix syncope of the noun class 15 prefix *ku-*

Kikongo variety	**Source**
Late-19th-century Kikongo as spoken in the Cataract region	Guinness (1882b)
Late-19th-century Kikongo as spoken in the vicinity of Boma	Craven & Barfield (1883)
Late-19th-century Kikongo as spoken in the area south of the mouth of the Congo river	Visseq (1889)
Kisolongo	Tavares (1915) KongoKing 2012, fieldwork by S. Dom
Kindibu	Coene (1960)
Kizombo	Del Fabbro and Petterlini (1977) Carter and Makoondekwa (1987) Mpanzu (1994)

(40) Late-19th-century Kikongo as spoken in the vicinity of Boma
O mbăzimeni yandi kwandi ***tuvútuka*** *kuna Pălabala.*
*o-mbazimeni yandi kwandi tu-**Ø**-vutuk-**a** kuna N-palabala*
AUG-tomorrow FOC FOC SP$_{1PL}$-FUT-return-FUT DEM$_{17}$ 9-Palabala
'Tomorrow we shall really return to Palaballa.' (Craven & Barfield 1883: 209)

(41) Late-19th-century Kikongo as spoken in the area south of the mouth of the Congo river
Loumbou ki'e ia ***o kouiza****.*
*Ø-lumbu ki-eya o-**Ø**-kwiz-**a***
7-day 7-four SP$_1$-FUT-come-FUT
'He will come Thursday'. (Visseq 1889: 52)

(42) Kisolongo
a. Early-20th century (Angolan variety)
Nki a ntangua ***tutelama*** *kuetu e?*
*nkia N-tangua tu-**Ø**-telam-**a** kwetu e*
Q 9-time SP$_{1PL}$-FUT-stand_up.POS-FUT FOC Q
'At what time will we leave?' (Tavares 1915: 135)
b. 21st century (Congolese variety)
Mwana ***uzeng****'okooko mu kaayi.*
*mu-ana u-**Ø**-zeng-**a** o-ku-oko mu N-kaayi.*
1-child SP$_1$-FUT-cut-FUT AUG-15-hand 18 9-knife
'The child will cut his/her hand with the knife'.
(Elicited sentence in French: '*L'enfant se coupera les doigts avec le couteau*.') (KongoKing 2012, fieldwork by S. Dom)

Let us now consider two additional South-Kikongo varieties, Dihungu and Kitsootso, which are spoken to the south of Kisikongo (see the map in Appendix). In these two varieties, prefix syncope did not target the deverbal nominal prefix *ku-* of the noun class 15 (Bostoen & de Schryver 2015: 163). In addition, both have been described as having a future *ku-R-a* construction, as shown in Examples (43) and (44).

(43) Dihungu
Tsutsu ***akuhondila*** *yo mbe:di yai.*
*Ø-tsutsu a-**ku**-hond-il-**a** ya o-N-bedi yayi*
9-chicken SP$_2$-FUT-kill-APPL-FUT with AUG-9-knife DEM$_9$
'The chicken will be killed with this knife'.
(Lit.: 'The chicken, they will kill it with this knife'.) (Atkins 1954: 162)

(44) Kitsootso
*Mbazí **yíkúyútuka**.*
mbazi *yi-**ku**-yutuk-**a***
tomorrow SP $_{1SG}$ -FUT-return-FUT
'I will return tomorrow'. (Baka 1992: 91)

Table 4 offers an overview of the distribution of the two future constructions, *ku-R-a* vs. *Ø-R-a*, and the distribution of prefix syncope in the targeted noun classes in South Kikongo varieties. The relevant columns are highlighted in grey, demonstrating the co-occurrence of, on the one hand, the future *Ø-R-a* construction and the prefix-less infinitival construction *R-a* and, on the other hand, the future *ku-R-a* construction and the infinitival construction *ku-R-a*.

Table 4. Overview of Future constructions and distribution of prefix syncope in South Kikongo varieties

Future	Variety	NCP$_{1/3}$	NCP$_4$	NCP$_7$	NCP$_8$	NCP$_{15}$	Source
Ø-R-a	Kisikongo	✓	✓	✓	✓	✓	Ndonga Mfuwa (1995)
	Kisolongo	✓	✓	✓	✗	✓	Tavares (1915), KongoKing fieldwork 2012
	Kizombo	✓	✓	✓	✓	✓	Carter (1970)
-ku-R-a	Kitsootso	✓/✗	✓/✗	✗	✗	✗	Baka (1992)
	Dihungu	✓	✗	✗	✗	✗	Atkins (1954)

The symbol '✓' indicates that the noun class prefix in that variety underwent syncope, '✗' means that the prefix did not change. In case of conflicting data, '✓/✗' is given. Table adapted from Bostoen & de Schryver (2015: 163).

Assuming that the prefix of the future *ku-R-a* construction was lost, an ambiguity similar to that discussed in the polysemy hypothesis would exist, although now between the prefix-less future and simple present *Ø-R-a* constructions. The functional and semantic expansion of the present imperfective *Ø-R-ang-a* can then be analyzed in this homonymy scenario as well as a strategy that would resolve the newly created ambiguity of one form, *Ø-R-a*, with two different temporal meanings, namely present and future.

5. Conclusions

In this article, we have reconstructed the evolution of a part of the present and future tense marking paradigm in Kisikongo between the mid-17th century and today. Thanks to the corpus-based analysis of historical language data from both

texts and grammars, we could establish that by the end of the 19th century, Kisikongo had reduced three of its mid-17th century present/future constructions to only two. According to sources from the mid-17th century, Kisikongo still distinguished at that stage between the simple present *Ø-R-a*, present imperfective *Ø-R-ang-a*, and future *ku-R-a* constructions. In Kisikongo sources from the late-19th and early-20th centuries, however, the future *ku-R-a* construction is no longer attested, while a null-marked construction similar to mid-17th century simple present *Ø-R-a*, is used for both present and future time reference. The *Ø-R-ang-a* construction continued to convey the present imperfective. By the end of the 20th century, however, the present/future isomorphism attested one century before no longer existed. Nowadays, *Ø-R-a* is only used to refer to future time events, while *Ø-R-ang-a* has become the main present-tense construction. As a consequence, present-day Kisikongo has a future-tense construction that is morphologically lighter than its present-tense construction, a situation that is rather uncommon in the world's languages. This typologically unusual feature is of rather recent origin, as exactly the opposite was still true in the mid-17th century, i.e., a null-marked present-tense construction vs. a prefix-marked future-tense construction.

By examining comparative synchronic data from other languages belonging to the Kikongo Language Cluster, we furthermore assessed two possible historical scenarios to account for the rise of a null-marked future construction by the end of the 19th century. We have shown that both the mid-17th-century simple present *Ø-R-a* and the future *ku-R-a* are plausible source constructions for the future *Ø-R-a* attested from the late-19th century onwards. The simple present *Ø-R-a* may have given rise to the future *Ø-R-a* through the universally common semantic extension from present to future inducing common present/future polysemy. On the other hand, the future *ku-R-a* may have evolved into future *Ø-R-a* due to the loss of the *ku-* prefix as part of a broader pattern of historical morphological change within the Kikongo Language Cluster, i.e., prefix reduction. Along with Kisikongo, several other closely related South Kikongo languages lost the prefix *ku-* not only in the future-tense construction, but also in the corresponding infinitive construction, from which the future construction might have once grammaticalized. This strong correlation makes the homonymy scenario as plausible as the polysemy scenario. In this case, the present-future homonymy would have emerged as the consequence of a phonological merger between simple present *Ø-R-a* and the future *ku-R-a*.

To conclude, we wish to argue that the present-future homonymy observed in late-19th-century Kisikongo might actually be the outcome of a "diachronic conspiracy" between semantics and phonology. We use the concept of 'diachronic conspiracy' to refer to the independent concurrence of different historical evolutions towards an identical outcome, very much like, for instance, Vincent

(1978: 425) with regard to the varied sources of Italian geminate consonants or Thomason & Kaufman (1988: 23–24) regarding the group of changes that led to a pattern in which all syllables in Proto-Slavic ended in a vowel. Given the plausibility of both scenarios, it seems highly likely that two independent diachronic evolutions conspired towards such present-future isomorphism in Kisikongo by the end of the 19th century: the universally common semantic extension from present to future leading to polysemy and the loss of the *ku-* future prefix – as part of a broader phenomenon of prefix reduction – inducing homonymy. The change from future *ku-R-a* to *Ø-R-a*, in analogy to the infinitive construction from *ku-R-a* to *R-a*, indeed resulted in formal similarity between the older simple present and new future. From there on, the Kisikongo TA paradigm had two identical forms for two different tenses. However, because present-tense forms are often used for future time reference, this homonymy was probably not perceived as a significant cognitive clash and did not immediately lead to a dramatic shift or reorganization of the TA paradigm. Because the Kisikongo simple present was possibly also used for future time reference, it was much easier to converge the semantics of the two homonymous constructions. It is only at a later stage, i.e., towards the end of the 20th century, that the present imperfective *Ø-R-ang-a* construction evolved into the main present-tense construction and the *Ø-R-a* construction lost its present-tense reference to remain with only future semantics.

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Abbreviations

1, 2, 3, …	class number
Ø	zero morph
APPL	applicative
AUG	augment
AUX	auxiliary
CAUS	causative
CONJ	conjunction
$CONN_X$	connective
COP	copula
COS	change-of-state
CPC	contemporal past completive
DEM_X	demonstrative
DPC	dissociative past completive
EXPL	expletive
FOC	focus
FUT	future
FV	neutral final vowel
INF	infinitive
IPFV	imperfective
KLC	Kikongo Language Cluster
LOC_X	locative
N	homorganic nasal

N̩	syllabic homorganic nasal
NEG	negative
NCP	noun class prefix
OP_X	object prefix
PASS	passive
PL	plural
POS	positional
$POSS_X$	possessive
PP_X	pronominal prefix
$PRON_X$	pronoun
PRS	present
Q	question particle
R	root
RECP	reciprocal
REFL	reflexive
REL_X	relative
SBJV	subjunctive
SEP.INTR	Separative Intransitive
SG	singular
SP_X	subject prefix
TA(M)	tense/aspect (/mood)
X	of class or person X

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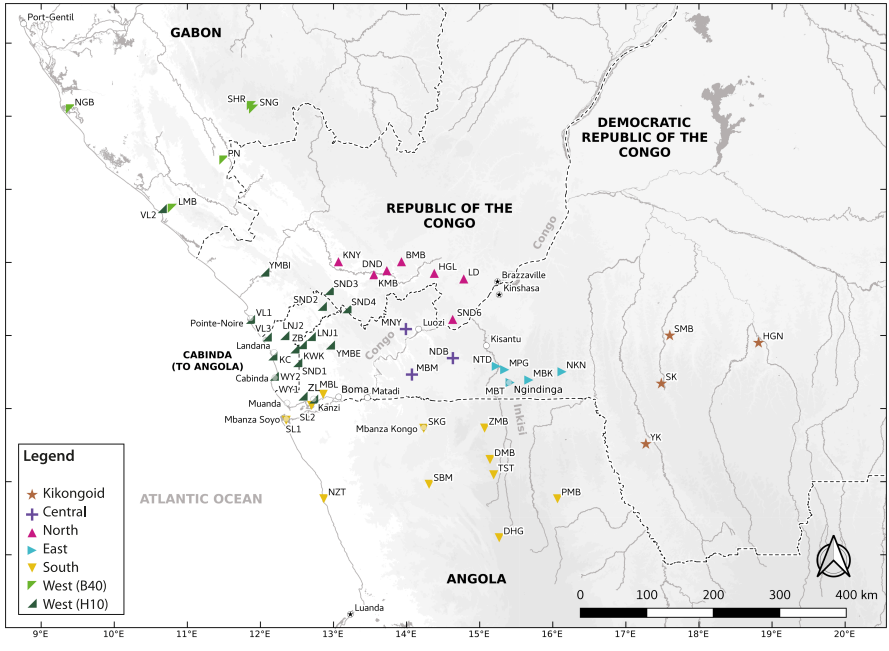
Appendix. Map of the Kikongo Language Cluster

[with, mentioned in this article, DHG = Dihungu, NDB = Kindibu, NTD = Kintandu, SKG = Kisikongo, SL1 = Kisolongo (Angolan variety), SL2 = Kisolongo (Congolese variety), TST = Kitsootso, ZMB = Kizombo]



Historical change in the Japanese tense-aspect system*

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1. Introduction

There are not many languages historically as well-documented as Japanese, even if this documentation has its blind spots, mainly due to various degrees of divergence between written and spoken language. Within this history, there has been a practically complete turnover in tense and aspect marking. Even those forms that have remained have assumed a different function within the system. Note that the term "system" appeals to the idea that in many languages, tense and aspect are categories in which a limited number of linguistic forms stand in functionally complementary relationship to each other. This includes Japanese.

If the data, or the knowledge about tense and aspect forms at various historical stages in a specific language are available, one can start to ask a variety of questions, for example: How did the system as a whole change? What was the functional change of individual forms within that system? From what other domains were new forms recruited? What happened to the forms exiting the system? Do these changes conform to or deviate from cross-linguistic generalizations about change in the domain of tense and aspect? How did the diffusion of new forms take place? etc.

In this contribution I will address only very basic questions: What did the system look like at the start of documentation, how does it look now, and what kind of change took place in between? What were the sources and targets of grammaticalization for forms changing within that system (as well as entering and exiting it)? How does this relate to our general knowledge of change in this domain? The reason for trying to address the most basic questions first is, besides lack of space, that there is a scarcity of publications in English or other Western languages that

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address these questions. Also, there are hardly any publications in English that do justice to the research in Japan, where the bulk of research has been conducted.

It is always good to start with the present (Section 2), as this is what we know best. There is also a lot of literature available in English on Modern Japanese tense-aspect, but nevertheless we need a description of this period as the endpoint of change. We then proceed to tense-aspect in Late Old Japanese as the starting point (Section 3). Lastly, we discuss the changes that took place between these periods (Section 4) before finishing up in Section 5 by presenting some generalizations, in terms of paths of grammaticalization (5.1), and (b) category climbing (5.2).

2. Modern Japanese tense-aspect

The Modern Japanese (ModJ) tense-aspect system consists of only three forms at its core, but there is no lack of descriptions that diverge in how to interpret this core, or the relation to peripheral forms. The most influential one in current Japanese linguistics is based on the study of tense-aspect by the Linguistic Research Group (*Gengogaku Kenkyūkai*), who were for a long time the only Japanese linguists to study tense and aspect as categories (e.g. Kindaichi 1976; Suzuki 1976; Okuda 1985; KKK 1985; Kudō 1995; Takahashi 2003), instead of merely analyzing individual morphemes related to temporal meanings within a lose array of so-called auxiliaries and inflections identified by the standards of Japanese school grammar. Nowadays the work by Kudō (1995, 2004, 2014) is representative of this line of research. Table 1 presents the Modern Japanese system in this school of thought. Note that *-Te i-ta* is a combination of *-Te i-* and *-Ta*, and *-Te i-ru* of *-Te i-* and *-(ur)u*. Thus we essentially are dealing with the morphemes and constructions, – *-(ur)u*, *-Te i-* and *-Ta*. If part of a morpheme is in brackets, this indicates that there are allomorphs in which the phonemes in brackets may not be realized, when suffixed to different stem classes. A capital letter indicates that this phoneme is subject to assimilation or fusion leading to different phonemic realizations when suffixed to specific verb stems. *-Ta* has the allomorphs *-ta* and *-da*, and *-Te* has the allomorphs *-te* and *-de*. We have diverged from the Linguistic Research Group/Kudō system in one important aspect, namely by replacing their label "perfective" by "non-continuative." We assume here that there are two marked forms, *-Ta* for past with respect to tense, and *-Te i-* for continuative with respect to aspect. *-(Ur)u* then, is simply a unmarked default form that is non-past and non-continuative instead of being a "perfective." See Sections 2.3 and 2.5 for more discussion.

Table 1. Basic tense-aspect system of Modern Japanese (Kinsui 2000: 9; Kudō 2004: 175)

	Aspect	
Tense	**Non-continuative**	**Continuative**
Non-past	*-(ur)u*	*-Te i.ru*
Past	*-Ta*	*-Te i.ta*

The meanings and functions of the morphemes and constructions listed in Table 1, and problems with their labeling, are briefly described in the following sub-sections.

2.1 *-Te i-*

-Te i- consists of the gerund inflection *-Te* suffixed to verb bases and the 'be'-verb *i-*. It denotes progressive with activities, resultative with achievements and accomplishments, state with states, and perfect with non-stative verbs under certain contextual conditions (examples are taken from KKK 1985: 110–114).

(1) *Taroo=wa ima* ***beNkyoo~si.te i.ru***
PN=TOP now study~do.GER be.NPS
'Taroo is studying'. (progressive of activity) (KKK 1985: 110)

(2) *Gyoomu=wa sudeni* ***hazimat.te i.ru***
Work=TOP already begin-GER be.NPS
'The work has already begun'. (result of achievement) (KKK 1985: 114)

(3) *Kono eiga=no syuzinkoo=wa* ***zituzai~si.te i.ru***
DEM film=GEN hero=TOP exist~do.GER be.NPS
'The hero of this movie really exists'. (state) (KKK 1985: 131)

(4) *Kono kuma=wa ryoosi-ga iti~zikaN~mae=ni* ***korosi.te i.ru*** .
DEM bear=TOP hunter=NOM one~hour~before=ADV kill.GER be.NPS
'The hunter has killed the bear an hour ago'. (perfect) (Kinsui 2000: 39)

Some authors also note an iterative-habitual use, as in (5).

(5) *Watasi=wa saikin tenisu=bakari* ***si.te i.ru*** .
I=TOP recently tennis=LIM do.GER be.NPS
'I have been doing nothing but play tennis recently'. (habitual)
(Shirai 1997: 517)

The "state with states" use in (3) is probably the most remarkable, since a state should not need to be stativized. Even in English, which has progressive marking

on certain stative predicates (e.g., *You are being nasty*), in this particular example a progressive would be infelicitous (*#is really existing*). Fact is that the number of stative verbs in Modern Japanese is small, some of them cannot be used with *-Te i-*, some must, and some can. For those that can, the meaning is thought to be generally identical with the simple unmarked *-(ur)u* form (in this case *zituzai~s.uru* 'exist') (cf. GNB 2007: 32). Thus, there does not seem to be a particular contribution of *-Te i-* to the meaning, or only a very subtle one that we may neglect here.

2.2 *-Ta*

-Ta signals past, with accomplishments and achievements perfectivity, and sometimes perfect. It also has modal meanings of counterfactuality and mirativity in specific contexts, and is even occasionally used to form idiomatic imperatives. We are only interested in the temporal meanings here, for which Examples (6), (7), and (8) are given below, augmented by an example for the combination of *-Ta* with *-Te i-* (9).

(6) *Nitiyoobi=ni depaato=de atarasi.i kooto=o* ***kat.ta.***
Sunday=DAT department.store=ESS new.NPS coat=ACC buy.PST
'On Sunday I bought a new coat in a department store'. (past) (GNB 2007: 135)

(7) *A, basu=ga* ***ki.ta*** *.*
Oh bus=NOM come.PST
'Oh, the bus has come'. (perfective) (Kinsui 2000: 55)

(8) *Moo hiru~gohaN* ***tabe.ta?***
already midday~meal eat.PST
'Have you already had lunch?' (perfect) (Kinsui 2000: 54)

(9) *Hutari=wa kanari* ***yot.te i.ta.***
two.people=TOP considerably drink.GER be.PST
'Two people were considerably drunk'. (past resultative) (KKK 1985: 265)

While the past (6) and the perfect (8) uses are unambiguous, the property of being perfective is mainly evident through the contrast of simple *-Ta*, as in (6), with the marked continuous form, as in (9). But arguably, there are also perfective uses not bound to past eventhood, such as in (7), which usually is uttered in a situation where the bus has just entered the visual field of the speaker. Yet, speakers present this situation as a concluded whole, i.e., perfective.

2.3 *-(Ur)u*

-(Ur)u denotes present or future with states (10), and a future event (11) or present habitual (12) with events. It can also mark gnomic (generic) states-of-affairs.

(10) *Tukue=no ue=ni tegami=ga* ***ar.u***
table=GEN on=DAT letter=NOM be-NPS
'There is a letter on the table'. (present with state) (GNB 2007: 125)

(11) *Tanaka-saN=wa raineN* ***taisyoku~s.uru***
PN=TOP next.year retire~do.NPS
'Ms Tanaka will retire next year'. (future of achievement) (GNB 2007: 125)

(12) *Yamamoto=wa maisyuu kono bangumi=o* ***mi.ru*** .
PN=TOP every.week DEM program=ACC watch.NPS
'Yamamoto watches this program every week'. (habitual present of activity)
(GNB 2007: 128)

Note that the habitual as in (12) could also be expressed with the *-Te i-* construction.

The most controversial point about the classification of *-(ur)u* is the "perfective" label that has been attached to it in the dominant Linguistic Research Group tradition. The suffixation of *-(ur)u* does not convert an imperfective verb into a perfective one, and therefore does not really "mark" perfectivity. This label can only be understood in contrast to the form *-Te i-*, which marks imperfective state of affairs under the presupposition that *-(ur)u* and *-Te i-* form a system or a paradigm. Some more discussion is found in Section 2.5.

2.4 Peripheral forms, aktionsarten and lexical aspect

Modern Japanese has a number of other grammaticalized forms expressing phasal aspectual categories (cf. Hengeveld & Mackenzie 2008: 210–211) that are not perceived as obligatory choices, and therefore not as part of a "system" by some scholars. Below I list the most common ones, which are commonly treated as "aspect" in Japanese grammar (e.g., Nihongo Kijutsu Bunpō Kenkyūkai 2007).

i. completive *-Te sima(w)-* lit. 'finish V-ing'; usually has a denotation of regret.
ii. preemptive *-Te ok-* lit. 'put V-ing';
iii. passive resultative *-Te ar-*, lit. 'be V-ing'; only with transitive verbs;
iv. continuative *-Te ik-* lit. 'go V-ing', *-Te k-* lit. 'come V-ing',
v. progressive *-tutu ar-*, lit. 'be V-ing'.
vi. experiential *koto ga ar-*, lit. 'there is a thing that'
vii. phasal aspect compound verbs: *-hazime-* 'begin to',*-owar-* 'finish to' etc.

The first five categories are formed periphrastically with auxiliaries, similar to Indo-European tense-aspect formations on *have* and *be*. The experiential is a periphrastic construction with a noun. The last category involves compounding. However, scholars have argued that this is not lexical but syntactic compounding (cf. Matsumoto 1996), that is, the lexical nature of these compounds is purely superficial. There is no space to discuss all these forms here. Two of them are particularly interesting from a diachronic perspective, though. *-Te ar-* was used more broadly, basically in the same contexts as Modern Japanese *-Te i-*, before narrowing down to its present function. It will come up in the historical discussion (Section 4) again. *-Te sima(w)-* (i) and *-Te ok-* (ii) could also be labeled as "perfectives" and included within the Modern Japanese aspect system as some scholars do (cf. Lewin 1955; Ono 1992). Likewise, the results of Dahl's (1985) study leads to the inclusion of the "completive" (i) and the "experiential" (vi) in the Japanese tense-aspect system, since they were used repeatedly in the temporal frames of his questionnaire, although with a much lower frequency than the core forms that we discussed in the previous sections. We haven't included these forms, since they are not semantically neutral (especially *-Te sima(w)-*) and are hardly obligatory choices. In contrast, Kinsui (2000: 7) does not include *-Te sima(w)-*, *-Te ok-* and the experiential in core aspect but instead *-Te ar-* (iii) and *-tutu ar-* (v). These forms are semantically purely aspectual without residuals of lexical semantic meaning, but are relatively rare in usage. Conversely, in the case of the phasal aspect compound words, one may question if these are not better labeled as "aktionsarten," based on their semantics. This is descriptively done by Hasselberg (1996) and was also suggested by Nitta (2009). Nitta (2009) specifically argues that aspectual compound verbs are *the* realization of aktionsart in Japanese. The forms quoted above in (vii) would be quite untypical aktionsarten, since they are grammatical and not lexical like the aktionsarten in German (cf. Bussmann 1996: 36; Lewandowski 1996(6): 37), which since the 19th century provided the template for the concept of aktionsarten. On the other hand, there is a continuum from fully grammatical forms to unproductive and lexicalized forms among the Japanese aspectual compounds, as described by Hasselberg (1996). The second best candidates to remove from "aspect" and include in the "aktionsarten" might be the continuatives (iv), but again, these are fully grammaticalized auxiliary constructions. They also do not express "objective lexical meanings," as one would expect from aktionsarten, but rather "subjective opinions of the speaker" (Lewandowski 1996: 37). Therefore, a comparison to the typical lexical aktionsarten seems a far shot. In any case, as this discussion shows, there are considerable differences in what has been included in aspect, and even more so, in what has been included in "core" aspect or in the tense-aspect "system." The forms presented in Table 1 and discussed in the previous sections are the smallest common denominator in research.

Further down on the lexical side, we have the "inherent" or "lexical" aspect of verbs (cf. Gvozdanović 2012), which are not the topic here. Nevertheless, it may deserve attention that only a very small percentage of verbs in Modern Japanese are lexically stative. Many verbs that are lexically stative in a language like English (e.g., *know, sit, stand*), are lexically achievements or accomplishments (that need to be stativized with *-Te i-*) in Japanese.

2.5 Some points of discussion

A discussion of the ModJ tense-aspect system is not a goal of this paper. Nevertheless, some points warrant notice. The most controversial parts of the "consensus" system in Table 1 in previous research have been (1) whether *-Ta* is not essentially an aspectual form, and (2) whether any meaning should be attributed to *-(ur)u* at all. As for (13), for scholars that prefer a monosemy approach to linguistic forms (e.g., Onoe 2001), "perfective" or "completive" seem to be more suitable labels than "past" for *-Ta*, since past tense may be derived via implicature from "perfective" aspect, but not vice versa. Diachronically speaking this has some merit, since, as we will see below, *-Ta* was originally a purely aspectual form. However, we do not subscribe to such a view, since in Modern Japanese, the salient meaning and use of *-Ta* in most contexts is clearly "past," and the aspectual interpretations only become relevant in specific contexts.

As for (17), one can argue that *-(ur)u* should be simply considered as an unmarked "default" tense-aspect form in contrast to the marked forms, that is, as non-past vs. *-Ta*, and as non-continuative vs. *-Te i-*. Note that this is also done by Dahl (1985). Especially the label "perfective" for a verb form that also expresses habitual, and with some verbs of mental activity even ongoing events (cf. GNB 2007: 127) is dubious, as seen in 2.3. The labeling as "perfective" is usually justified by examples such as the following, where *-(ur)u* presents an event as a whole. However, in such examples no perfective effect occurs independently of the quantifier "three rounds."

(13) *Kinoo=wa gurauNdo=o saN-syuu hasit.ta. Asu=mo*
yesterday=TOP ground=ACC three-rounds run.PS tomorrow=FOC
saN-syuu hasir.u.
three-rounds run.NPS
'Yesterday I ran around the ground three times. Tomorrow I'll also run around it three times.' (GNB 2007: 21)

In light of this fact, we do not use the label "perfective" for *-(UR)u* and instead assume that *-(UR)u* is essentially an unmarked "default" form that covers temporal and aspectual functions that are not expressed by the marked forms *-Ta* and *-Te i-*. Accordingly, from here on the label "default" will be used.

Lastly, the fact deserves some interest that the conflation of imperfective functions in just one form as in Standard Japanese *-Te i-* is not universal in ModJ. Specifically, in many Western Japanese dialects, at least progressive and resultative are expressed through different forms (cf. Kudō 2014: 493–537). Table 2 presents the system of the Uwajima dialect, which is found from the Western end of Honshū down to Kyūshū.

Table 2. Basic tense-aspect system of the Uwajima dialect (Kudō 2014: 519)

	Aspect		
Tense	**Default**	**Progressive**	**Resultative**
Non-past	*-(ur)u*	*-yor-*	*-tor-*
Past	*-Ta*	*-yot.ta*	*-tot.ta*

3. Late Old Japanese tense-aspect[1]

3.1 Overview

The earliest periods of Japanese with substantial records are Old Japanese (OJ) (6th~8th century) and Late Old Japanese (LOJ) (9th~11th century), also labeled as "Early Middle Japanese" or "Classical Japanese." Without going into detail here, the term "Early Middle Japanese" is preferred in the English-language literature, and privileges phonological developments. The term "Late Old Japanese" reflects the fact that in the majority of the Japanese language literature the period between 6th and 11th century is viewed as one language period (so-called *kodaigo* 'ancient language'), in contrast to the ensuing Middle Japanese period. This term privileges grammatical developments. Lastly, the term "Classical Japanese," which is often found in continental European writing, is neutral between both classifications, and

1. A note on transcription of historical examples: We have chosen to transcribe examples based on historical phonology instead of graphematics (the writing system) or the Modern Japanese phonology. This entails that the same grapheme (kana) may represent different phonemes at different periods of time. The transcription here is based on Rothaug (1991).
Potentially contentious issues are solved as follows. The so-called 8-vowel contrast of Old Japanese is represented as /a/, /ye/, /e/, /i/, /wi/, /wo/, /o/, and /u/ in the tradition of Unger (1975). The phonemic change of Old Japanese /p/ (Modern Japanese /h/) is assumed to have taken place as follows: In onset position: /p/ > (8th CE) /f/ > (17th CE) /h/. In medial position: /p/ > (8th CE) /f/ > (11th/12th CE) /w/, o before /u/ > (13th CE) /y/ before /e/ > (17th CE) o before /e/, /o/ (cf. Rothaug 1991: 86–87). Note that Frellesvig (2010: 176) suggests a later shift from /p/ to /f/ in onset position, but an earlier shift from /p/ to /w/ in medial position.

emphasizes the fact that the language of the period served as a model for literary style in later times. A potential problem of Old Japanese, the oldest period, is that most of the colloquial texts are poetry, which is not conducive to the study of temporal meaning in context. Much more substantial tense aspect research has been conducted on LOJ texts (we have a wealth of prose texts from that period) as the subject of investigation (e.g. the monographs by Suzuki 1999, 2009, 2012, and Ijima 2011). This is the reason for focusing on LOJ tense-aspect here.

The grammatical forms that are commonly cited as expressing tense and aspect in LOJ tense-aspect, are as follows (cf. also Frellesvig 2010: 65–75, 238–240; Vovin 2009: 936–997, for Old Japanese; Takeuchi 1987; Rickmeyer 1991; Sandness 1999; note that their descriptions differ amongst each other and may differ in some points from the description provided here):

1. Tense: *-ki/-si* and *-keri* for past, *-(r)u/-(ur)u* for non-past, and *-(a)m-* as a modal future
2. Aspect: *-eri/-tari* for resultative/perfect, and *-t-/-n-* for perfective

The forms separated by slashes indicate contextual alternatives.

i. The past tense forms *-ki* and *-si* are the finite and the form of past tense, and *-(r)u* and *-(ur)u* are the finite and adnominal form of non-past tense. There is no semantic distinction between the finite and the adnominal forms, respectively. The distribution is determined purely by syntactic function: The adnominal forms are used for modification of nominals, formation of complement clauses, and nominalizations. The finite forms are used in syntactically finite position. Both *-(r)u* and *-(ur)u* have allomorphs and are considered as morphemes on their own.
ii. Resultative *-eri* is added to consonant-stem verbs (*-eri*) only, and in the process of being replaced by *-tari* that can be suffixed to both consonant- and vowel-stem verbs. A fair number of verbs appeared with both suffixes, which has led to arguments about delicate functional-semantic differences, but they have been inconclusive and we can neglect it here.
iii. A prominent claim about the distinction of the perfectives *-t-/-n-* is that *-t-* is mainly found with verbs with volitional subjects, and *-n-* with non-volitional and affected subjects (e.g., Suzuki 2012: 64). However, a fair number of verbs can be used with either of them (cf. e.g., Takayama 2011: 39). Some scholars have suggested that they may have originally indicated a different type of boundary, related to their presumptive etymology: *-n-* may have originally indicated inception and *-t-* completion (e.g., Nakanishi 1996: 80–126; Takeuchi 2014). If so, their distribution may be seen as influenced by "persistence" of features of earlier stages in their grammaticalization (cf. Hopper 1991).

While the label "perfective" has been practically universally applied to *-t-/-n-* since very early (cf. e.g., Lewin 1955; Frellesvig 2010), it does not refer to a system of perfectively-imperfectively marked lexical verb pairs as in Russian. *-t-* and *-n-* are fully productive suffixes that do not stand in direct opposition to another suffix but rather to the default verb form. In accordance with typological (rather than Slavonic-based) and diachronically-oriented definitions of the category, we assume here that the basic function of perfective is to indicate a boundary, and that it is a pre-stage to past (cf. Dahl 1985; Bybee et al. 1994: 54; Guéron 2007: 374; Desclés & Guentcheva 2012: 128).

The question now is, what kind of system these forms may have functioned in. In the case of Old and Late Old Japanese, no system has been broadly accepted in the scholarly community so far. By far the most detailed research has been conducted by T. Suzuki (1999, 2009, 2012, etc.), who employs the same framework of the Linguistic Research Group that is dominant in the analysis of ModJ tense and aspect. My proposal in Table 3 is based on Suzuki's (2009: 163) proposal. It differs from his mainly in (a) relabeling the unmarked forms as "default," and (b) admitting future *-(a)m-* and past *-keri* into the system. Note that for many scholars *-keri* (e.g., Takeuchi 1999: 95) and for some scholars *-(a)m-* (e.g., Lewin 1955; Shigemi 1999; Kondō 2013) belong to tense-aspect, but not for Suzuki. The modal future row is in italics because the inclusion of *-(a)m-* in the study of tense and aspect is not a widely supported position. There is more discussion below. *-ki* stands for *-ki/-si*, and *-(ur)u* for *-(r)u/-(u)ru* (no semantic difference).

Table 3. Basic tense-aspect system of LOJ[2]

	Aspect		
Tense	**Perfective**	**Default**	**Resultative/Perfect**
(Modal future	*-te-m-, -n-am-*	*-(a)m-*	*-r/tar-am-*
Non-past	-t.u/-n.u	-(ur)u	-eri/-tari
Past	-te/ni.ki, -ki	-ki (,-keri)	-eri/tari.ki,-keri

The Late Old (and Old) Japanese tense-aspect system differs significantly from the Modern one in many aspects. First of all, it had many more fully grammaticalized forms. Furthermore, it had forms that are practically universally labeled as "per-

2. An anonymous reviewer has suggested a novel analysis of the forms in Table 3 as aktionsarten instead of tense and aspect. However, there is no support for this analysis in the extant literature, where these forms have been treated uniformly as tense and aspect. A fundamental reanalysis of these forms would exceed the scope of this paper, and therefore I wish to leave this issue to future research.

fective" without the controversy surrounding the theoretically motivated labeling of *-(ur)u* as "perfective" in Modern Japanese. It didn't have the continuative forms of Modern Japanese but instead a "resultative" form.

In the following subsections, a few contentious points about tense-aspect in older Japanese are discussed in some more detail.

3.2 *-keri* vs. *-ki/si/sika*

As for the concrete forms employed in the LOJ system, there is a variety of past tense forms whose functions relative to each other have been notoriously controversial. T. Suzuki does not include the form *-keri* at all in the LOJ tense-aspect system, considering it primarily as an evidential and mirative form, but most other scholars do. As Ijima (2011: 366–383) describes in some detail, *-keri* has been traditionally identified as "recollected" or "imperfective" past with some relationship to the present (that is, "perfect" rather than "past"), in contrast to the "direct" or "experienced" past *-ki* without relationship to the present. Koyanagi (2018: 258–262) likewise describes *-keri* as an imperfective past that originally marked a state-of-affairs that has been passed down to the speaker from a third person (the most commonly believed etymology is 'has come'), and is not directly experienced. The evidential and mirative uses are derived from the original function. The two uses in Example (14) may be good examples for the hearsay past. Example (15) shows *-keri* in a non-past context with apparent mirative function.

(14) *Idure=no owomu.toki=ni=ka nyougo kaui amata*
when=GEN HON.era=ADV=QUE court.lady attendant many
saburawi~tamawi-ker.u *. naka=ni … sugurete tokimeki~tama.u ari.**keri***
serve~RSP-PRT.ANP inside=LOC preeminent favor~RSP.ANP be~PRT
'In the era of which [emperor] may it have been, there was among the ladies who served [at the court]… one who was particularly favored [by the emperor]'. (Genji Monogatari, Kiritsubo; cf. Ijima 2011: 378)

(15) *Mi.saki o.u kowe=no ikamesi.ki=ni=zo, "Tono=wa*
HON.lead follow.ANP voice=GEN resounding.ANP=DAT=ILL lord=TOP
*ima=koso **oide-sase~tamawi.ker.e** ."*
NOW=CFC appear-HON~HON.PRT.PRE
'Upon [hearing] the resounding voices following his steps [, the ladies said], 'Oh, the lord has appeared [from somewhere]'.
(Genji Monogatari, Shoojo; cf. Suzuki 2009: 375)

Note that in all three instances of use of *-keri* in (14) and (15), modern translations render it as *-Ta*. To me, the traditional interpretation of *-keri* as an imperfective past, rather than as an evidential, seems appropriate because in most instances

-keri is used as a past tense, similar to ModJ *-Ta*. But it certainly has a distinct evidential-mirative use, and so the differences between the manifold LOJ past forms cannot be reduced to temporal distinctions alone.[3]

3.3 *-(a)m-*

Future state-of-affairs are necessarily not facts but predictions (cf. Bybee et al. 1994: 246), and it is difficult to obtain pure "tense" readings. This is also true for the modal future *-(a)m-* (labeled as "future-conjectural" by Takeuchi 1999: 95). *-(A)m-* is included in the system because (1) in Old and Late Old Japanese *-(a)m-* is used in contexts where in ModJ simple *-(ur)u* would be employed, and (2) it is often used in embedded contexts without apparent modal meaning. *-(a)m-*'s successor *-(y)oo* in colloquial ModJ is a different animal in having become entirely modal, either predicating epistemic necessity in the form *daroo*, or marking a hortative as *-(y)oo*. In contrast, *-(a)m-* is still a future in a general linguistic definition of "prediction." It also marks posteriority relative to the main clause in subordinate clauses. An example for *-(a)m-* signaling future tense relative to past event time and corresponding to ModJ *-(ur)u* is given below.

(16) *Kaku=bakari* ***kwopwi-m.u****=to* *kanete sir-ama.seba….*
this.way=LIM love-FUT-FNP=QUO before know-FUT-CPT
'If I had known before that *I would love* her like I do, …' (*MYS* 15/3739; CE 8)

Note that *-(a)m-* in (16) is not only temporally relative future but aspectually continuative, indicating a state of being in love.

3.4 *-(ur)u*

-(Ur)u (also called "base form" in Japanese linguistics) has been very well researched in terms of tense-aspect, despite being considered as the "default" verb form. The most puzzling fact about it is that it is also found attached to other tense/aspect forms, e.g. *-t-*, *-n-*, *-tar-*, and in some combinations the temporal meaning seems dubious. One theoretically possible conclusion from this fact might be that *-(ur)u* had no temporal value at all, but was signifying merely syntactic function (adnominal form *-(ur)u*) vs. finite function (finite form *-(r)u*).

There are two counterarguments to this possible conclusion. First, not only *-(u)ru*, but Old and especially Late Old Japanese tense-aspect morphemes in general frequently occurred in combination, adopting specific meanings and functions

3. Takeuchi (1999: 95) labels LOJ *-keri* as "evidential past," and Frellesvig (2010: 72) OJ *-kyeri* accordingly as "modal past."

in each combination. *-(Ur)u*, as well, when combined with other tense-aspect suffixes such as *-t-*, *-n-* or *-tar-* seems not to have been entirely devoid of temporal function. For example, the forms *-t.u* and *-n.u* (cf. Table 3) are in paradigmatic contrast to *-te.ki* and *-ni.ki* as non-past vs. past, and so is *-tar.u* to *-tari.si* (cf. Suzuki 1999, 2009, 2012). Furthermore, the past inflection had its own distinction of (ad)nominal vs finite (*-si* vs. *-ki*), so that-*(r)u*/*-(ur)u* was at least non-past. There are only two positions in which *-(u)ru* makes no meaningful temporal contribution. One is as the adnominal of *-keri*, *-ker.u*. *-Ker.u* is not in paradigmatic contrast with another form with respect to tense-aspect. So, *-(ur)u* here seems to merely indicate syntactic adnominal function. The second is suffixed to future *-(a)m-*, where there is also no meaningful paradigmatic contrast, and from a synchronic standpoint, *-(ur)u* in *-(a)m.u* seems to be semantically empty already by Old Japanese.[4] In fact the combination *-(a)m.u* very early fused into *-(a)m* > *-(a)n*, probably as a reflection of the loss (or lack) of functionality.

The second, more decisive argument is that very substantial empirical studies on the temporal functions of *-(ur)u* in Old and Late Old Japanese have been conducted, and it would not be methodologically sound to dismiss their findings on the basis of a theoretical consideration without detailed empirical research to disprove them. Note, though, that practically all of this research is based on *-(ur)u* as the single temporal ending of a verb. So, everything stated about *-(ur)u* above and below only pertains to the morpheme in its use as the only temporal marking on a verb. As for its use in combination with other tense-aspect morphemes, as seen above, we may assume that its function was rather ambiguous and ranged from signaling non-past in a number of combinations to mere syntactic function in others.

For Old Japanese, we have some detailed research on the temporal functions of *-(ur)u*, especially by Kuroda (2006), but also some older research such as Yamaguchi (1986) and Kinsui (1993). They agree that *-(ur)u* denoted mainly continuative (i.e. progressive and related) meanings, while the question whether it could also already have future reference was contested. For Late Old Japanese, immensely detailed research has been presented by Suzuki (1999: 20–31, 315–337; 2009: 173–241; 2012: 115–208). Other research includes Ōki (2009) and Kondō (2013). There is generally a consensus that *-(ur)u*'s functions are different from ModJ mainly because (1) most instances of use have continuative meaning, and (2) future use is sparse compared to ModJ. Ōki (2009: 27), in an analysis of LOJ texts, shows that about 60% of all instances of use are continuous, often corresponding to ModJ *-Te i-*. Ōki distinguishes eight functions of the morpheme. The

4. Note, however, that the irrealis form *-(a)ma.si* may be derived of the combination of future and past morpheme.

four most frequent are, (i) continued mental state or perception (37%), (ii) result of change (19%), (iii) continued activity (12%), (iv) continued existence (11%).[5] *Nak.u* in (17), for example, marks the progressive/continuative of an activity (iii), and corresponds to ModJ *nai.te i.ru*.

(17) *…mono~u-kar.u* *ne=ni ugufisu=zo* ***nak.u***
thing~melancholic-VBZ-ANP tone =ADV nightingale-EMP cry-ANP
'…the nightingales sing melancholically'. (*Kokin Wakashū*, Spring 1, 15; CE 10)

Remarkably, all the four most frequent functions are at least optionally expressed by *-Te i-* in Modern Japanese, indicating at least partial correspondence between *-(ur)u* in Old and *-Te i-* in Modern Japanese.

A further peculiarity of *-(r)u/-(ur)u* in Old Japanese was its restriction in combination with the verb of existence *ari* in finite position. Instead of the verb base *ari* had to be used.

(18) *ari* 'be', *ar.u 'be'

That is, it seems quite likely that *-(r)u/-(ur)u* was originally a suffix with continuous function and gradually developed into more general present and non-past functions. According to Miller (1985) and Martin (1996), a likely etymology for *-(r)u* is the auxiliarized verb *wu* 'sit', which returns again in historical times as the source of the construction *-Te wi-* (cf. 4.5). *Wu* may have been complex and Martin reconstructs it as *w[iy] [w]u < *bu-Ci[-Ci] bu(-)* [C stands for consonant] (cf. Martin 1996: 297 for details). Unger (2000: 664) reconstructs *-(ur)u* as the suffix *ra plus the above *-(r)u*. The suffix *ra is apparently of Trans-Eurasian heritage and is associated with nominalizing function (cf. Robbeets 2015: 339). The above reconstructions presuppose that verbal stems had a yet older *-u* ending preceding *-(r)u* and *-(ur)u*, which Unger (2000) labels as "predicative."

Nevertheless, for Old Japanese, labeling *-(ur)u* as "imperfective" would not seem correct. In contrast to its Modern Japanese successor it covered a wide range of imperfective contexts, but for one thing it did not cover all imperfective contexts – i.e., *-tari* covered resultative with achievement and accomplishment verbs – and it also already had non-imperfective minority uses (volition, prediction), that would become major uses in Modern Japanese. So, we can label *-(ur)u* as a default form, like in Modern Japanese, but should attend to the fact that it was much more common in imperfective contexts, and had an imperfective core that may point to an origin as a stative or imperfective marker.

5. The other four are (v) volition (5%), (vi) simultaneity (1%), (vii) prediction (6%), and (viii) general/habitual (8%).

3.5 Forms ending on *-ari* vs. *-t-/-n-*

Lastly, *-tari/-(y)eri* are uncontroversially acknowledged as resultatives in Old and Late Old Japanese, and *-t-/-n-* as perfectives. Nevertheless, these forms have attracted a lot of research concerning the distinction between the form alternates of each pair. In (19), there is one instance of *-tari* and *-eri* each, marking a resultant state and corresponding to ModJ *-te i.ru*. Of course, there were also subtle changes in the functions and meanings of these suffixes over time. Over the centuries, *-n-*, and especially *-t-* gradually shifted from aspect in the direction of tense. It has been pointed out that in LOJ *-t-/-n-*, and not *-ki*, is used as hodiernal past (e.g. Suzuki 1999: 264). *-T-* in (20) may be seen as a precursor, as it marks an event of the recent past relevant for the present, and would be rendered with *-Ta* in ModJ. On the other hand, *-t-* could be also used for future events, even in LOJ. Thus it still remained essentially an aspectual (perfective) form.

(19) ***Nokori-tar.u*** *yuki=ni* ***mazir-er.u*** *ume=no pana….*
be.left.over-RES.ANP snow=DAT mix-RES.ANP plum-GEN blossom
'The plum blossoms that are mixed into the remaining snow…'
(*MYS* 5/849; CE 8)

(20) *Asa~dati ini.si kimi=ga upe=pa sayaka=ni* ***kiki-t.u***
morning~get.up go.APT you-GEN about=TOP clear=ADV hear-PFV.ANP
'I have heard clearly what you, who left early in the morning are doing. [It's what I thought]'. (*MYS* 20/4474; CE 8)

Diachronically, a relevant fact about the LOJ tense-aspect forms is that three of them, *-tari*, *-eri*, and *-keri*, are transparent combinations of more primitive forms: *-tari* is *-te* + *ari* 'be', *-eri* (OJ *-yeri*) is verb base, i.e., V-*i* + *ari*, and *-keri* (OJ *-kyeri*) is *-ki*+*ari* (alternatively, it could be derived from the base form of the verb *k-* 'come', *ki-* + *ari*). These three forms can be considered as recent formations. Note that *-yeri* and *-kyeri* were already fused in OJ, but *-tari* still co-existed with the analytic form *-te ari*. This in turn means that at some point before Old Japanese, in the not too remote past, there must have been a system in place without these complex forms. This system, accordingly, did not have a distinction between two non-perfective values, but resembled the modern Standard Japanese and Kansai Japanese system. It may be reconstructed as in Table 4.[6]

6. One might also assume that other aspectual forms existed that were replaced by *-tari/-eri* and *-keri*. However, in that case we would expect at least vestiges of those older forms in conservative poetry. But those don't exist. Conceivably, though, *-te ari*, (V+)*i ari* etc. existed for some time as periphrastic constructions before fusing.

Table 4. Basic tense-aspect system preceding Old Japanese

	Aspect	
Tense	**Perfective**	**Default/imperfective**
(Future	*-te-m-, -n-am-*	*-(a)m.u/-(ur)u)*
Non-past	-t-/-n-	-(r)u/-(ur)u, (-(a)m-)
Past	-ki	

The forms with *ari* 'be' suffixed to older tense-aspect forms created new imperfective forms. In the past, *-ki* most likely had covered both imperfective and perfective state-of-affairs equally. The introduction of *-yeri/tari* allowed a split between progressive and resultative in the present, and the introduction of *-yeri/tari* and *-kyeri* a similar split in the past. This led to much more formal distinction and potential for differentiation of temporal and aspectual nuances, but at the same time to considerable overlap between these forms as well, as seen in Table 3. Thus, the differentiation of the various Old and Late Old Japanese tense-aspect forms still poses a riddle to modern scholars.

4. Changes

It is more efficient for the purpose of this paper and the volume to divide changes into types of change than to track the development from the old to the new system form by form. Section 4.2 will discuss change from aspect to tense, Section 4.1 change from some aspect to a different type of aspect, Section 4.3 change from tense-aspect to a related non-temporal category, Section 4.4 the demise of forms, and Section 4.5 the emergence of new aspectual forms from lexical ones.

4.1 Change within aspect: *-tari (-Ta), -(ur)u*

Before becoming a mainly past tense marker (Section 4.2), the erstwhile resultative/perfect *-tari (-Ta)* took over the perfective functions of *-t/n-*. The process of *-tari (-Ta)* taking over from *-t/n-* is described by Yamaguchi (2003: 225–242) in some detail. According to Yamaguchi, it started with verbs of perception and then gradually spread to other types of predicates.

For example, in (21), *-tari* in a 14th century text is found in a context with *mi-* 'see', where in classical Japanese *-t-* would have been used. The event in the subordinate clause sets the scene for the event in the main clause.

(21) *Usiro=wo kitto **mi-tar.e=ba** gozin=no oozei*
behind=ACC grimly look-PFV.PRE=TOP rear.guard=GEN many
ni~sen-yo-ki ni=no kido=yori komi~iri.te…
two~thousand-more-CLA two=GEN gate=ABL enter~enter.GER
'When he grimly looked behind, more than two thousand horsemen were entering through the second gate'. (*Taiheiki*, CE14, cf. Yamaguchi 2003: 232)

-Tari also eventually replaced *-t/n-* in collocation with the past markers *-ki* and *-keri* (cf. Table 3), that is, *-tari-keri* and *-tari-ki* came to be used instead of *-te/ni-keri* and *-te/ni.ki* (cf. Yamaguchi 2003: 235–240).

On the other hand, *-(r)u/-(ur)u* lost one of its "default" functions of continuative marking, especially with activities, due to the rise of the marked continuative constructions *-Te ar-, -Te i-*, and *-Te wori* from Middle Japanese on (cf. Section 4.5). (22) shows another instance (cf. also (17)) in which *-(r)u* marks the progressive of an activity and is rendered by *-Te i-* in modern translations.

(22) *Tatutagawa momidi-ba **nagar.u** .*
PN~river maple-leave float.FNP
'On Tatuta river, the maple leaves are floating'.
(Kokin Wakashū, CE 10, cf. Suzuki 1993: 155; translation in Ozawa 1971: 150: *nagare.te i.ru*)

The fact that *-(ur)u* (the finite form *-(r)u* became obsolete) lost its coverage of progressive contexts in Middle and Modern Japanese should be rather uncontroversial, and also the fact that *-(ur)u* increasingly marked future events, partially in place of *-(a)m-*. However, the question is to what degree *-(ur)u* really might have replaced the perfectives *-t/n-* in non-past context, as *-Ta* did in past contexts. Here, the answer is far less obvious. In modern translations of OJ and classical (LOJ) texts, *-t/n-*, if it is not past-oriented, is most commonly rendered by an unmarked verb form, that is *-(ur)u* in final and adnominal position, and sometimes by *-Te sima(w)-* and *-Te ok-* (cf. 2.4). This supports the idea of some modern grammarians that *-(ur)u* is a perfective form in ModJ that at least partially corresponds to *-t/n-* in Old and Late Old Japanese. As marked forms, *-Te sima(w)-* and *-Te ok-* are more similar to *-t/n-* than *-(ur)u*, but they have not grammaticalized and extended their contexts of use to the same degree as *-t/n-* had, and cannot be identified as part of an obligatory paradigm. (23) is an example where Old Japanese *-t-* corresponds to unmarked *-(ur)u* in modern translation, and (24) an example where it has been translated as *-Te simaw-*.

(23) *Yo=pa tune na.si=to sir.u mono=wo aki~kaze*
world-TOP permanent not.be.FNP=QUO know.ANP thing=CNC autumn~wind
samu-mi ***sinobi-t.uru****=kamo.*
cold-CAL remember-PFV-ANP=EXC
'Although I know that nothing in the world is forever, as the autumn wind gets cold, I do remember her!'
(MYS 3/465, CE 8, cf. Kojima et al. 1971 (vol. 1): 284: *omoidas.u*)

(24) *…pudinami=ni kedasi ki nak.azu* ***tirasi-te-m.u****=kamo*
wisteria-vine-LOC perhaps come cry-NEG scatter-PFV-FUT-FNP=EXC
'[The nightingale] could come tomorrow to the wisteria vines and scatter the flowers without crying'.
(MYS 18/4043, CE 8, cf. Kojima et al. 1975 (vol. 4): 242: *tirasi.te sima.u*)

In summary, one can make an argument that *-(ur)u* did replace *-t/n-* in some perfective contexts, but it seems more likely that perfective marking of Old Japanese has simply become obsolete and only been weakly replaced by *-Te sima(w)-* and *-Te ok-*, which are not yet obligatory in perfective contexts.

4.2 From aspect to tense: *-t-, -tari (-Ta)*

As was pointed out in Section 3, *-n-* and especially *-t-* were already used as hodiernal past by LOJ.

As Yamada (2001) shows, by about the 13th century, perfective *-t-* had practically become interchangeable with the general (remote) past *-ki* in represented conversation (this can be shown because in variant manuscripts of the same text *-t-* frequently replaces *-ki*). (25) is an example.

(25) *Ware yo=ni* ***ari.si*** *toki=wa nyougo kisaki=ni=koso=to*
I world=LOC be-APT time-TOP court.lady empress-DAT-CFC-QUO
omoi-t.ure .
think-PFV-PRE
'When my political position was [still] good, I thought of making my daughters high court ladies and empresses'.
(Heike monogatari, CE 12; cf. Yamada 2001: 191)

The final predicate refers to a distant past and is expressed by *-ki* in some text variants and by *-t-* in others (cf. Yamada 2001: 191–192). However, as Suzuki (1993: 61) notes, while temporarily entering competition with *-ki* for the expression of past tense, *-t-* at no point became the default past tense marker of Japanese. It also did not shed its aspectual uses. In fact, from then on, *-t-* declined and only survived

in some fixed collocations in aspectual use (cf. Section 4.4). With respect to past tense, it eventually lost to the competition by *-tari (-Ta)*.

"*-tari (-Ta)*" refers to one morpheme through its historical development. The inflection *-Ta* is the result of the fusion of the suffix verb *-tari* with the adnominal non-past ending *-(ur)u*, *-tar.u*, and ensuing loss of the final syllable.[7] Furthermore, due to assimilation processes between stem and /t/ the allomorphs *-ta* and *-da* developed. As noted above in Section 2, capital "T" is a means to represent the allomorphy. The short form *-Ta* has been recorded since the 12th century, and can be considered as an inflection since about the 16th century, when the functional gap with other erstwhile inflectional forms of the suffix verb *-Tari* that survived (conditional *-Tara*, exemplative *-Tari*) widened to a degree that we can speak of *-Ta* as a morpheme on its own (cf. Narrog 1999: 96–97).

Since the development from resultative/perfect to past through perfective is cross-linguistically entirely normal (cf. Bybee et al. 1994: 104–105), one might assume that the meaning naturally drifted in this direction. But this is only half of the story. As Yamaguchi (2003) has pointed out, the increasing use of the combined forms *-tari.si* (*-si* was the adnominal past) and *-tari-ker.u* in Middle Japanese decisively contributed to the emergence of *-Ta* as the new past: *-si* and *-ker.u* on themselves weakened and lost the ability to indicate past, except with a small group of mainly existential verbs. Instead, semantically simple past was increasingly indicated by the combined forms *-tari.si* and *-tari.ker.u*. That is, *-tari* in these forms reinforced the declining older past form, a phenomenon that is known from linguistic cycles in general (cf. van Gelderen 2013). The combined forms fused as follows:

(27) *tari.si* > *tas.si* > *tasi (>Ta)*
tari.ker.u > *taker.u/takker.u* > *take/takke (> Ta)*

(27) is an example of *-Tasi* in the function of past suffixed to a verb of existence, to which Old and Classical Japanese *-tari* could not have been suffixed in its original function as a resultative, and where it also does not semantically add imperfectivity to the past marker:

(28) *Koko=no mono=wa uma=ni nor.u=bakari=de hosotu=wa*
here=GEN person=TOP horse=DAT mount.ANP=LIM=ESS foot.soldier=TO
mOO ***na-kat-ta.si*** *mono=zo.*
already not.be-VBZ-RES-PST thing=ILL
'The soldiers around were all mounted on horses, and there were already no foot soldiers'. (Shikishō, CE 15; cf. Yamaguchi 2003: 237)

7. Note that from around the 11th-12th century, adnominal predicate forms replaced finite ones in Japanese.

Now, since the form *-Ta* already existed independently of these developments, it cannot be proven that *-Ta* is indeed solely the result of the fusion of the combined tense-aspect forms. We do have first attestations of what could be past tense from as early as the 13th century (cf. Yamaguchi 2001b: 423). However, as Schneider (1968: 47) argues, *-Ta* on its own is still rarely used as past tense even by Late Middle Japanese. Thus, it should be uncontroversial that the complex fused forms at least contributed to the establishment of *-Ta* as the new past ending.

4.3 From tense to modality: *-(a)m- (-(y)oo), -tari (-Ta)*

With "future," the question of tense vs. modality is a notorious problem (e.g., Salkie 2010 for English *will*). Furthermore, *-(a)m-* had clearly modal functions already by Old Japanese, and was never purely temporal. Nevertheless, I wish to suggest that *-(a)m-* has shifted from modal-temporal function to entirely modal in ModJ. As stated in Section 3., in Old (and Late Old) Japanese *-(a)m-* is still used in contexts where in ModJ simple *-(ur)u* would be employed, and in embedded contexts indicating posteriority without apparent modal meaning. (16) above was an example, as is (29) below.

(29) *Ume=no pana pitori mi-tutu=ya paru~pi* ***kuras-am.u*** .
Plum=GEN blossom alone watch-DUR=QUE spring~day spend-FUT=FNP
'Am I to spend this spring day alone looking at the plum blossoms?'
(MYS 5/818, CE 8, cf. Kojima et al. 1972 (vol. 2): 69: *kuras.u*)

Kuras-am.u is a simple prediction and if it were rendered as *kuras.oo* in ModJ, the interpretation would be modally as the volition of the speaker/writer, which does not make much sense in this context. In this manner, *-(a)m-*'s successor *-(y)oo* in colloquial ModJ is different in having become entirely modal, commonly either predicating epistemic necessity in the form *daroo*, or marking volition and hortative as in *-(y)oo*. In contrast, *-(a)m-* can still be understood as a "future" in a general linguistic definition of prediction and intention.

OJ *-tari* was a pure aspect marker. It acquired tense function in Late Middle Japanese (cf. Section 4.2). After that, it also acquired modal functions, namely counterfactual and imperative. The imperative is more likely an extension of aspectual (perfective) than past function (cf. Narrog 2012: 143–145 for details), but the counterfactual is more plausibly derived from past tense, which signifies distance from present reality (cf. Kudō 1996: 63, who also makes this argument). The counterfactual use is not recorded at all in descriptions of historical Japanese or historical dictionaries, and most likely an innovation in Early Modern to Modern Japanese. Furthermore, it is usually found in environments that are conducive to counterfactual interpretation, such as the apodosis of a conditional sentence. (30)

from an early 20th century text is the earliest example that I have been able to find in my own corpus materials. There may be earlier ones but certainly not by centuries.

(30) "*Wazuka=no ryohi=o kure.tara, Kusiro=made it.te*
little=GEN travel.expense=ACC give.CON PN=LIM go.GER
***ko-rare.ta**=noni*"
come-POT.PST=CNC
'I could have gone to Kushiro, if you had given me just a small travel allowance'. (Iwano Hōmei: *Dankyō*, 1910)

Note that although the title of this subsection is "from tense to mood", *-Ta* of course retained its temporal uses, while adding these modal uses.

4.4 Demise of forms: *-t/-n-, -ki, -keri, -eri*

It is difficult to track diachronic changes affecting the system in Middle Japanese exactly, because from the late 11th century on the gap between spoken language and written language widened. However, it is clear that all past and perfect/perfective forms except *-tari* eventually declined in the centuries following LOJ. *-Eri*, which could only be suffixed to consonant-stem verbs, started to yield to *-tari*, which morphologically could be suffixed to any verb, already during LOJ. *-N-* declined from the 12th century on, and *-ki, -keri* and *-t-* followed in the 13th and 14th centuries (cf. Sandness 1999). *-Keri* though, remained in the written language in various functions (cf. Yamaguchi 2001a: 236). As expressions of past tense, all these forms eventually gave way to the advance of just one form, namely *-tari* (later *-Ta*.)

Vestiges of some of the forms survived, at least temporarily, mostly in unrelated functions. *-T-* and *-n-* (in ModJ only *-t- (-tu)*) became clause connectives with exemplative meaning (cf. Narrog 2016: 112–113), *-keri* is preserved as part of the conjunctive particle *keredo* 'and', 'but' (cf. Narrog 2016: 110–111), and *-eri* is occasionally found in idioms (e.g. *nayam-er.u* 'get distressed (by)'+RES = 'be distressed').

4.5 Emergence of a new aspectual form: *-Te i-*

The only genuine "newcomer" among the ModJ tense-aspect forms is *-Te i-*. *-Te* has been a verb ending forming gerunds at least from LOJ, while *i-* is a ModJ verb of existence for animate entities. A comprehensive description of the emergence of this construction has been provided by Kinsui (2006a, b). His account has been criticized, though, for not sufficiently reflecting the role of the *-(ur)u* form, which according to the majority of historical accounts was the main expression of continuation with activities at least up to Early Middle Japanese (cf. Fukushima 2008).

Until the 14th century, a system prevailed in which *-Tari* (*-eri* declined) and the unmarked verb form *-(r)u/(ur)u* were the main expressions of imperfectivity. From then on, when *-Tari* acquired perfective, and later, past notions, a number of similar, competing constructions eventually arose that signaled imperfectivity more expressively and unambiguously. The first was *-Te ar-*, as in (31), which is the same source construction from which *-Tari* had arisen centuries earlier. It centers on the verb *ar-*, which had expressed existence for all kind of entities from the earliest time of documented Japanese language history.

(31) *Nusubito, shinin=no ki-tar.u koromo=to… **nuki~tori.te** **ar.u***
thief dead=GEN dress-RES.ANP coat=COM pull.out~take.GER be.ANP
kami=to=o ubawi~tori.te ori~fasiri.te nige.te sari-ni-keri.
hair=COM=ACC rob~take.GER descend~run.GER flee.GER go.away-PFV-PRT
'The thief took away the coat that the dead had on and… the hair that was pulled out, quickly ran down [the stairs] and fled'.
(Konjaku Monogatari (12th c.), vol. 4, p. 385)

Later, from the 17th century on, *-Te i-*, with the variants *-Te i.tar-* and *-Te or-*, became a competing common means of expression. *i-* (until the 12th century phonologically *wi-*) is originally a verb with the meaning 'sit' (in contrast to 'stand') for animate entities, and only eventually around the 15th century extended its uses to more general existence of animate entities, and *or-* (until the 17th century phonologically *wor-*) was the stativized form of *wi/i-*. The first uses of the construction *-Te i-* seem to have been resultative (cf. Kinsui 2005: 15) before extending to progressive uses. Note that while the verb *i-* as such was originally not stative, but denoted an achievement, the combination with *-tari* as *-te itar-* was able to express resultativity. Thus ModJ *-Te i-* is strictly speaking not the successor of a form *-Te i-* but of a form *-Te i.tari* (Kinsui 2006a: 58).

In the 17th century, when *-Te i-* came to be increasingly used as an expression of imperfective notions, a competition between *-Te ar-* and the newcomer *-Te i-* arose, in which both constructions complemented each other in the standard language of Western Japan, *-Te i-* being used for animate entities in a natural extension of its lexical meaning, and *-Te ar-* for inanimate entities, as in (32) and (33).

(32) *Kuwana=ni=wa ozi=ga **kome~akinai~si.te** **i.ru** .*
PN=LOC=TOP uncle=NOM rice~trading~do.GER be.NPS
'An uncle of mine is trading rice in Kuwana'. (animate)
(Chikamatsu: Yūgiri Shichinenki; 1706; as cited in Yuzawa 1936: 141)

(33) *Kore mi-sans.e. Kagi=ga* ***oti.te ar.u*** .
this see-HON.IMP key=NOM fall-GER be.NPS
'Look at this! A key is lying (lit. fallen) on the floor'. (inanimate)
(Chikamatsu: Keisei Fuji miru sato; 1701; as cited in Yuzawa 1936: 142)

In the 18th and 19th century, the competition between *-Te ar-* and *-Te i-* eventually went in favor of *-Te i-*. In terms of grammaticalization, it is only the natural course of things to see the semantically richer and originally marked newcomer to "win out" against a semantically bleached incumbent in a specific category. However, in the case of *-Te i-*, dialectal preferences apparently also played a decisive role: *-Te i-* was the preferred form in Eastern Japan already in the 17th century. As the cultural center shifted to East Japan, the language of Eastern Japan gained more influence in writing as well (cf. Kinsui 2006b: 40). Note that *-Te ar-* has survived in Modern Standard Japanese as a passive resultative (cf. Section 2.4).

5. Generalizations and conclusion

In the last section, I will present a number of generalizations from the changes seen above, which relate them to changes described in other papers of this volume, or in the literature of change in tense and aspect in general. These are first in terms of grammaticalization paths (Section 5.1), and second, in terms of change within category hierarchies (Section 5.2).

5.1 Paths of grammaticalization[8]

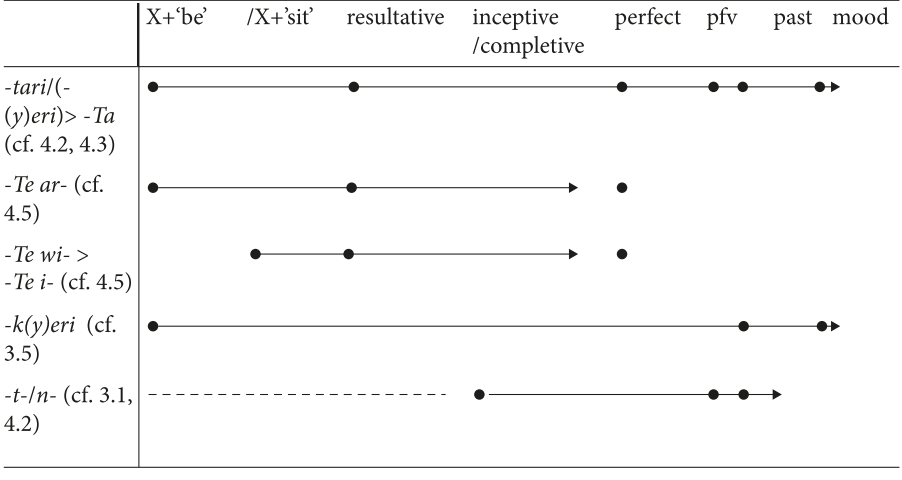
First off, "grammaticalization" is referred to here in a sense not only including change from lexical to grammatical elements, but also continuing change from one, presumably less grammaticalized category to a presumably more grammaticalized category, that is, so-called secondary grammaticalization (cf. Breban & Kranich 2015). "Path" is a metaphorical way of speaking of extensions of meaning and function of a certain morpheme or construction in a certain language from one category to different one, and often beyond that to one or more other categories. The

8. Note that there have been two previous attempts to represent the grammaticalization paths of Japanese tense/aspect markers, one by Goto (2001) and one by Watanabe (2005), which is supposed to integrate findings from other languages as well. There is some overlap with both, but also some divergences. For example, Goto (2001) posits that perfective proceeds perfect, and in order to be consistent with this order, has to claim that *tari >Ta* has no perfective usage. Watanabe (2005) claims that *-Te wi-* already grammaticalized in the Heian period as a marker of resultative, which is not generally accepted in more recent research.

extensions are usually unidirectional, meaning that paths always have a direction from source(s) to goal(s). A path becomes relevant for general linguistics when it can be observed recurrently in more than one language. Usually, there is only a limited number of cross-linguistically recurring grammaticalization paths for any category (cf. Heine & Kuteva 2002 for the most extensive listing of grammaticalization paths). The classic study of grammaticalization paths in the domain of tense and aspect is still Bybee et al. (1994).

When reviewing the changes seen in Japanese, as described in Section 4, it is clear that many of them belong to just one major pathway of grammaticalization, including some variations. This is a pathway from the lexical verbs 'be' or 'sit' to the aspectual notions of resultative or inceptive/completive, and then further to perfect, perfective, past, and finally mood. It is represented in Table 5, with historical prior meanings and functions depicted further to the left, historically later meanings and functions to the right, and the arrow indicating a process of meaning/function extension.

Table 5. The resultative-perfect-past path[9]



Now, the question is to which extent this path, or bundle of parallel paths, confirms or contradicts cross-linguistic paths. Comparing this bundle of pathways to the paths described in Bybee et al.'s (1994), it is clear that it coincides with their "paths of development leading to simple past and perfective grams" (p. 105; Bybee

9. As stated in 3.1, while *-t-* and *-n-* are generally labeled as 'perfective' since Old Japanese, researchers (e.g. Nakanishi 1996: 80–126; Takeuchi 2014) have attributed their differences in distribution to presumptive different origins as 'inceptive' (*-n-*) vs. completive (*-t-*). While this is only a reconstruction, it is a widely accepted reconstruction, so we have included it in Table 5.

et al.'s "anterior" is equivalent to "perfect") as in Figure 1 (the depiction of change and directionality is the same as in Table 5 above).

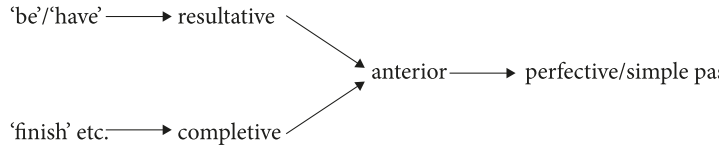


Figure 1. Bybee et al.'s (1994: 105) paths to simple past (excerpt)

If *-Te sima(w)-*'s more recent development from "finish" to "completive" (cf. Section 2.4) is added to Table 5, all cross-linguistic common paths have an instantiation in Japanese. Furthermore, note that the "paths of development leading to simple past and perfective grams" happen to be the only paths that receive a graphic representation in Bybee et al. (1994), bearing witness to the fact that this is the most common bundle of grammaticalization paths in the languages of the world (at least, as based on Bybee et al.'s (1994) data). Thus, the bundle of paths that is most common in Japanese is also the most common cross-linguistically.

Besides this major pathway, it is possible to identify a second, smaller, bundle of paths in which fewer morphemes and constructions participate. Specifically, if we analyze the smaller steps in the development of the suffixes and constructions related to imperfective functions, the paths of development as in Table 6 can be hypothesized. Note that the inclusion of *-tari/eri* is tentative because only few authors ascribe a progressive use to it. Furthermore, the steps in the development for *-(r)u/-(ur)u* are entirely reconstructed, since we only know it with all its grammatical functions developed in OJ. We are assuming here that among these functions, the ones that got weakened in historical times are older while those that got strengthened are the newer ones. By losing progressive function with activities, and through the decline of *-am-* as future, *-(ur)u* as a default form has come to indicate future with most aspectual verb classes, and therefore has future meaning with most verbs in sentence-final position in ModJ. That was not yet the case in Old and Late Old Japanese, where it was still broadly used in "present" contexts with all aspectual verb classes.

Bybee et al. (1994) do not have a figure for grammaticalization paths along this line, parallel to the one representing the development of past meaning, as represented in Figure 1 in their study. However, they do have plenty of information on the cross-linguistic developments of various types of imperfective aspects, present tense and future, especially so-called "aspectual futures" that are an extension of "present" and imperfective functions (pp. 275–277).

Table 6. The progressive-present-future path

	X+'be'/	/ X+ 'sit'	progressive	habitual	(present)	future
-(r)u/-(ur)u		●	●	●	●	●
-tari/-(y)eri	●	●	○			
-Te wi- > -Te i-		●	●	●		

First, we know that it is cross-linguistically common for verbs with meanings like 'be' and 'sit' to develop into progressives. These are in fact the most common sources for progressives according to the data by Bybee et al. (1994: 128–129). Habituals are cross-linguistically usually unmarked. They are most often secondarily expressed by morphemes with other primary functions, such as presents and progressives. In fact, in the "development [of progressives into presents and imperfectives] the progressives extend to cover habitual functions, and the result is a gram of very general meaning." That is what we are also hypothesizing for the Japanese morphemes. Now, what is a present? It is basically a morpheme that can express both progressive and habitual in non-past and non-future contexts, that is, a present imperfective. Thus the "present" is not really an additional stage, and is therefore bracketed in Table 6 above. States and generic situations may be added to progressive and habitual function (cf. Bybee et al. 1994: 141). These additional meanings are also clearly also available to *-(r)u/-(ur)u* in OJ. *-Te i-* in contrast has progressive, sometimes stative, and occasionally habitual but not generic function (cf. Section 2.1). It may be on the way to become a present, but hasn't arrived there yet. In fact, one might speculate that *-Te i-* could continue its path and at some point become the new non-past (present/future) form if *-(u)ru* has entirely bleached out.

Future is cross-linguistically often an extension of such present imperfectives. Bybee et al. (1994: 276) state that "the presents used as futures tend to be highly generalized, having progressive, habitual, gnomic [=generic], and often narrative uses." This suggests that the more specific meaning they once might have possessed has given way to a meaning so highly generalized that it is strongly influenced by the context. This again clearly applies to *-(r)u/-(ur)u* already in OJ.

If we combine the paths in Bybee et al. (1994) with progressive, present, and future to one line of development as in Figure 1, the result is Figure 2, which is practically identical to Table 6.

'be'/'sit' etc. → progressive → habitual → present → future

Figure 2. Paths to present and aspectual future, according to Bybee et al.'s (1994, ch. 5, 7)

Thus, overall it seems that the development of individual Japanese tense and aspect forms conforms quite perfectly to the cross-linguistically attested avenues of grammaticalization in this domain, at least at the coarse-grained level of description in terms of "paths." The details of change, such as the perfective marker reinforcing the past marker before becoming the past marker itself may warrant some attention. Reinforcement as such is not something uncommon, as a glance at the development of other categories shows. We know, for example, from cycles of negation that new negation markers may start out as a reinforcement of old ones (cf. e.g., van Gelderen 2013), or that modal verbs may have started out as a reinforcement of old mood markers (cf. e.g., Fischer 2003). But with tense-aspect, especially in the past domain, this is obviously something less noticed yet.

5.2 Category climbing

An issue with respect to change in markers of tense and aspect that is broadly raised in this volume is change with respect to hierarchies of functional categories. It has been claimed that scope hierarchies can also be reinterpreted as hypotheses about diachronic change: "semantic change as a rule proceeds from a category lower in a scope hierarchy, that is, narrower in semantic scope, to a category which is higher category or at least equal, that is equal or wider in scope" (Narrog 2012: 100). The earliest mention of such a hypothesis is Hengeveld (1989: 142): "Diachronic developments in the field of operators tend to follow the direction $\pi_1 > \pi_2 > \pi_3 > \pi_4$", where π with a smaller number stands for an operator (category) at a lower layer of clause structure." The motivation is that speakers over time appropriate propositional contents items (lower in the hierarchy) for expressing categories that are related deictically to the speaker, the hearer and the discourse setting (cf. Narrog 2012: 104–110). In Hengeveld et al. (2017) a whole volume was dedicated to the topic in the domain of tense, aspect, modality and evidentiality in a Functional Discourse Grammar framework.

My take on the hierarchy of verbal categories based mainly on Japanese data, and centered on modal categories was previously published in Narrog (2009, 2012, 2017), and is represented in Table 7.[10]

This hierarchy is much more detailed with respect to modality than to other categories, because it is based on a detailed scope analysis of modal categories (Narrog 2010), for which the other categories, including tense and aspect only served as a parameter of comparison. Nevertheless, the distinction of two aspectual categories and tense is sufficient for the purposes here. With respect to the

10. I have deleted negation from Table 7, since negation can operate at more than one layer and is therefore not a reliable criterion.

Table 7. Hierarchy of verbal categories (Narrog 2012, 2017)

Non-modal categories	Modal categories
	▲ Illocutionary modification
	Volitive moods (imperative, hortative)
	Epistemic modality 3 (speculative, epistemic mood)
Tense	Evidentiality 3 (reportive)
	Epistemic modality 2 (epistemic possibility)
	Deontic modality 2 (valuative obligation, recommendation)
	Evidentiality 2 (inferential evidentials)
	Epistemic modality 1 (epistemic necessity/ expectation)
Perfective/Imperfective aspect	Deontic modality 1 (necessity)
	Evidentiality 1 (predictive appearance)
Phasal aspect	Boulomaic modality
	Dynamic modality
Benefactives	
Voice	

categories cited in this paper, phasal aspect, which divides events into phases, includes resultative, completive/inceptive and progressive, while perfective/imperfective aspect, which classifies events as a whole, includes perfective, imperfective and habitual, and tense includes past, present and future. Only the perfect has no position in this hierarchy, which is due to the fact that in Japanese it has not had a unique, dedicated expression but has instead been expressed secondarily through the expression of other tense and aspect marker. It is reasonable to assume that this category is at the transition from aspect to tense, that is, one step more advanced than perfective/imperfective aspect. However, it is not possible to locate it in the hierarchy above "perfective/imperfective Aspect," because its expression does not have systematically different scope properties than perfective/imperfective aspect.

According to this hypothesis, tense is generally located higher than aspect (cf. also Hengeveld 2011), and mood higher than tense, and therefore tense becomes a potential target of change for aspect, and mood for tense (or aspect). Furthermore, on a more fine-grained level, there might be "climbing" from specific sub-categories of aspect and tense lower in the hierarchy to others higher in the hierarchy. However, this hierarchy does not constrain concretely which category may extend to which other category. All categories higher in the hierarchy are equally potential targets for any category, although empirically only a few are. In this sense, it is less informative than the traditional grammaticalizaton paths. Its

merit is that it adds a hypothesis about syntactic change that is not contained in grammaticalization paths.

The following Table 8 lists the changes described in previous sections that can be related to this hierarchy bottom-up.

Table 8. Change with respect to tense and aspect within the hierarchy of categories

Source category	**Target category**	**Form(s)**
Phasal aspect	**Perfective/imperfective aspect**	
resultative	perfective, perfect	*-tari/Ta*, *-(y)eri*
completive/inceptive	perfective	*-t-/-n-*
progressive	habitual	*-Te i-*
Aspect	**Tense**	
progressive	future	*-(r)u/-(u)ru*
perfective	past	*-t-/-n-*, *-tari/Ta*
Tense	**Mood**	
future	mood (speech act)	*-(a)m/-(y)oo*

-Tari/-Ta underwent extension from resultative to perfective, perfect and past, and *-t-/-n-* from completive/inceptive to perfective and past. *-Te i-* in Middle Japanese was first resultative according to Kinsui (2005: 15) before extending to progressive uses (cf. 4.5). However, in Modern Japanese, habitual uses are also noted (cf. Section 2.1). If the analysis by Kuroda (2006), Yamaguchi (1986) and Kinsui (1993) (cf. Section 3.4) is correct, *-(r)u/(u)ru* started out as a continuous form with very few if any future uses, which are one salient characteristic of *-(ur)u* in Modern Japanese (cf. Sections 2.3, 5.1). So, while it has arguably largely been a default form, the actual range of expression has shifted towards non-continuous and non-realized events (cf. Section 2.3), partially replacing *-(a)m* (cf. 3.3). *-(a)m/-(y)oo* at least shifted its weight from partly temporal to entirely modal. We refrained from including the change of *-(r)u/-(u)ru* towards perfective in the table, because this would not be perfective in the same sense as *-t-/-n/-Ta* were (or are) perfective (cf. Section 2.3).

In any case, a potentially interesting question is if the category climbing was reflected in structure, and not only in meaning and function. Addressing this question requires more detailed analyses of the change of individual markers and constructions than I have presented here. Essentially one would have to look at the subtle changes in distribution accompanying the extension of use contexts in semantic change. But at least two of the semantic changes represented in Table 8

accompany structural changes that allow some insight into the effects of the change even without more contextual detail.

First, we have claimed here that the tense-mood marker *-(a)m-* in Old and Late Old Japanese has shifted to a pure mood marker in ModJ. In terms of "active" scope, that is, the categories it can take scope over, there has been no obvious effect of the presumptive semantic development: ModJ *-(y)oo* is suffixed to the same verb form that Old and Late Old Japanese *-(a)m-* was suffixed to, namely the verb stem. This verb form does not allow the intervention of an inflection, which might introduce another category between stem and suffix. However, the "passive" scope properties, that is, the categories it takes scope under, have changed. This is indicative of a loss of possibility to occupy relatively lower positions on a scope hierarchy.

Concretely, while the ModJ inflection *-(y)oo* is non-inflecting itself, the tense-mood marker *-(a)m-* was still a suffix subject to inflection. The past ending *-si* could be added, resulting in "irrealis" (cf. $\text{MoodP}_{\text{irrealis}}$) *-(a)ma.si*). Furthermore, the conditional ending *-(ur)e* was suffixed, resulting in the form *-(a)m.e*, and the cleft subordinator *-(ura)ku*, resulting in *-(a)m.aku*. While these subordinating categories are not represented in the hierarchy in Table 7, they indicate tightly integrated subordinate clauses that cannot have high-ranking mood categories in its scope. In colloquial ModJ *-(y)oo* is only followed by illocutionary force-indicating particles and quotatives that can embed whole utterances in direct quotation.[11] We can infer from these facts that *-(y)oo* has moved further up in the syntactic hierarchy of categories than OJ or LOJ *-(a)m-* was.

The case of *-tari/Ta* is similar. Its "active" scope has not changed, since *-Ta* is still suffixed to the same verb form, the verb base on *-i*, that *-tari* was suffixed to. A context extension/grammaticalization is nevertheless obvious in that (a) ModJ *-Ta* can be added to any verb, and does not compete with another morpheme as *-tari* did with *-yeri* in OJ and LOJ, and (b) it can meanwhile be added to verbs of existence (*ar-*, *i-*, *or-*), while it was originally derived from one, and could at least not be added to its own lexical source *ari* and forms derived from it. But these changes themselves do not necessary entail scope increase. On the other hand, originally *-tari* was fully inflecting, which included marking for conditional (*-tar.e*, *-tar.aba*), adnominal subordination (*-tar.u*), negation (*-tar.azu*), past (*-tari.ki/si*), and it was also followed by further inflecting suffixes such as the future *-(a)m-* in *-tar-am-*. Only some of these possibilities were retained in terms of scope hierarchy: *-Ta* can be followed by the conditional particle *nara*, for

11. Note though, that in written style and idiomatic expressions, *-(y)oo* is still found embedded in idiomatic subordinate constructions, e.g. *-(y)oo tame* 'in order to' etc., which make it subjunctive mood-like.

example, and it can still be used in adnominal position without further inflection. However, it cannot be modified by tense suffixes. This is a clear indication for having climbed to a tense node itself. It can also not be followed by simple propositional negation but only by the meta-negation construction *no=de=wa na-*.

We can thus see some evidence for syntactic category climbing, as hypothesized in Narrog (2012) even in a coarse-grained perspective. Finding evidence for category climbing for each semantic extension would require a more subtle contextual analysis of each morpheme and construction.

Overall, as in the case of the grammaticalization paths (Section 5.1), the historical changes in tense and aspect in Japanese, seem to confirm rather than contradict, cross-linguistic findings. The extensions from one category to another are not unique but in accordance with strong cross-linguistic tendencies, which are in turn likely based on universal cognitive mechanisms (cf. Heine 1997, ch. 1; Narrog 2017: 104). Besides confirmation or disconfirmation of overall hierarchies, Japanese can also contribute to empirical information about which among the possible changes actually occur empirically. It also contributes in a unique manner to the question of realization of scope, because of its agglutinative nature. As seen in this section, changes in "active" scope, that is, which other categories a category can take scope over may be limited once the category has become a suffix with a fixed position in the morphological "template" of a verb. On the other hand, "passive" scope, that is, which other categories can take scope over it, seems to be more easily susceptible to historical change.

Abbreviations

ABL ablative
ACC accusative
ADV adverbial
ANP adnominal present
APT adnominal preterite
BOU boulomaic
CAL causal
CFC contrastive focus
CLA classifier
CNC concessive
COM comitative
CON conditional
COP copula
CPT conditional preterite
DAT dative
DEO deontic
DUR durative
EPI epistemic
ESS essive
EVI evidential
EXC exclamative
FNP finite non-past
FOC focus
FUT future
GEN genitive
GER gerund
HON honorative
ILL illocutionary modifier
J Japanese
L late
LIM limitative
LOC locative

NEG	negation
NOM	nominative
NPS	non-past
O	Old
PFV	perfective
PRE	presuppositional
PRT	preterite
PST	past tense
QUE	interrogative
RSP	respective
TOP	topic
VBZ	verbalization

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Continuity and change in the aspect systems of Vedic and Latin*

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1. Introductory remarks

Within the Indo-European language family, a development from aspect-centered to tense-centered verb systems is often observed. However, although it is something like a truism that this development often occurs, the exact mechanisms of change are less than obvious. As a consequence, it is difficult to understand why, for instance, Vedic and Latin, which at the beginning of their attested traditions have typologically similar verbal systems where aspect plays an important role, show fundamentally different patterns of development. This contribution sets out to explore how different types of markedness relations interact in the development of the tense/aspect systems in these languages and how they can be captured theoretically.

Vedic and Latin have complex inflectional verbal systems with a considerable degree of formal and functional overlap. In both of these languages, different verbal stems represent the primary morphosyntactic means for expressing aspectual distinctions, which on the face of it are rather similar. Early Vedic has a three-way morphological distinction between the perfective aorist stem, the neutral present stem from which the imperfect is formed, and the anterior/retrospective perfect stem (cf. e.g., Dahl 2010). All of these categories are inherited from Proto-Indo-European (PIE). The Latin aspect system is based on an opposition between the imperfective infectum from which the imperfect is derived and the perfective perfectum from which the perfect is derived (cf. e.g., Devine & Stephens 2013). The imperfect largely results from a number of prehistoric innovations peculiar to Italic, while the perfect results from a merger of the PIE aorist and perfect.

Although the languages under consideration have analogous tense/aspect systems early on, they differ considerably in their diachronic behavior. Vedic gradually develops a remoteness- and evidentiality-based tense system where aspect

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plays little or no role (Dahl 2015), while the Latin aspect system remains largely intact through its attested history (Haverling 2010), and forms an important part of the tense/aspect system of present-day Romance languages. On closer examination, however, one may discern some small, yet significant changes in the Latin aspect system, suggestive of markedness reversal between the perfect and imperfect. This paper explores how different types of markedness relations interact in the development of the two aspect systems attested in these languages and how they can be captured theoretically. The discussion draws on two frameworks that emphasize different dimensions of aspectual semantics, a neo-Reichenbachian type of model employed in Dahl (2010, 2015) and the one developed in Altshuler (2013, 2014).

2. Two approaches to aspectual semantics

2.1 Aspect as a relation between temporal parameters – A neo-Reichenbachian approach

Many recent studies of aspect and tense are in some way or the other indebted to the logician Hans Reichenbach (Reichenbach 1947), who established that at least three temporal parameters are needed to account for temporal relations in natural language. These are *speech time* or the time of the utterance, *event time* or the run time of the event denoted by the predicate, and *reference time* or the time spoken about. Within the tradition of Discourse Representation Theory, Kamp & Reyle (1993) and Eberle & Kasper (1994) have shown that Reichenbach's reference time in fact comprises two parameters, and that a fourth parameter, *perspective time* or *evaluation time* representing the temporal perspective of the speaker, should be added to the model. Evaluation time usually coincides with speech time by default, but it can be shifted by various morphosyntactic means.

Scholars like Klein (1995) and Kiparsky (1998, 2002) assume that the parameters have intervals as input, and define aspect as a type of relation between event time and reference time. On this approach, a number of relations may hold between the temporal parameters, including general inclusion (A⊆B reads 'A is included in B'), proper inclusion (A⊂B reads 'A is properly included in B') and overlap (A⊗B reads 'A overlaps with B').[1]

A model of this kind allows for differentiating a number of categories, as outlined in Table 1.

1. Other relations relevant for tense semantics include general precedence (A<B reads 'A precedes B') and immediate precedence (A >< B reads 'A immediately precedes B').

Table 1. The semantic specification of some recurring aspect categories

Name	Neutral	Imperfective	Progressive	Perfective
Semantic specification	$t' \otimes t_E$	$t' \subseteq t_E$	$t' \subset t_E$	$t_E \subseteq t'$

In this model, the imperfective and perfective aspects represent opposite inclusion relations between reference time and event time, while the progressive aspect represents a semantically specific variant of the imperfective. The neutral aspect represents a radically underspecified aspectual type, denoting a general overlap relation between reference time and event time and being compatible with imperfective and perfective readings. The neutral aspect is the unmarked category in aspect systems based on a privative opposition between a marked, specific aspectual category and an unmarked, underspecified category.

2.2 Aspectual categories as partitive operators – Altshuler (2014)

Recently, Altshuler (2014) has developed an approach to aspectual semantics based on a distinction between partitive and non-partitive aspectual operators. The Hindi complex verb (CV) perfective is an example of a non-partitive aspectual operator, which return "a set of event wholes (not parts), with culminations" (Altshuler 2014: 763). Partitive operators, on the other hand, represent "functions that return VP-event stages" (Altshuler 2014: 738), and may be either perfective or imperfective. Specifically, Altshuler gives the following definitions of perfective and imperfective operators (2014: 771):

a. An operator is perfective if it requires a maximal stage of an event in the extension of the VP that it combines with.
b. An operator is imperfective if it requires a stage of an event in the extension of the VP that it combines with, but this stage need not be maximal.

According to Altshuler (2013, 2014), the Hindi simple verb (SV) perfective represents a perfective partitive operator, while the Russian imperfective represents an imperfective partitive operator. Moreover, partitive operators differ with regard to whether they select for proper stages of an event or not and whether they select for (a set of) singular events or not (Altshuler 2014: 757). The proper stage requirement essentially amounts to coercion of achievement predicates, which are taken to have no proper parts, into accomplishment-like predicate, as in a sentence like *He was dying*. Based on these three requirements, Altshuler (2014: 765) proposes a typology of partitive operators, given in slightly adapted form in Table 2.

Table 2. The semantic specification of some partitive/aspectual operators (adapted from Altshuler (2014:765)

Partitive operator	Proper stages?	Singular events?	Max stage?
Hindi Simple Verb perfective	*No*	*Yes*	*Yes*
Russian IPF	*No*	*No*	*No*
English PROG	*Yes*	*Yes*	*No*
French IPF	*Yes*	*No*	*No*
????	*Yes*	*Yes*	*Yes*
????	*No*	*No*	*Yes*
????	*No*	*Yes*	*No*
????	*Yes*	*No*	*Yes*

3. Chronological stages of Vedic and Latin

In the present context, Vedic is used to refer to the language of the so-called Vedas and their commentaries. As the historical context of the Vedic texts remains opaque, it is difficult to establish an absolute chronology for these texts. It is probable that the earliest extant text, the Rigveda, had attained the form known to us somewhere around 1200 BC. The latest Vedic texts are probably not much younger than 600 BC. Our absolute chronological framework thus covers about six centuries, from approximately 1200 to 600 BC.

One may distinguish at least five distinct chronological stages of Vedic. These are summarized in Table 3a (cf. e.g., Witzel 1989, 1995).[2]

Table 3a. Chronological stages of Vedic

Early Vedic:	The language of the *Rigveda* (RV)
Early Middle Vedic:	The language of the mantra parts of the Atharvaveda (AVŚ, AVP), the Yajurveda (Vajasaneyī Saṃhitā [VSM, VSK], Taittiriyasaṃhitā [TS^M], Maitrāyaṇī Saṃhitā [MS^M], Kaṭhakasaṃhitā [KS^M]) and the Rigvedakhilāni (RVK)
Middle Vedic:	The language of the oldest Vedic prose texts (e.g. Taittiriyasaṃhitā [TS^P], Maitrāyaṇī Saṃhitā [MS^P], Kaṭhakasaṃhitā [KS^P])
Late Middle Vedic:	The language of the younger Vedic prose texts (e.g. Aitareyabrāhmaṇa [AB VI–VIII], Śatapathabrāhmaṇa [ŚBM I–V, X 6–XIV], Jaiminīyabrāhmaṇa [JB])
Late Vedic ≈ Classical Sanskrit	The language of the youngest Vedic prose texts (e.g. ŚBM X 6.4–6.5.8, XIV 4.1–9.4)

2. Kulikov (2013) provides a slightly different chronological framework.

Latin was originally an Italic dialect spoken in the region surrounding Rome, eventually becoming the dominant language in the Mediterranean region and Western Europe. In the case of Latin, we may distinguish the chronological stages listed in Table 3b.

Table 3b. The periods of the Latin language (after Cuzzolin & Haverling 2009: 20)*

Archaic Latin	7th century BC – ca. 240 BC
Early Latin	ca. 240 BC – ca. 90 BC
Classical Latin ("Golden Age Latin")	ca. 90 BC – 14 AD
Postclassical Latin ("Silver Latin")	14 AD – ca. 200 AD
Late Latin	ca. 200 AD – ca. 600 AD

* Cf. Weiss (2009: 23–24) for a slightly different periodization of Latin.

4. Outline of the Early Vedic aspect system

Early Vedic is the language of the Rigveda, the oldest extant literary document of the Vedic tradition. At this stage, we find a two-way morphosyntactic opposition in the past tense system between the so-called imperfect and aorist, which according to Dahl (2010) differ in their aspectual properties, the aorist representing a perfective past tense (1), and the imperfect a general past tense, compatible with perfective-like and imperfective-like readings (2).

(1) a. *ṛtā́varī divó arkáir* ***abodhy*** *ā́*
truthful:NOM heaven:GEN songs.of.praise:INS awake:3SG.AOR unto
revátī ródasī citrám ***asthāt*** */*
brilliant:ACC two.worlds:ACC brightly mount:3SG.AOR
'The truthful (daughter) of heaven has been awakened by our chants [/been perceived with her rays]. The wealthy lady has brightly mounted the two world-halves' (RV III 61.6ab after Jamison & Brereton 2014: 553)

b. *nú ṣṭutá indra nú gṛṇāná íṣaṃ*
now praised:NOM.SG Indra:VOC.SG now celebrated:NOM.SG libation:ACC
jaritré nadyò ná pīpeḥ / ***ákāri***
singer:DAT rivers:NOM like make.swell:2SG.PRS.INJ be.made:3SG.AOR
te harivo bráhma návyaṃ
you:DAT having.bay.horses:VOC hymn:ACC new:ACC
'Now you have been praised, now you have been celebrated, you have made the libation swell for the singer like rivers. A new hymn has been made for you, o you whose horses are bay'.
(RV IV 16.21a-c after Dahl 2010: 265–266)

c. *anyó anyám ánu gṛbhṇāty enor apā́ṃ*
another:NOM another:ACC after take:3.SG.PRS the.two:GEN waters:GEN
prasargé yád ***ámandiṣātām*** */*
outburst:LOC when be.delighted:3DU.AOR
'One of the two grasps the other from behind, when they have become exhilarated in the discharge of the waters'. (RV VII 103.4 after Jamison 1993: 140)

d. *bahvī́ḥ sámā* ***akaram*** *antár asminn índraṃ*
many:ACC years:ACC do:1SG.AOR within this:LOC indra:ACC
vṛṇānáḥ pitáraṃ jahāmi /
choose:PRS.PRT.NOM father:ACC leave:1SG.PRS
'Many years I have worked in this (place). Choosing Indra, I am (now) leaving my father'.[3] (RV X 124.4, cf. Dahl 2010: 289)

These examples illustrate that aorist indicative forms may express that a situation has been completed prior to another situation in the past (1a) or to express that a situation has taken place just before the moment of speech (1b). Moreover, (1c) shows that aorist indicative forms of atelic predicates are sometimes used with a distinctively inchoative-ingressive reading, that is, to focus the entry into a state or situation. Finally, Example (1d) shows that aorist forms of atelic predicates sometimes have a terminative-egressive reading, imposing an endpoint on the situation denoted by the predicate. All of these readings are characteristic of perfective categories.

(2) a. *sáudhanvanā áśvād áśvam* ***atakṣata*** *yuktvā́*
sons.of.Sudhanvan:VOC horse:ABL horse:ACC shape:2.PL.IPF yoke:ABS
rátham úpa devā́m˚ ***ayātana*** *//*
wagon:ACC to gods:ACC drive:2.PL.IPF
'O sons of Sudhanvan, from a horse you created a (second) horse. Having yoked the wagon, you drove to the gods'. (RV I 161.7cd after Dahl 2010: 192)

3. Cf. Jamison & Brereton (2014: 354): "I have 'done' many years within him. (Now) choosing Indra, I leave the father."

b. *yáj jā́yathās tád áhar asya kā́me*
what:ACC be.born:2SG.PRS.INJ that:ACC day:ACC it:GEN love:LOC
'mšóḥ pīyū́ṣam ***apibo*** *giriṣṭhā́m /*
filament:GEN juice:ACC drink:2SG.IPF coming.from.the.mountains:ACC
táṃ te mātā́ pári yóṣā jánitrī maháḥ
this:ACC you:DAT mother:NOM round maiden:NOM parent:NOM great:GEN
pitúr dáma ***ā́siñcad*** *ágre //*
father:GEN home:LOC pour.out:3SG.IPF beginning:LOC
'On the day when you were born you voluptuously drank nectar of the plant which comes from the mountains. Your mother, the young maiden, was pouring it abundantly out for you in the house of your great father for the first time'. (RV III 48.2 after Dahl 2010: 203–204)

c. *yád vírūpā ~ ácaraṃ mártyeṣv*
when with.changed.appearance:NOM move:1SG.IPF mortals:LOC
ávasam *rā́trīḥ śarádaś cátasraḥ / ghṛtásya stokā́m*
dwell:1SG.IPF nights:ACC autumns:ACC four:ACC ghee:GEN drop:ACC
sakṝ́d áhna ***āśnāṃ*** *tā́d evá ~ idáṃ*
once day:GEN consume:1SG.IPF that:ABL so this:ACC
tātṛpāṇā́ carāmi //
satisfy:PRF.PRT.NOM move:1SG.PRS
'When I roamed among mortals I spent the nights (with you) for four years. Once a day I ate a drop of ghee. Satisfied with this I (still) roam about just like that'. (RV X 95.16 after Dahl 2010: 213–214)

In (2a), the imperfect form *atakṣata* 'created' denotes a situation which is represented as being completed prior to the situations denoted by the absolutive *yuktvā́* 'having yoked' and the imperfect form *ayātana* 'drove'. In contrast, the imperfect form *apibas* 'you drank, were drinking' in (2b) appears to denote a situation which is temporally overlapping with the situation denoted by the following imperfect *ā́siñcat* 'poured, was pouring'. Example (2c) illustrates that the Early Vedic imperfect sometimes has a past habitual reading. These examples illustrate that the Vedic imperfect is compatible with perfective-like and imperfective-like readings, thus seemingly being underspecified with respect to aspectual semantics.

5. Outline of the Early Latin aspect system

Early Latin is the language of the period from ca. 240 to 90 BC. Here, we find a binary morphosyntactic distinction in the past tense system between the so-called imperfect and perfect, the imperfect being associated with the readings in (3) and the perfect with the readings in (4).

(3) a. *Perduelles penetrant se in fugam; ibi nostris animus*
enemy:NOM set:3PL.PRS RFL to flight then our:DAT spirit:NOM
additust: vortentibus Telobois telis ***complebantur***
be.added:3SG.PRF fleeing:DAT Teloboans:DAT darts:ABL be.filled:3 PL.IPF
corpora, ipsus-que Amphitruo regem Pterelam
bodies:NOM himself-and Amphitryon:NOM king:ACC Pterelas:ACC
sua obtruncavit manu.
own:ABL cut.down:3SG.PRF hand:ABL
'The enemies took to flight; then our (men) were given (new) courage. While the bodies of the fleeing Teloboans were being filled with darts, Amphitryon himself killed king Pterelas with his own hand'.
(Plautus, *Amphitruo* 250–252)

b. *noctu in vigiliam quando* ***ibat*** *miles, quom tu*
night:ABL on guard:ACC when go:3SG.IPF soldier:NOM when you.NOM
ibas *simul,* ***conveniebat****-ne in vaginam tuam*
go:2SG.IPF at.the.same.time fit.well:3SG.IPF-PTC in sheath:ACC your:ACC
machaera militis?
sword:NOM soldier:GEN
'At night, when the soldier used to go on guard, when you went with him, did the soldier's sword fit your sheath well?' (Plautus, *Pseudolus* 1180–1181)[4]

These examples illustrate that the Early Latin imperfect primarily occurs in contexts implying a progressive-processual reading (3a) or a habitual reading (3b). Significantly, the Early Latin imperfect does not seem to be compatible with perfective-like readings, unlike the Vedic imperfect. This fact suggests that these two categories differ in typologically relevant respects.

4. The immediately preceding context shows the habitual character of the discourse fragment:
Bal. Etiamne facere solitus es scin quid loquar?
and.also do:INF used be:2SG.PRF know:2SG.PRS what:ACC say:1SG.PRS.SBJ
Sim. Scilicet solitum esse.
be.certain:3SG.PRS used be:INF
Har. Sani-ne estis?
sane:NOM-PTC be:2PL.PRS
Bal. Quíd hoc quod te rogo?
What:NOM this:NOM that:ACC you:ACC ask:1SG.PRS
'[Ballio:] "And you are also used to doing it – you know what I say?" Simo: "It is clear that he is used (to it)." [Harpax:] "Are you insane?" [Ballio:] "What is this that I am asking you?"' (Plautus, Pseudolus 1178–79)

(4) a. *nam noctu hac* ***soluta est*** *navis nostra e*
for night:ABL this:ABL released be.3SG.PRS ship:NOM our:NOM out.of
portu Persico, et ubi Pterela rex regnavit
harbor:ABL Persian:ABL and where Pterelas:NOM king:NOM reign:3SG.PRF
oppidum ***expugnavimus*** *, et legiones Teloboarum vi*
city:ACC take.by.storm:1PL.PRF and legions:ACC Teleboans:GEN force:ABL
pugnando ***cepimus,*** *et ipsus Amphitruo optruncavit*
fighting take:1PL.PRF and himself Amphitryon:NOM cut.down:3SG.PRF
regem Pterelam in proelio.
king:ACC Pterelas:ACC in battle:ABL
'For last night our ship went out of the Persian harbor, and we took the city where king Pterelas reigned by storm, and we conquered the legions of the Teleboans by force, and Amphitryon himself killed king Pterelas in battle'. (Plautus, *Amphitruo* 412–415)

b. Ap.: *At pol ego te credidi uxorem, quam*
but by.Pollux I:NOM you:ACC believe:1SG.PRF wife:ACC who:ACC
tu extulisti, pudore exsequi, cuius quotiens
you:NOM bury:2SG.PRF decency:ABL follow:INF who:GEN as.often
sepulcrum vides, sacruficas ilico Orco
grave:ACC see:2SG.PRS sacrifice:2SG.PRS instantly Orcus:DAT
hostiis, neque adeo iniuria, quia
victims:ABL and.not moreover injustice:ABL because
licitum-'st eam tibi vivendo vincere.
permitted be:3SG.PRS she:ACC you:DAT living win:INF

Per.: *Oh Hercules ego* ***fui,*** *dum illa mecum*
Oh. Hercules:NOM I:NOM be:1SG.PRF while she:NOM with.me
fuit
be:3SG.PRF
'[Apoecides:]"But by Pollux, I thought that you would follow your wife, whom you have buried, in decency, as often as you see her grave, you immediately sacrifice victims to Orcus, and not, moreover, without reason, since it has been allowed you to get the better of her by living on." [Periphianes:] "Oh! I was a Hercules while she was with me (…)"' (Plautus, *Epidicus* 172–177)

c. *Iam perdidisti te atque me atque operam meam,*
already destroy:2SG.PRF you:ACC and I:ACC and effort:ACC my:ACC
qui tibi nequiquam ***saepe monstravi*** *bene.*
who:NOM you:DAT in.vain often show:1SG.PRF good
'You have already destroyed yourself, me and my effort, I, who have often shown you in vain what's good' (Plautus, *Bacchides* 132–133)

These examples illustrate that the perfect is restricted to contexts implying that the situation denoted by the predicate has been terminated prior to the time of the utterance with a sequential reading, as in (4a), it can give an overview of a past situation or state, as in (4b), and describe a recurring situation in the past (4c). Unlike the Vedic aorist, the Early Latin perfect does not seem to be compatible with an inchoative-ingressive meaning (cf. also Haverling 2010: 501).

6. Interim summary: The Early Vedic and Early Latin aspectual systems compared

The data reviewed in the previous sections reveal that there are significant points of functional correlation between the Early Vedic imperfect and the Early Latin imperfect, on the one hand, and between the Early Latin perfect and the Early Vedic aorist on the other. However, the empirical evidence also indicates a number of typologically significant differences between the Early Vedic and Early Latin past tense categories:

- The Early Vedic imperfect is compatible with perfective-like readings, for instance in contexts implying a sequence of events (e.g. (3a)). The Early Latin imperfect does not occur in this kind of context.
- In Early Vedic, aorist forms of atelic predicates are compatible with an inchoative-ingressive reading (e.g., (1c)). The Early Latin perfect does not have this meaning, which is typically conveyed by auxiliary verbs, notably *coepi* 'begin' (cf. Haverling 2010).[5]

These observations suggest that the two languages under consideration do not have identical initial conditions, after all. In the following, we explore how the two theoretical approaches developed above may be employed to account for the differences between the Vedic and Latin aspect systems.

7. The development of the Vedic past tense system according to Dahl (2015)

Recent work on Vedic tense/aspect semantics (e.g., Dahl 2010, 2015 and elsewhere) builds on the neo-Reichenbachian model outlined in Section 2.1 and the neutral aspect plays a key role in the analysis of the past tenses both synchroni-

5. Galdi (2016) provides a valuable discussion of the development of *coepi* through the various stages of Latin.

cally and diachronically. Synchronically, the Early Vedic imperfect (cf. the examples in (2)) is taken to represent a past neutral category, which is the unmarked member of a privative opposition where the past perfective aorist (cf. the examples in (1)) represents the marked member. In a diachronic perspective, Dahl (2015) suggests that the perfective aorist gradually loses its perfective readings, ultimately developing neutral aspectual semantics. Another way of describing this development is that it represents a change from a verbal system where aspect interacts with tense to a system where aspect plays no role, and understanding the process in terms of semantic neutralization on the level of aspectual reference. The most important evidence for this change is that the aorist becomes acceptable in contexts demanding imperfective readings, a change involving a significant alteration of its aspectual reference from perfective ($t_E \subseteq t'$) to neutral ($t' \otimes t_E$). This is illustrated in the Late Vedic example cited in (5)

(5) *tasmin ha ūdāte tvaṃ hantā asi tvaṃ*
thereupon then say:3DU.PRF you:NOM killer:NOM be:2SG.PRS you:NOM
hantā asi iti sa ha vṛśo 'bhīśūn prakīrtya
killer:NOM be:2SG.PRS QP he:NOM then Vṛśa:NOM bridles:ACC throw.forth:ABS
avatiṣṭhann uvāca tvaṃ hantā asi iti na iti
be.going.down:NOM say:3SG.PRS you:NOM killer:NOM be:2SG.PRS QP no QP
ha uvāca yo vai rathaṃ saṃgṛhṇāti sa
then say:3SG.PRF who:NOM indeed chariot:ACC hold:3SG.PRS he:NOM
rathasya īśe tvaṃ hantā asi na iti ha itara
chariot:GEN lord:NOM you:NOM killer:NOM be:2SG.PRS no QP then other:NOM
*uvāca apa vā aham **āyāṃsaṃ**, sa tvam*
say:3SG.PRF PRV indeed I:NOM restrain:1SG.AOR this:NOM you:NOM
abhiprāyauṣīs tvam eva hantā asi iti
agitate:2SG.AOR you:NOM so killer:NOM be:2SG.PRS QP
'Then they started arguing: "You are the killer, you are the killer. Having laid down the two bridles, Vṛśa said while stepping down: "You are the killer". "No," he said, "he who has hold on the wagon, he is the lord of the wagon. You are the killer.". "No," said the other, "I was stopping, but you were agitating. Thus you are the killer."' (JB III 94)

The Vedic imperfect, on the other hand, maintains its neutral past semantics throughout the various stages of the language (cf. Dahl 2015 for discussion).

8. An alternative account of the development of the Vedic past tense system

The question now arises as to how Altshuler's (2014) framework would deal with the Vedic data. First, given that the Early Vedic aorist is perfective, is it partitive or non-partitive? A possible heuristic for deciding between these options concerns lexical restrictions. While partitive perfective operators characteristically combine with telic and atelic predicates alike, non-partitive perfective operators tend to be restricted to telic predicates (cf. e.g., Singh 1998). Examples like (1c) and (1d) show that the Early Vedic aorist was compatible with activity and state predicates, but such forms characteristically give rise to markedly perfective readings that seemingly imply that some form of culmination is imposed on the atelic event. I therefore conclude that the Early Vedic aorist represented what in Altshuler's model is a non-partitive perfective category and the development of the aorist sketched earlier may be accounted for as a typologically significant change from a non-partitive to a partitive operator. Note also that the aorist is restricted to singular events throughout its attested history.

Previous works discussing the development of the Vedic past tense system have had little to say about the imperfect, simply noting that it maintains its general neutral past semantics through the various stages of the language. However, in Altshuler's system this description makes little sense, since there is no such thing as neutral aspectual semantics in this model. The Vedic imperfect must be either perfective or imperfective, that is, it either requires a maximal stage of an event or only requires a (not necessarily, but possibly maximal) stage of an event. Although the Early Vedic imperfect in many, probably most cases seems to denote the maximal stage of an event, examples like the ones cited in (2b) above and (6a) below, where imperfect forms are used to denote temporally overlapping situations, suggest that this category does not require a maximal stage of the event, but only a stage. Example (6b) shows that Early Vedic imperfect forms of achievement predicates do not trigger coercion into accomplishment-like predicates, indicating that the imperfect fails the proper stage requirement.

(6) a. ***ágūhat*** *támo* *vy* ***àcakṣayat*** *svàḥ //*
cover:3SG.IPF darkness:ACC PRV appear:3SG.IPF sun:ACC
'He covered the darkness, letting the sun appear' (RV II 24.3d)

b. *víśvām* ***avindan*** *pathyàṃ ṛtásya prajānánn ít*
all:ACC find:3PL.IPF path:ACC fixed.order:GEN know:PRS.PRT.NOM indeed
tấ námasā ~ ấ viveśa //
they:ACC adoration:INS at settle:3SG.PRF
'They found the whole path of truth. Himself knowing the way, he [=Indra] entered among them [=the cows] with homage'.
(RV III 31.5cd after Jamison & Brereton 2014: 509)

These considerations suggest that the Early Vedic imperfect represents an imperfective category of roughly the same type as the Russian IPF in Altshuler's taxonomy, that is, it satisfies none of the requirements and essentially represents a radically underspecified aspectual category.

Interestingly, Altshuler's model seemingly falsifies a claim made in previous work (Dahl 2015), that the imperfect remains functionally stable through the various stages of Vedic. While the Early Vedic imperfect is compatible with a past habitual reading, as illustrated in Example (2c) above, the Middle and Late Vedic imperfect appears to be restricted to cases where it describes a single, specific situation in the past, suggesting that it has become subject to the singular event constraint. This point was not taken into consideration in Dahl (2015), even though it clearly is suggestive of a typologically significant semantic change. It is likely that this development is linked to the emergence in Middle Vedic of a construction with a past iterative-habitual reading, where present forms combine with *ha sma (purá)*, illustrated in (6c).

(6) c. *eténa* ***ha sma*** *vấ ṛ́ṣayaḥ* ***purá*** *vijñấnena dīrghasattrám*
this:INS PTC PTC PTC sages:NOM PTC understanding:INS long.sattra:ACC
úpa yanti
PRV go:PRS.3PL
'With this understanding, the sages used to perform[6] the long sattra-ritual'.
(TS^{P} III 3.8.5)

Table 4 summarizes the semantic properties of the Early Vedic and Middle/Late Vedic imperfect. Note that the Middle/Late Vedic imperfect and the Late Vedic aorist have essentially identical aspectual properties and instantiate one of the unattested categories in Altshuler's taxonomy given in Table 2. Furthermore, non-partitive perfective categories like the Early Vedic aorist are by definition unable to pick out proper stages, hence the value N/A in the table.

6. The compound verb *úpa-ay-* literally means 'go towards', but has the secondary meaning 'perform'.

Table 4. The semantic specification of the past tenses in different stages of Vedic

	Partitive operator	Proper stages?	Singular events?	Max stage?
Early Vedic imperfect	*Yes*	*No*	*No*	*No*
Middle/Late Vedic imperfect	*Yes*	*No*	*Yes*	*No*
Early Vedic aorist	*No*	*N/A*	*Yes*	*Yes*
Late Vedic aorist	*Yes*	*No*	*Yes*	*No*

9. The development of the Latin aspect system in a time-relational perspective

Based on the above outline of the behaviour of the Early Latin imperfect and perfect, it is reasonable to assume that these two categories have imperfective and perfective semantics, respectively. In the time-relational framework, this amounts to an analysis in terms of an equipollent opposition between the two aspect categories, since none of them has more specific semantics than the other has. From Haverling's (2010) discussion the impression arises the imperfect and perfect generally have consistently distinct patterns of use in Early and Classical Latin. However, they have one crucial reading in common: imperfect and perfect forms of state predicates can both denote permanent states in the past, as illustrated by the examples in (7).

(7) a. *in Vacci pratis domus* ***fuit*** *M.*
On Vaccus:GEN meadows:ABL house:NOM be:PRF.3SG M(arcus)
Vacci, quae publicata est et euersa
Vaccus:GEN which:NOM confiscated:NOM be:PRS.3SG and raze:PPP
'On Vaccus's Meadows *stood* the house of Marcus Vaccus, which was confiscated and razed'. (Cicero, *De domo suo* 101, after Haverling 2010: 460)

b. *Caesar (Alesiam)… circumuallare instituit. Ipsum*
Caesar:NOM Alesia:ACC circumvallate:INF decide:PRF.3SG self:NOM
erat *oppidum in colle summo, cuius collis*
be:IPF.3SG town:NOM on hill:ABL highest:ABL which:GEN hill:GEN
radices duo duabus ex partibus flumina subluebant
bases:ACC two:NOM two:ABL from sides:ABL rivers:NOM flow.below:IPF.3PL
'Caesar decided to build a wall around Alesia. The town itself was on the highest summit of a hill. The bases of the hill were washed on two separate sides by rivers'. (Caesar, *De bello gallico* 7, 68–69, cf. Haverling 2010: 460)

Haverling notes that:

> Permanent states in the past are often described in the imperfective viewpoint in the languages of the world, but Latin has a viewpoint opposition even in these cases. When indicating, for instance, the location of a building or a group of trees in the past, Latin normally uses the perfect, and the imperfect tense is found only in cases in which the backgrounding of the situation described is explicitly emphasized. (Haverling 2010: 459–460)

It is tempting to interpret this fact as an indication that the morphosyntactic opposition between the imperfect and perfect in Early and Classical Latin is not equipollent but privative, and that the perfect is the unmarked member, denoting the neutral aspect.

In Late Latin, the past tenses undergo a number of interesting changes (cf. Haverling 2010 for a full discussion).

- The imperfect substitutes the perfect in contexts giving an overview of a past situation
- Imperfect forms of state predicates are preferred to corresponding perfect forms in contexts referring to a permanent state in the past
- Perfect forms of state predicates show an increasing tendency to be used with an inchoative-ingressive meaning

On a time-relational approach, these changes are indicative of a markedness shift, where the aspectually neutral ($t' \otimes t_E$) perfect acquires a more distinctively perfective semantics ($t_E \subseteq t'$), while the imperfect develops a more general semantics, evolving from imperfective ($t' \subseteq t_E$) to neutral aspect ($t' \otimes t_E$). This development is presumably connected with the fact that periphrastic constructions with a past progressive meaning, like the one cited in (8) become more frequent in Late Latin.

(8) ***erant*** ***certantes*** *quis* *prior* *aliquid* *inueniret*
be:IPF.3PL fight:PRS.PRT who:NOM first something:ACC find:IPF.SBJ.3SG
'They were fighting to see who would first find something'.
(Lactantius, *De mortibus persecutorum* 14.5)

On this analysis, the new, analytic, semantically specific progressive category substitutes the imperfect in one of its core functions, the imperfect in turn replacing the perfect as the preferred marker in contexts giving an overview of a past situation and denoting permanent states in the past, i.e., imperfective-like past contexts. Being excluded from such contexts, the perfect is mainly used in perfective past contexts, thereby acquiring a more markedly perfective semantics.

10. An alternative approach to the development of the Latin aspect system

Altshuler's model provides a somewhat different perspective on the development of the Latin past tense system. On this approach, the Early Latin imperfect presumably represents a (partitive) imperfective operator, which is underspecified with regard to the singular event parameter (cf. (3b) above), and as well as the proper stages parameter, as suggested by examples like those given in (9) below:

(9) *Cum per eorum fines triduo iter*
When through they:GEN territories:ACC three.days journey:ACC
fecisset, ***inveniebat*** *ex captivis Sabim flumen a*
MAKE:PPF.SBJ.3SG find.out:IPF.3SG from captives:ABL Sabi:ACC river:ACC from
castris suis non amplius milibus passuum x abesse
camp:ABL his:ABL not further thousand:ABL steps:GEN ten be.away:INF
'When he had made a journey for three days through their territory, he found out from the captives that the river Sabi was not further away than then miles from his camp'. (Caesar, *De bello gallico* 2.16)

Here, the imperfect form *inveniebat* 'he found out' denotes a completed situation in the past, thus denoting the whole situation and not just a proper part of it.

As regards the perfect, on the other hand, it represents a partitive perfective category, being subject to the maximal stage constraint, but not to the singular event constraint as illustrated by the examples in (4).

On this background and taking the data given previously into consideration, the development of the Latin past tenses may be outlined as follows:

- The perfect undergoes a change from a partitive perfective operator to a non-partitive perfective operator
- The imperfect maintains its basic semantic properties

Table 5 gives an overview of the semantic specifications of the aspect categories discussed so far.

Table 5. The semantic specification of the Vedic and Latin past tenses

	Partitive operator	**Proper stages?**	**Singular events?**	**Max stage?**
Early Vedic imperfect	*Yes*	*No*	*No*	*No*
Middle/Late Vedic Imperfect	*Yes*	*No*	*Yes*	*No*
Early Vedic aorist	*No*	*N/A*	*Yes*	*Yes*
Late Vedic aorist	*Yes*	*No*	*Yes*	*No*
Early Latin imperfect	*Yes*	*No*	*No*	*No*
Late Latin imperfect	*Yes*	*No*	*No*	*No*
Early Latin perfect	*Yes*	*No*	*No*	*Yes*
Late Latin perfect	*No*	*N/A*	*No*	*Yes*

11. Summary

The admittedly somewhat brief analyses given above reveal that the two frameworks emphasize different dimensions of the development of the Vedic and Latin past tenses:

- Dahl (2015) claims that the Vedic imperfect essentially remains stable; an analysis along the lines of Altshuler (2013, 2014) shows that this is incorrect, and that the imperfect becomes subject to the singular event constraint in Middle or Late Vedic. In this case, Altshuler's model provides a more fine-grained model for capturing this development.
- On Dahl's (2015) approach, the Early Vedic aorist has markedly perfective semantics which gradually develops into neutral aspectual semantics, a change involving semantic generalization, in that the general inclusion relation denoted by the perfective aspect is reinterpreted as a subtype of the overlap relation denoted by the neutral aspect. An Altshuler-style approach yields analogous results, in that the aorist originally is a non-partitive perfective operator that shifts into a partitive operator, which is underspecified with regard to the proper stage and maximal stage constraints.
- A time-relational analysis of the development of the Latin past tense system suggests that the imperfect has a marked imperfective character, while the perfect is aspectually neutral in Early and Classical Latin. In Late Latin, the relationship has become inverted, the perfect having developed markedly perfective semantics and the imperfect being aspectually neutral. The development of the imperfect involves semantic generalization, in that the general inclusion relation denoted by the imperfective aspect is reinterpreted as a subtype of the overlap relation denoted by the neutral aspect. Here, an Altshuler-style approach does not capture any difference between the two stages of the development of the imperfect.
- The time-relational approach allows for analyzing the development of the Latin perfect in terms of a change from general to specific semantics; on the Altshuler-style approach, the development would involve a change from partitive to non-partitive perfectivity.

These considerations suggest that the two frameworks represent complementary rather than conflicting perspectives on aspectual semantics. An unquestionable advantage of Altshuler's model is that it allows for identifying fine-grained distinctions between similar aspectual categories. On the other hand, it fails to capture certain typologically relevant differences that turn out to be relevant for understanding the diachronic behavior of aspectual operators, differences captured by

the time-relational framework. Ideally, one should aim at a model incorporating the basic insights of both these frameworks.

One important potential point of convergence between the neo-Reichenbachian framework outlined in Section 2.1 and Altshuler's framework given in Section 2.2 concerns perfective aspect. Throughout this paper, I have suggested that grammatical categories with a markedly perfective aspectual semantics, that is, categories denoting the aspectual relation 'event time included in reference time' ($t_E \subseteq t'$) in the neo-Reichenbachian framework, correspond to non-partitive perfective categories in Altshuler's classification. This implies that all of the other aspect categories given in Table 1 are in some sense partitive. Indeed, they lend themselves easily to a scalar analysis with neutral aspect as the most general partitive category and progressive aspect as the most specific, as illustrated in Table 6.

Table 6. Partitive aspectual operators as scalar categories

Name	**Neutral <**	**Imperfective <**	**Progressive**
Semantic specification	$t' \otimes t_E$	$t' \subseteq t_E$	$t' \subset t_E$

Table 6 is intended to capture the intuition that the three partitive aspects differ with regard to specificity. Under this analysis, the progressive aspect is in the denotation of the imperfective aspect, since a proper inclusion relation is a subtype of the general inclusion relation. Moreover, the imperfective aspect as well as the progressive aspect are in the denotation of the neutral aspect, since both proper inclusion and inclusion are analyzable as subtypes of general overlap.[7]

Altshuler's model provides a somewhat different perspective on these matters. On his approach, the imperfective aspect is defined in terms of requiring "a stage of an event in the extension of the VP that it combines with" (2014: 771). In the present approach, however, this definition applies to all partitive operators and it is therefore tempting to identify what is here labelled neutral aspect with Altshuler's partitive operators. Under this analysis, different realizations of the neutral aspect – understood as a general overlap relation between reference time and event time – are defined in terms of the three constraints mentioned previously.

The development of the Vedic and Latin aspect systems at least partly involves semantic changes triggered by the emergence of new grammatical categories substituting older constructions with similar aspectual properties in one of their

7. Note that the overlap relation is taken to express that for all intervals x and y, x overlaps with y if and only if there is some interval z which is included in x and which is included in y. Inclusion, on the other hand, is a relation such that for any two intervals x and y, x includes y if and only if x added with y equals x (cf. Krifka 1998: 199).

characteristic functions. In a recently published article, Reinöhl & Himmelmann (2017: 408) emphasize the need for "an approach to grammaticalization as change in context, where grammaticalizing constructions are shaped by forms and structures they are built up from as well as by constructions they interact with." As regards the diachronic behavior of aspect systems, I hope to have shown that the framework developed here represents a fruitful point of departure for a research agenda along these lines.

Abbreviations

1	first person
2	second person
3	third person
ABL	ablative
ABS	absolutive
ACC	accusative
AOR	aorist
DAT	dative
DU	dual
GEN	genitive
IPF	imperfect
INJ	injunctive
INF	infinitive
INS	instrumental
LOC	locative
NOM	nominative
PL	plural
PPF	pluperfect
PPP	past passive participle
PRF	perfect
PRS	present
PRT	participle
PRV	preverb
PTC	particle
QP	quotative particle
SBJ	subjunctive
SG	singular
VOC	vocative

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Linguistic construal of time lies at the center of language and language use; it is also one of the cognitive foundations of culture. The focus of the papers in this volume is on historical developments of genetically different aspect and tense systems across continents, with contributions on the Sogeram languages of Papua New Guinea, the Arandic languages of Australia, Kisikongo Bantu, and Japanese. In addition, two prototypical Indo-European tense-aspect systems, those of Vedic and Latin, are analyzed in a comparative perspective. Across language groups and continents, the general principles revealed by the studies presented here contribute towards a novel and deepening understanding of tense and aspect. They contribute not only to modelling and theory, but also to a better understanding of processes in individual languages.

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