# The NP-strategy for Expressing Reciprocity

## Typology, history, syntax and semantics

*Elitzur A. Bar-Asher Siegal*

*John Benjamins Publishing Company*

# The NP-strategy for Expressing Reciprocity

# Typological Studies in Language (TSL)

A companion series to the journal Studies in Language. Volumes in this series are functionally and typologically oriented, covering specific topics in language by collecting together data from a wide variety of languages and language typologies.

For an overview of all books published in this series, please see
*benjamins.com/catalog/tsl*

## Volume 127

The NP-strategy for Expressing Reciprocity: Typology, history, syntax and semantics
by Elitzur A. Bar-Asher Siegal

# The NP-strategy
# for Expressing Reciprocity

## Typology, history, syntax and semantics

Elitzur A. Bar-Asher Siegal

The Hebrew University of Jerusalem

John Benjamins Publishing Company

Amsterdam / Philadelphia

# Table of contents

# Symbols and abbreviations

The interlinear glosses follow the morpheme-by-morpheme conventions of the Leipzig Glossing Rules <https://www.eva.mpg.de/lingua/resources/glossing-rules.php>.

Additional abbreviations not included in their list are the following:

| | | | |
|---|---|---|---|
| DSM | direct speech marker; | PN | proper name; |
| ING | ingressive; | PRC | precative; |
| INJ | injunctive particle; | RQM | Rhetorical question marker; |
| GN | geographical name; | ST | stative. |

In adopting this system, I had to use a different terminology than what is customarily used in the context of Akkadian. Here are the various terminological adjustments (the abbreviations are what is used in the Leipzig Glossing Rules):

| | |
|---|---|
| PST | preterite |
| SBJV | subordination marker |
| † | indicates reconstructions of historical forms |
| * | indicates ungrammaticality |
| # | indicates that something is pragmatically or semantically unaccepted |
| γ | indicates that a sentence was found on the internet |

Editions of Akkadian texts are quoted with abbreviations used in the Assyrian Dictionary of the Oriental Institute of the University of Chicago (=CAD), (Gelb and Landsberger et al. 1956). In general, when the examples in this book appear in the CAD I followed their translation, unless I either disagreed with their rendering or when I thought an alternative translation would clarify the argument.

The references to the sources for classical texts in Hebrew and Aramaic follow the standard abbreviations, which appear in *The SBL Handbook of Style* (Alexander 1999: 79–80). I also used its transliteration convention (p. 26) for the ancient Hebrew and Aramaic texts.

# Acknowledgments

The journey for this book began sometime in 2007 as I was writing the proposal for my dissertation on *a theory of argument realization*. Back then, it occurred to me that reciprocal predicates might serve as a litmus test in evaluating theories that posit rules that link the meaning of the components of the verb to the syntactic positions of their arguments. I've been under a spell ever since, seeing reciprocity wherever I went. It didn't matter whether I was poring over philological enigmas of a medieval text, puzzling over data on diachronic changes in Old Babylonian or another Semitic language, or attempting to unravel the interactions between negation and propositions – invariably, reciprocal constructions seemed to hold the key to the essence of the phenomenon. They always surprised me with some unexpected feature that, as if by magic, illuminated a new analytical path. Obviously then, when my twin boys started talking and used reciprocal anaphors for the first time, I got wildly excited.

This all-encompassing preoccupation with reciprocity made me wonder if perhaps – excuse the pun – my variegated academic interests can *mutually* contribute to *each other*. As I worked on similar phenomena in different linguistic subdisciplines, I pondered methodologies through which these areas could justifiably interact. On the one hand, I explored how philological and historical linguistic evidence can inform the investigation of universal properties of languages; while on the other, I probed the relevance of the semantics and syntax of various expressions for their evolution in the history of individual languages.

This book is the outcome of this long journey. The analyses proffered in its chapters interface multiple linguistic areas. Sorting through all these components and putting them together would certainly have been impossible without the generous contribution and assistance of my teachers, colleagues and students, who were invariably forthcoming in sharing their knowledge and insights and offering advice. I would like to thank everyone who invested time in reading the numerous drafts of the different parts of the book and for those who provided comments on my ideas and analyses, thereby making this journey both fascinating and rewarding:

Moysh Bar-Lev, Nora Boneh, Brian Buccola, Eran Cohen, Cleo Condoravdi, Luka Črnič, Karen De-Clercq, Ashwini Deo, Edit Doron, Margherita Farina, Steve Fassberg, Benjamin Foster, Danny Fox, Eckart Frahm, Mary Frazer, Uri Gabbay,

I wish to thank my parents Nechama and Moshe Bar-Asher for their endless support.

As in any journey, there have been many bright moments – like when you reach the crest of a hill and the view takes your breath away; however, at times, the road must inevitably go down, and you are once again making your way into the unknown. My family has made those descents so much more endurable, but more importantly, without them I would not have been able to celebrate the joy of standing at the top, the joy of discovery. I am indebted to Michal Bar-Asher Siegal, the love of my life, for endless discussions on our respective research, but equally so, for learning together how to cherish all kinds of moments, the high and the low. I am also grateful to our three inquisitive boys Nattaf, Yadid and Yahav. At the beginning of the project, they only provided data, but later on participated in the analysis as well. I will always cherish our togetherness – our *sociativity*.

# Introduction

## 1.    Studying reciprocity

As people living in society, reciprocity plays an important part in our lives. We notice its presence or absence, and it forms a significant component of our moral judgments and decisions.[1] The values of the various societies call for reciprocating actions, for example by returning a favor or retaliating in kind, and our language reflects the importance we attach to this principle by noting whether states-of-affairs are symmetric in some manner, or not.

Marking symmetry between situations is not trivial, however, since language typically describes only one event at a time, and reciprocity often involves more than one event. Moreover, reciprocity can be difficult to capture, since in most cases it does not involve complete symmetry between the participants but is limited to certain aspects of the relevant situations. For example, if two people are thinking of each other, this does not mean they are similar in any other way. They may be in different locations doing different things (one may be eating lunch in Cleveland while the other is watching the news in Tel Aviv, for instance). To realize the challenge of capturing such relations, consider how difficult it is to represent them visually. Movies employ various strategies to depict symmetric relations between actors. While it is quite easy to show the symmetry of events that are inherently symmetric, such as a conversation or a fight, in which both participants talk or hit one another simultaneously, it is much harder to convey mental states like those described by propositions like "they missed each other" or "they opposed one another." When evoking a reciprocal relation, one always points to a specific aspect of one of several events – and directs attention to the fact that there is symmetry with regard to that aspect.

The importance of reciprocity in our social lives suggests we may be wired to identify it (cf. Kropotkin 1902; Trivers 1971; de Waal 2005), and consequently, it is also unsurprising that languages possess designated grammatical tools for indicating reciprocal relations. However, as stated, capturing the essence of symmetrical events is no trivial task, for perceiving reciprocity often involves focusing on one

---

**1.** For a review of the literature on reciprocity in biology, philosophy, the social sciences and linguistics see König & Gast (2008: 1–4) and König (2011: 329–332).

aspect of different states-of-affairs and identifying the participants' mirroring actions. Exploring how languages encode reciprocal relations can provide an important key for understanding the cognitive ability that underpins the recognition of these relations.

There are several ways to pursue this direction of study. It is obviously advisable to begin by asking the most fundamental question: do languages indeed have specifically designated structures for denoting reciprocal relations, or do they only encode some broader conceptual category that includes reciprocity? Another potentially promising line of inquiry is to investigate the origin of the linguistic expressions that signify such relations. Understanding how these constructions developed may yield generalizations about the situations that tend to be perceived as reciprocal. These are the types of questions that underpin the specific linguistic inquiries discussed in this book, to be outlined in the next section. I will deal with the first type of questions by exploring the semantics and syntax of the relevant constructions, and with the second type by undertaking a detailed examination of their history.

As the prolific literature on reciprocal constructions (which will be reviewed below) demonstrates in detail, reciprocity is expressed in various ways, and the broad questions outlined above are likely to find different answers in the case of different constructions. It is therefore advisable to examine one construction at a time, and this book is indeed devoted to a single type of construction: NP-strategy constructions for expressing reciprocity. A complete answer to these questions will require additional studies dealing with each of the other constructions.

## 2.     The NP-strategy for expressing reciprocity: Typology, history, syntax and semantics

Since this book deals with the NP strategy for expressing reciprocity, I should first of all clarify a terminological point, namely why I speak of "a strategy for expressing reciprocity" rather than types of "reciprocal constructions", which is the standard term used in the literature. This terminology is inextricably linked to the methodology I propose for classifying the constructions used cross-linguistically to express symmetrical relations. Hence, this introduction necessarily begins with a discussion of the typology of the relevant constructions, and the methodology and goals of this typology.

I propose that the criteria for classifying constructions should be based on correlations between their form (syntax and morphology) and semantics. In fact, according to this approach, the objective of this typology is to illuminate these correlations. An additional goal of this book is to demonstrate, on the one hand,

how historical information about the origin of these expressions can enrich their synchronic analysis, and, conversely, how the analysis of their synchronic syntax and semantics sheds light on their historical origins. This book thus provides a broad account of the NP-strategy constructions, addressing their history, syntax and semantics. No less importantly, it suggests various methodologies for combining these perspectives, showing how each type of theoretical investigation can enrich and support the others.

Accordingly, this introduction lays the foundation for the rest of the book by outlining the various topics to be discussed and providing a theoretical account of how the different perspectives might interact. The structure of this chapter is as follows: the next section (§ 0.3) provides an overview of previous literature on reciprocal constructions, including the topics covered and the main theoretical questions addressed – and, most importantly, uncovers some of the assumptions underpinning the previous typologies proposed for these constructions. Section 0.4 suggests a new methodology for constructing a typology of reciprocal constructions, based on **strategies** for expressing reciprocity. Section 0.5 applies the proposed methodology to the NP-strategy for expressing reciprocity, which is the focus of this book and will be studied from various theoretical perspectives. Section 0.6 is a preliminary discussion of the semantics of the constructions that employ this strategy. As will become clear in Chapters 1 and 7, the semantics of these constructions is connected in various ways to their origin. On the face of it, this may seem like a confusion between synchrony and diachrony; Section 0.7 will therefore argue for analyses that bring together historical linguistics and formal semantics. Section 0.8 reviews the main topics of the book and introduces the languages to be discussed. It also discusses the variety of ways in which languages will be compared in the subsequent chapters, depending on the goals of each comparison. Section 0.9 completes the introduction by presenting the structure of the book.

## 3.    The literature on reciprocal constructions[2]

The so-called "reciprocal constructions" have received much attention in the last two decades, especially in the seminal five-volume typological study by Nedjalkov, published in 2007. These volumes, along with Frajzyngier & Curl (1999), König & Gast (2008) and Evans et al. (2011a), demonstrate the rich diversity of the cross-linguistic phenomena that fall into this broad linguistic category. The

---

**2.** This is, by no means, an exhaustive bibliography on reciprocal constructions. See König (2017), which is dedicated to review this literature.

constructions have been studied from various perspectives, and include historical inquiries concerning the grammaticalization processes that yield reciprocal expressions (see e.g., Heine 1999; Frajzyngier 1999; Maslova 2008; Plank 2008; Haas 2010 and Inglese 2017), typological studies exploring the relationships between the different meanings and uses of forms expressing reciprocity (see e.g., Baldi 1975; Aissen 1982; Lichtenberk 1985, 1999; Knjazev 1998; Kemmer 1993; McGregor 2000; Gaby 2008; Maslova 2007, 2008), and semantic studies proposing semantic representations of individual constructions (see e.g., *inter alia* Fiengo & Lasnik 1973; Dougherty 1974; Langendoen 1978; Dalrymple et al. 1998; Siloni 2012; Sabato & Winter 2012; Mari 2014 and Bar-Asher Siegal 2016b; Poortman et al. 2018; Winter 2018). In addition, a range of typologies have been proposed for classifying the constructions that have been documented cross-linguistically and within the same language (see e.g., König & Gast 2008a, esp. pp. 10–19 and Nedjalkov 2007b for a survey of various typologies).

A discussion of reciprocal constructions as a class assumes from the outset that such constructions are semantically related. Thus, our first task is to define the criteria whereby a variety of expressions can be included in this broad category. This, in turn, requires a look at the semantics of these constructions, i.e., at the reciprocal relations they denote. A typology of such constructions thus involves two tasks:

(1)  i.   providing criteria for classifying constructions as "reciprocal";
     ii.  identifying different kinds of reciprocal constructions, namely laying out well-defined criteria for an internal division of the general category.

Beginning with the first task, I start by challenging what seems to be a common assumption in the literature on reciprocal constructions, and then provide an alternative approach for defining this broad category. This will set the stage for the second task, of outlining different types of reciprocal constructions. The outcome of this methodological discussion will be a clear definition of the NP-strategy for expressing reciprocity, around which this book revolves.

Not surprisingly, many previous typologies of reciprocal constructions (e.g., Lichtenberk 1985: 21; Kemmer 1993: 102; Nedjalkov 2007a: 6) define a prototypical reciprocal construction by associating it with some basic notion of semantic reciprocity or symmetry. For example, König and Kokutani (2006: 272–273) propose the following definitions:[3]

---

**3.** Similarly in Frajzyngier (1999: 199): "The term 'reciprocal' in the present paper refers to the situation or event, when A acts on B and B acts on A. A and B may each be singular or plural, as always assumed in the literature on reciprocals (cf. Lichtenberk 1994: 3508). A reciprocal marker is one that has been grammaticalized to encode such a situation."

(2)   SYMMETRIC predicates are basic predicates with at least two argument (valency) positions which denote binary (or ternary) relations R among members of a set A with the following semantic property: $\forall x,y \in A$ $(x \neq y \rightarrow R(x, y))$, that is, for specific substitutions of values a and b (a, b $\in$A) for the variables x and y: aRb $\leftrightarrow$ bRa.

       RECIPROCAL constructions are grammatical means for the expression of symmetrical relations for any n-ary predicate and for at least one set of arguments A, with $|A| \geq 2$; it is a typical feature of such constructions that one of the arguments denotes a set A as specified above, and that the basic argument structure of the relevant predicate is reduced or changed in such a way that not all argument positions are filled by referential expressions.

The definition of reciprocal constructions, accordingly, has two aspects: (1) semantically, they are "means for the expression of symmetrical relations"; (2) syntactically, they are defined in terms of argument realization, whereby "not all argument positions are filled by referential expressions." They are thus defined in relation to their non-reciprocal equivalent. There are various theoretical problems with such definitions of a prototypical construction. The rest of this section reviews some of them, mostly by focusing on the semantic part of the definition. I then suggest another methodology for classifying the relevant constructions, and finally, the goals of this typology will be clarified as well.

    As noted, previous typologies take the semantics of these constructions as their point of departure. However, it is not obvious that all the relevant constructions must – or even can – be defined in semantic terms as "grammatical means for the expression of symmetrical relations." While some studies indeed characterize the relationship between the designated constructions and the symmetric relations in terms of denotation, as in (3a), others characterize this relationship in other terms, as in (3b):

(3)  a.  Reciprocalization as denotation: the linguistic expressions *signify* or *encode* symmetric relations; i.e. this is the meaning of the forms (e.g., McGregor 1999).

     b.  Reciprocalization as a lexical or syntactic phenomenon: some of the relevant grammatical phenomena can be regarded as indicating a lexical or syntactic process (Reinhart & Siloni 2005; Nedjalkov 2007a: 10) that sometimes (but not always) yields a symmetric meaning. Such processes have to do with the fact, noted above, that reciprocal relations are defined vis-à-vis their non-reciprocal equivalent, as in the second part of the definition in (2), which relates to the argument structure of the predicates in the construction. For example, if a theory assumes that the morphology of a given language is sensitive to diathetic operations, and that reciprocal constructions involve a reduction in valency, it is possible

that a specific "reciprocal construction" does not actually indicate the semantics of symmetry but merely reflects a diathetic operation. This may account for the fact that in many languages the same morphological marker is associated with other types of valency reduction, for instance with reflexivity (cf. Aissen 1982; Siloni 2008).

Thus, a definition of reciprocal constructions which focuses exclusively on their semantics may provide an only partial picture of their nature. In light of this, the relation between the various components of the definition in (2) must be clarified.

Moreover, the notion of signification/denotation in this context is rather obscure, as it does not specify what the exact relationship is between the linguistic expressions and the type of relations they describe. The complexity in determining the relationship between the reciprocal constructions and their semantic properties is often introduced in the literature through the lens of the attempt to understand the nature of the affinity between the different functions of the forms expressing reciprocity. More specifically, it has to do with the widespread phenomenon that reciprocal constructions often have different functions, including reflexivity and collectivity (inter alia Baldi 1975; Aissen 1982; Lichtenberk 1985, 2000; Knjazev 1998; Kemmer 1993; McGregor 1999; Gaby 2008; Maslova 2007; Nedjalkov 2007c). Therefore, it seems necessary to look into this multifunctionality, but first it is crucial to distinguish between two different types of multifunctionality:

i.  Syncretism: a grammatical form has more than one function, but any particular realization of this form has only one possible reading. For example, the T-template (*hitpaʻel*) in Hebrew is used both to express reciprocity, as in *hitxabeq* "to hug", and to express reflexivity, as in *hityašeb* "to seat oneself". However, each form has only one meaning: *hitxabeq* cannot mean "hug oneself", and *hityašeb* cannot mean "to seat each other".[4] Likewise, the Japanese suffix *au* creates a reciprocal meaning in the verb *tasuke-au* "help each other", but with intransitive verbs it produces a collective reading, such as *yorokobi-au* "rejoice together."

Similarly, it has been often noted that expressions like "each other" encode symmetric relations only in certain environments, as in the basic reading of (4a).

---

4. There are a few rare examples of roots that do have two meanings in the T-template, one reflexive and the other reciprocal, such as *lehistabex* "entangle" (which, incidentally, displays the same polysemy in English, meaning either "to become twisted together" or "to become embroiled in a complicated situation"), or *lehitarev*, which can mean both "to make a bet with someone" (reciprocal) and "to involve oneself" (reflexive). However, these are cases of polysemy (or even homonymy), and in any case are the exception. (I wish to thank Maayan Nidbach and Hagit Migron for these examples.)

In other environments,[5] such as (4b), this expression does not express a symmetric relation (Fiengo & Lasnik 1973; Dougherty 1974; Lichtenberk 1985; Dalrymple et al. 1998; Williams 1991; Beck 2001; Haas 2010; Evans et al. 2011b):

(4)   a.   They love each other.
      b.   They are on top of each other.

This multifunctionality is central to the discussion throughout this book, and will be explored and explained in Chapters 7–8.

ii.   Apparent polysemy: the same expression may have more than one interpretation. The following sentences in French, for examples, have both reflexive and reciprocal readings:

(5)   French:
      a.   Pierre et   Jean se sont        lavés
           Pierre and Jean SE be.PRS.PL wash.PASS.PTCP.PL
           i.    "Pierre and Jean washed (themselves)"
           ii.   "Pierre and Jean washed each other"
      b.   Pierre et   Jean se sont        parlés (+à eux mêmes)
           Pierre and Jean SE be.PRS.PL speak.PASS.PTCP.PL (to REFL)
           i.    "Pierre and Jean spoke to themselves"
           ii.   "Pierre and Jean spoke to each other"

It has been noted in the context of French and other languages with similar constructions (Siloni 2008 and 2012; Doron & Rappaport Hovav 2009) that *se*-constructions usually have two possible interpretations. The choice of reading is determined pragmatically.[6]

The two categories – of "syncretism" and "apparent polysemy" – include very different phenomena. The former describes morphemes or lexemes that have different meanings in different defined linguistic environments (phonological in the case of the Hebrew verbs, syntactic in (4)), while the phenomenon illustrated in (5) is an example of a systematic ambiguity, and as such should be treated differently.

---

**5.** My use of the vague term "environment" is deliberate. Chapter 7 will show that the literature is intensely preoccupied with the characteristics and nature of these environments (lexical or pragmatic).

**6.** Heine and Miyashita (2008: 188–189) characterize reflexive-reciprocal polysemy in the following way:

(i)   a.   With singular antecedent referents, the category expresses reflexivity only.
      b.   With multiple antecedents (i.e. plural or conjoined subject referents), the category is likely to be ambiguous, expressing both reflexivity and reciprocity.
      c.   With multiple antecedents of certain verbs (i.e. "inherently reciprocal" verbs) or in specific contexts, the category expresses reciprocity only.

It should also be noted that previous semantic analyses of these constructions take different approaches in explaining why similar constructions have more than one interpretation (to some extent this also depends on the type of multi-functionality – syncretism vs. polysemy). It is useful in this context to begin with Lichtenberk's statement:

> [S]ometimes, the reciprocal function is seen as part of a set of meanings (that is, as participating in a polysemy); sometimes, it is considered a special case of a more general function". (Lichtenberk 1999: 33)

Lichtenberk's second option can in fact be understood in various ways, among them the following two:

i. The linguistic expressions encode some general underspecified category, and the specific interpretation is determined only at the level of individual expressions (which obviously begs the question of how the exact interpretation is determined). For example, König and Kokutani (2006: 278) propose:

> Thus, if we were to postulate a general, vague meaning rather than polysemy for these affixes we could roughly describe it as "combined or repeated action by a plurality of actors, affecting a plurality of entities" (cf. Kemmer 1993; Lichtenberk 1999). The frequent identity between reflexive and reciprocal constructions

---

They argue that these properties reflect various stages of evolution, which developed gradually according to the following stages:

(ii) a. With multiple (plural or conjoined) antecedents, the category is reflexive only.
    b. With multiple antecedents in specific (collective) contexts, the category, while still reflexive, does not exclude a reciprocal interpretation.
    c. Reflexive and reciprocal are equally relevant options with multiple antecedents.
    d. With multiple antecedents of certain verbs ("symmetric verbs") or in specific contexts, the category expresses reciprocity only. (Heine & Miyashita 2008: 208)

While Heine and Miyashita (2008) consider the relationship between reflexives and reciprocals from a historical angle, Maslova (2008) emphasizes that this kind of development relies on a universal feature of reflexives. She maintains that reciprocity is an inherent semantic aspect of reflexive constructions involving a set of participants (see also Frajzyngier 1999). In fact, it can be argued that a reflexive construction with a plural subject indicates unspecified relations between the members of the set denoted by the plural, that the relevant relation is held only between the members of the set (cf. Doron & Rappaport Hovav 2009): If, in all sub-events, these relations involve the same members of the set, a reflexive reading is obtained; if not, a reciprocal reading is obtained. As an illustration, given a set of two members (a, b) and the relation R, $R_{reflexive}(a,b)$ is true if either <aRa, bRb> or <aRb, bRa>; the former is the reflexive reading and the latter is the reciprocal reading. Accordingly, this is not a case of polysemy or homonymy, but two inherent interpretations of multiple-participant reflexivity. However, this issue is beyond the scope of the current discussion (cf. Murray 2008 and Cable 2014).

> is motivated by the fact than in both the same entities occur in different roles. Namely, both as agents and as patients.

(Roberts (1987: 135–151) argues, somewhat similarly, that expressions like "each other" in English are semantically vague, and contextually determined).

ii. The linguistic expressions provide a range of possible meanings (reciprocity being one of them) which form a logical hierarchy. Additional principles determine when the reciprocal reading is produced (Dalrymple et al. 1998; Sabato & Winter 2012; Poortman et al. 2018).

Similar statements are very often made about the grammaticalization process through which reciprocal constructions developed. Such discussions assume a shared core meaning for the various functions, which triggered historical developments in which a certain function became grammaticalized (see e.g., Lichtenberk 1985, 2000; Kemmer 1993; Maslova 1999, 2007, 2008). In various discussions throughout this book (e.g., in Chapter 5) such historical developments will be examined, and a different approach will be suggested for characterizing the diachronic process; more specifically, focus will be placed on what drives the change.

We see, then, that there are various possible relationships between the so-called reciprocal constructions and their possible reciprocal/symmetric interpretations. On the face of it, the exact relationship may be construction-specific: one construction may denote reciprocity while another may be a valency-reduction mechanism related to reciprocalization. Consequently, the claim that "reciprocal constructions are grammatical means for the expression of symmetrical relations" seems to be oversimplified and perhaps even inaccurate, as the relationship between the semantics and the form may depend on the type the constructions involved.

In other words, it is inadvisable to assume any particular general relationship between a relevant construction and the semantic property of symmetry. Instead, the theoretical inquiry into these linguistic constructions should have the following goal: **to understand the relationship between the form of each construction, or each type of construction, and the various symmetric relations it may describe**.

The fact that a type of construction entails or implies reciprocity in some contexts is sufficient motivation to include it in a linguistic study of reciprocity; the goal of our theory should be to explain what, precisely, is responsible for the association of the relevant expression with reciprocity. The next section provides a methodology for constructing a typology of reciprocal constructions, organized according to the answers provided to this question.

## 4.    A methodology for constructing a typology for reciprocal constructions

In light of the methodological problems discussed above, this study takes a different direction. Once again, the first step is to delineate a semantic property as a focal point for this study. (6) is a good starting point:

(6)   SYMMETRIC relations: relations R among members of a set A, with at least two argument (valency) positions, with the following semantic property: $\forall x,y \in A$ $(x{\neq}y{\rightarrow}R(x, y))$ and $|A|{\geq}2$; that is, for specific substitutions of values a and b (a, b $\in$ A) for the variables x and y: aRb $\leftrightarrow$ bRa.

Note that the symmetry is defined between instantiations of the same relation; that is, (6) does not define an inherently symmetric relation such as *be identical* or *stand next to each other*. Rather, for a set A, there are symmetric relations between pairs for which R(x,y) holds, i.e., the same relation that a has with b, b has with a (cf. Winter 2018). The symmetric relations can take place in one eventuality or in different eventualities.

Armed with this semantic definition, we can turn to forming a new kind of typology and to the two tasks mentioned in (1):

i.    providing criteria for classifying constructions as "reciprocal";
ii.   identifying different kinds of reciprocal constructions, namely laying out well-defined criteria for an internal division of the general category.

Starting with the first task, let us define the linguistic objects that belong to this typology:

**The object of the study**: all linguistic expressions that, in certain environments, assert or imply symmetric relations (as defined in 6). By identifying the grammatical components which, in certain environments, are responsible for this semantic property, we identify a linguistic **strategy for expressing reciprocity**.

Note that these are only **strategies** for expressing a reciprocal situation; they do not necessarily denote reciprocity in all instances, nor is it assumed that expressing reciprocity is necessarily part of their basic meaning. Importantly, it is not even assumed that the same constructions involve reciprocity in all linguistic environments – it is sufficient that they occasionally do so (but in some systematic way.)

Languages have **constructions**, and constructions in different languages may belong to the same strategy if their grammar is similar (involving the same types of morphemes, syntactic structures etc.) and they are associated with reciprocity in the same defined environments.

Having characterized the object of study, the following is the procedure for identifying and studying individual strategies (i.e., realizing the second task in 1):

**Stage one**: identify linguistic expressions that, at least in certain contexts, entail symmetric relations, as in the following examples:

(7)  a.  John and Mary fed each other <=> John fed Mary and Mary fed John

  b.  | *yosi ve-miryam* | <=> | *yosi katav* | *mixtav-im le-miryam* |
|---|---|---|---|
| Yosi and-Miryam | | Yosi write.PST.3.M.SG letter-PL | to-Miryam |
| *hitkatvu* | | *ve-miryam katva* | *mixtav-im le-yosi* |
| write.PST.REC.3.PL | | and-Miryam write.PST.3.M.SG letter-PL | to Yosi |
| "Yosi and Miryam | <=> | "Yosi wrote letters to Miryam and Miryam | |
| corresponded" | | wrote letters to Yosi" | |

**Stage two**: identify the grammatical components that drive the entailment demonstrated in the first stage through a comparison with a minimally paired construction that does not license such an entailment:

(8)  a.  [John and Mary]_{plural subject} fed **each other**          John fed Mary

  (i) Plural subject; (ii) the expression "each other" in one of the argument positions – this is the **construction** in English; similarly, *einander* will be the component of the parallel **construction** in German, while both belong to the same type of **strategy**.

  b.  | [*yosi ve-miryam*]_{plural subject} | *yosi katav* | *mixtav-im* |
|---|---|---|
| Yosi and-Miryam | Yosi write.PST.3.M.SG letter-PL | |
| *hitkatvu* | *le-miryam* | |
| write.PST.REC.3.PL | to-Miryam | |
| "Yosi and Miryam corresponded" | "Yosi wrote letters to Miryam" | |

  (i) Plural subject (and the corresponding verbal agreement); (ii) the Hebrew T-template; (iii) the non-subject argument position of the main verb must remain empty.

**Stage three**: explore the multifunctionality of the given strategy, namely, all possible semantic relations encompassed by the structure, as per Stage two, and identify the nature of this multifunctionality (polysemy, syncretism etc.).

This discussion leads to an inquiry into the basic meaning of these constructions, a discussion that should address the following questions: (1) Why is the construction interpreted in different ways (underspecification, polysemy etc.)? (2) What determines the specific interpretation in a given context? These are the issues addressed in stage 4.

**Stage four**: account for the relationship between the components of the construction, on the one hand, and the symmetric relations, on the other, with reference to the following questions:

1. Is the symmetric reading optional or obligatory?
2. Is the symmetric reading derived compositionally from the components of the reciprocal construction?
3. If not, can the semantic property of symmetry be analyzed as a subcategory of some other semantic property encoded by the construction? And if so, what is that superordinate property?

Based on the answers to these questions, it should be possible to articulate criteria for a typology of strategies for expressing reciprocity, as constructions can be taken to belong to the same type, or strategy, if they yield the same answers to all three questions.

Thus, a type of reciprocal constructions, i.e., a strategy, is defined as follows:

> **A TYPE OF RECIPROCAL CONSTRUCTIONS, A STRATEGY FOR EXPRESSING RECIPROCITY** includes all constructions that are composed of grammatically similar components, share the same range of interpretations and exhibit a similar relationship between the grammatical components and their semantic properties (including the contexts in which they express symmetric relations.)

A typology organized according to this criterion yields a new set of programmatic questions:

1. Is there a correlation between the linguistic origin of a certain construction, from a diachronic point of view, and its place within the typology?
2. Do constructions with similar semantics necessarily share structural/grammatical features (verbal encoding, nominal encoding, pronominal encoding, etc.)?
3. Can this typology account for the observations made by previous typologies (such as Kemmer's 1993 distinction between light and heavy reciprocal markers, or Siloni's between lexical and reciprocal constructions)?

As evident from this procedure, the fact that a given construction entails symmetric relations in certain environments is merely an invitation to understand the nature of this construction. i.e., its syntactic structure and how the syntax correlates with the semantics. The need for a broad typology, encompassing all strategies, is based on the assumption that the contrast between various strategies can lead to a better understanding of each. As will be demonstrated repeatedly throughout this book, such contrasts will guide us in examining the semantics of the various constructions. For example, we will see that only the adverbial strategy necessarily denotes reciprocity (§ 5.2), and that the verbal strategy and the NP-strategy interact differently with negation (§ 7.7.2). Furthermore, identifying contrasts and similarities between strategies may also help to explain historical developments

in which expressions shifted from one strategy to another (see Chapter 5), such as NP-strategy expressions that took on the interpretation of adverbial-strategy expressions (§ 5.3).

Since this typology relies on the correlation between the constructions' morphology/syntax and their semantics, and its main goal is to yield an understanding of this correlation, the present study necessarily requires syntactic and semantic analyses of the relevant constructions. These will be introduced in Chapters 2, 7 and 8. We turn now to demonstrate this methodology in practice, by identifying and defining the strategy that will stand at the heart of this book.

## 5.    The methodology in practice: The NP-strategy for expressing reciprocity

This book is the first part of a broader project to classify all the strategies used to express reciprocity across languages. It focuses on only one type of constructions, which have been variously designated in the literature as nominal strategies (König & Kokutani 2006), pronominal strategies (Nedjalkov 2007a: 12) and NP strategies. An example is (9a), a reciprocal sentence that denotes a symmetric relation between its participants and has the same predicate and argument structure as (9b):

(9)   a.   James and Beth love each other
      b.   James loves Beth.

I use the term NP-strategy because the reciprocal expressions always fill the position of the verb's NP arguments. Other terms designate the sub-categories of constructions that belong to this strategy and will be introduced in Chapter 1. The definition of this strategy will be arrived by following the procedure outlined in the previous section:

> **Stage one**: identify linguistic expressions that, at least in certain contexts, entail symmetric relations.

Accordingly, the starting point of the discussion is the fact that sentences with pronominal expressions like "each-other", such as (10a), are semantically equivalent to sentences like (10b), namely two conjoined sentences in which the participants exchange roles symmetrically. In other words (10a) entails (10b) and vice versa.

(10)   a.   James and Beth love each other.
       b.   James loves Beth and Beth loves James.

> **Stage two**: identify the grammatical components that drive the entailment demonstrated in the first stage through a comparison with a minimally paired construction that does not license such an entailment.

The components that set (10a) and (10b) apart are highlighted in bold:

[James and Beth]$_{\text{plural subject}}$ love **each other**  James loves Beth

i.    Plural subject;
ii.   the expression "each other" in one of the argument positions

When focusing on the type of sentences represented by the English construction containing "each other," expressed in (10), there are two main questions to be addressed:

a.    How many syntactic components does the basic sentence have?
b.    Can the syntactic components account for the semantic meaning of this sentence?

These questions are addressed at length throughout the book, and this is where the syntax of these constructions becomes relevant. Chapters 1 and 2 will demonstrate that there are two major types of construction within the category of the NP strategy, similar in their semantics but distinct in their components and structure. This is also where the historical factors come in: I will show that, in most cases, one type of construction developed from the other, a fact that may account for their semantic similarity.

> **Stage three**: explore the multifunctionality of the given strategy, namely, all possible semantic relations encompassed by the structure, as per Stage two, and identify the nature of this multifunctionality (polysemy, syncretism etc.).

The third stage of the process of identifying a reciprocal strategy involves determining the full range of semantic interpretations that the relevant constructions have. Since this multifunctionality is pivotal to most of the discussion in this book, I devote the next section to exploring it and thereby laying down a foundation for the semantic analysis of the NP strategy that will be proposed in Part 3 of this book.

## 6.    The semantics of the NP-strategy for expressing reciprocity – preliminary observations

One of the goals of this book is to challenge the aforementioned assumption that prevails in the typological literature, and to a large extent also in the relevant syntactic and semantic literatures, namely that the so-called reciprocal constructions encode symmetric relations.

The starting point of this discussion is the multifunctionality of the constructions that fall under the heading of the NP-strategy. This topic will be central to the final chapters of this book, but due to the important role of the semantics in defining strategies, a preliminary introduction of the relevant data is in order.

As has been repeatedly noted in the literature, cross-linguistically, the NP-expressions that encode symmetric relations (e.g., *each other*) also appear with predicates that logically preclude symmetrical relations (Fiengo & Lasnik 1973; Dougherty 1974; Lichtenberk 1985; Dalrymple et al. 1998; Williams 1991; Beck 2001; Haas 2010; Evans et al. 2011b). For example, the following sentence does not, and cannot, express a symmetric relation:

(11)   They were hiding behind each other.

If Jim is hiding behind Jack, Jack cannot at the same time be hiding behind Jim. Evans et al.'s (2011a) volume provides data on the semantics of such constructions in 20 languages from different families. Crucially for the discussion at hand, they conclude that reciprocal constructions generally share the same semantics cross-linguistically (Majid et al. 2011: 50). It is also worth noting that examples similar to (11) are common in ancient languages as well:

(12)   Ancient Greek:
οὐκ  ἀθρό-ους         ἀναβιβάζ-ων,           ἀλλὰ κατὰ
NEG in.mass-M.PL.ACC advance.PTCP-.M.SG.NOM but   by
μέρ-η           πυκν-οὺς            ἐπ᾽ ἀλλήλ-οις
division-N.PL.ACC crowded-ADJ.M.PL.ACC after=RECP-M.DAT
"They did not make the attack en masse, but by divisions in close order,
following each other."                        (Appian, *Punic Wars*, 18: 126)

(13)   Akkadian, Neo Assyrian:
2   *kakkabān-i rab-ût-i… arki aḫāmeš iṣarrū*
two stars-GEN   big-PL-GEN after RECP   flash.DUR.3.M.PL
"Two great shooting stars flash, one after the other."
                                (Thompson Rep. 202 r. 4.)

(14)    Jewish Babylonian Aramaic:
   *manḥī*     *a-hədāde*
   place.PRS.PASS.3M.PL on-RECP
   "They are placed on top of each other."     (*B. Meṣiʿa* 25a)

Like Example (11), Example (14) cannot be understood as reciprocal: if X is on top of Y, then Y cannot be on top of X. The expression *hədāde* in Jewish Babylonian Aramaic is used to describe situations in which X is on top of Y, Y is on top of Z and so on, which is not a symmetrical relation ("Inclusive Alternative Ordering", in Kański's (1987: 67) and Dalrymple et al.'s (1998) terminology.)

  Dalrymple et al. (1998), among others, have surveyed the logical relations expressed by so-called reciprocal pronouns in English. They note that the sentences in (15) have different truth conditions in terms of the number of pairs that must exhibit the relation expressed by their predicates.

(15) a. House of Commons etiquette requires legislators to address only the speaker of the House and refer to each other indirectly.
   b. "The captain," said the pirates, staring at each other in surprise.
   c. Five Boston pitchers sat alongside each other.
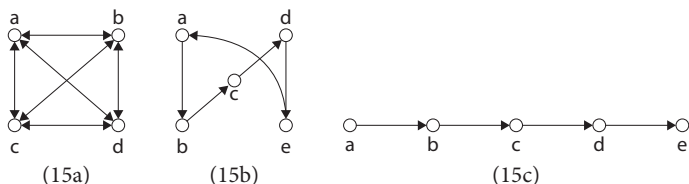


**Figure 1.** The states-of-affairs represented by (15)

In (15a) there must be a symmetric relation between each possible pair; in (15b) each of the pirates stared at one of the others, but not necessarily at every other pirate; in (15c) the pitchers must be sitting in a line, and each can be sitting alongside two others at most.

  Moreover, sentences with *each other* can have different truth conditions in different contexts. Consider (16a) in two different contexts (16b–c):

(16) a. They woke each other up.
   b. They woke each other up and ran to the important meeting [in this context it is sufficient that only one of them woke up the other].[7]
   c. They took turns sleeping and woke each other up [this implies that each, in turn, woke up the other].

---

**7.** A similar documented sentence is the following: "they woke each other up before 6 a.m., left their apartments and walked about 200 yards through a parking lot"$_\gamma$ (see Chapter 7 Example (28) and n. 6).

**Figure 2.** The state-of-affairs represented by (16)

The truth conditions of (16b) do not include a symmetric relation, while those of (16c) do.

In some languages the same expressions appear in reciprocal contexts and in casuistic laws, and in the latter the reciprocal reading is absent.[8] This is true, for example, of the expression *ʾîš … rēʿēhû* "man … his.fellow" in Biblical Hebrew (see § 4.3.2), as demonstrated by the reciprocal sentence in (17a) and the casuistic law in (17b).[9]

(17)  Biblical Hebrew:
    a.  *way-yaḥăziqû*       **ʾîš**   *bĕ-rōʾš*   **rēʿ-ēhû**
        and- hold.IPF.3.M.PL man in-head.of fellow-POSS.3.M.SG
        "Then each man grabbed his opponent by the head."     (2 Sam. 2:16)
    b.  *wĕ-kī*    *yāzid*                    **ʾîš**  *ʿal rēʿ-ēhû*
        and-when act.presumptuously.IPF.3.M.SG man on fellow-POSS.3.M.SG
        *lĕhorg-ô*        *bĕ-ʿormâ*
        kill.INF-ACC.3.M.SG in-cunning
        "If someone acts maliciously toward someone else, so as to kill him with cunning…"     (Exod. 21:14)

Although NP-strategy constructions tend to express the same range of logical relations cross-linguistically, only some of the constructions show up in casuistic laws. In § 4.3.4 I argue that the use of this strategy in such laws is not surprising, given the origin of the NP strategy, and I will explain why this use is somewhat restricted cross-linguistically.

Having demonstrated the various interpretations of NP strategy sentences, this is the time to proceed by addressing the three questions that are central to the fourth stage:

---

**8.** See, also Inglese (2017: 988, n. 24) on the use of an NP-strategy construction in casuistic laws. See also the various uses of *mole* in Mah Meri discussed by Kruspe (2011: 155–156), which are also relevant for this discussion.

**9.** The structures in (17a) and (17b) differ in terms of verbal agreement; I will elaborate on this in §4.3.4.

> **Stage four**: account for the relationship between the components of the construction, on the one hand, and the symmetric relations, on the other, with reference to the following questions:
>
> (4)   Is the symmetric reading optional or obligatory?
> (5)   Is the symmetric reading derived compositionally from the components of the reciprocal construction?
> (6)   If not, can the semantic property of symmetry be analyzed as a subcategory of some other semantic property encoded by the construction? And if so, what is that superordinate property?

However, this is not the place to address these questions in detail, since this is essentially the goal of the book as a whole. At this point, it is sufficient to make some crucial observations about the semantics of this construction, and to suggest that all the relations this strategy can describe must meet the two criteria in (18):

(18)   For a given set of participants:
    a.   Each member of the set must stand in the relation denoted by the predicate with at least one other member of the set.
    b.   It is immaterial which member of the set assumes which role in the relation; the only crucial criterion is the number of participations of set-members in the relation.

These requirements fit the following description of the function of these constructions:

(19)   **Unspecified constructions**: expressions denoting that, within a given binary relation R between at least two (defined) ordered sets, it is not specified which set occupies which position.

I will refer to these constructions as **unspecified constructions** and to the pronouns and anaphors that appear in them as **unspecified pronouns and anaphors** when referring to their semantics; in more general discussions I will refer to them as the constructions of the **NP-strategy for expressing reciprocity** (or more briefly: **the NP-strategy**.)

These relations are defined between 'sets' since the reciprocity can hold between groups, not just between individuals, as in the following Akkadian sentence (from the Neo Assyrian period):

(20)   *nišē      māt      Aššur  māt      Karduniaš itti  aḫāmeš*
    people.of country.of Assyria country.of Babylonia with RECP
    *ibballū*
    mingle.3.M.PL.DUR
    "The people of Assyria and Babylonia mingle with each other."

                          (CT 34 39 ii 37)

For the sake of simplicity I will often refer to them as relations between individuals, and I will also formalize them as such. The formula in (21) defines these relations for a set A with two or more members and a relation R:

(21)   $|A|{\geq}2$ and $\forall x{\in}A\exists y{\in}A$ $(x{\neq}y{\land}(Rxy{\lor}Ryx))$

(21) states that, given a set A, every member of the set must stand in relation R with at least one other member of the same set. However, while this is a necessary requirement for all sentences containing these pronouns, it is not a sufficient condition for acceptability in all cases. (In many instances the construction requires that the relation R hold between more than one pair.) As Example (16) demonstrates, it is the context that determines the specific truth-conditions of a given sentence, and therefore a full semantic account requires explaining how the exact meaning of each expression is specified in the given context. The formula in (21) represents the basic meaning of NP-strategy sentences, which is further specified and strengthened in particular contexts (the notion of strengthening will be formally defined in Chapter 7.)

As we saw earlier, typological discussions generally begin with prototypical, symmetric reciprocal relations and examine which constructions denote them (Lichtenberk 1985; Kemmer 1993). Consequently, when discussing non-symmetrical examples, they characterize them as an "extended use of a reciprocal marker" (Nedjalkov 2007a: 9). By assuming that the basic meaning of these are *unspecified constructions* (as defined in 18, 21), this book adopts the opposite position. It argues that the interpretation of these constructions is sometimes *strengthened* to entail reciprocity.

The significance of these conclusions goes beyond the semantic analysis of the constructions. As the discussions in the first part of the book will demonstrate, these preliminary observations regarding their meaning are also instrumental to understanding the origin of many NP-strategy constructions. In other words, taking (21) as their basic meaning, we are better able to understand the origin of the various constructions that belong to the NP-strategy for expressing reciprocity. As Chapter 1 will argue, it is necessary to examine the entire range of the strategy's functions and trace their evolution in this larger context.

While the first part of the book demonstrates how taking the meaning represented by (21) as the basic meaning contributes to the understanding of historical developments, the third part of the book, Chapter 7, does the reverse, showing how historical observations shed crucial light on the semantics of the NP-strategy. I will propose a model-theoretic semantic analysis for the NP-strategy constructions that takes (21) as their basic meaning. Accordingly, this book has an additional, broader goal: to examine how diachronic processes analyzed in the framework of historical linguistics, and formal semantic analyses of given constructions,

can support and enrich one another. To justify this type of theoretical synthesis, I devote the next section to a methodological discussion of the interaction between these two linguistic subfields: the challenges it poses but also the benefits it can have for both.

## 7.    Building theoretical bridges between historical linguistics and formal semantics

### 7.1    Background

Historical linguistics is the branch that studies how languages change over time, and its main goal is to account for documented changes in particular languages. Conversely, formal semantics deals with the meaning of expressions by representing them and capturing their logical relationships to other expressions. Historically speaking, these sub-disciplines emerged from disparate intellectual realms. Historical linguistics has its roots in philology: in the early decades of the 19th century, scholars of ancient texts sought to map the family relationships between ancient tongues, and to that end had to develop a methodology for describing the evolution of languages. This approach was reinforced by the *neo-grammarians*, the pioneers of the methodological study of historical linguistics. Espousing a positivist approach, they stipulated that the object of linguistic inquiry must be the *form* of linguistic expressions rather than their *content*. Accordingly, such studies focus on forms in individual languages and do not assume universal categories that hold across languages. Emerging as part of the positivistic trends of the late 19th century, the goals of historical linguistics were quite limited, confined to describing diachronic shifts in a deterministic manner (i.e., historical laws, see *inter alia* Jankowsky (1972) and Amsterdamska (1987: 121–136)).

In contrast, formal semantics was kicked off at the end of the 19th century by the German mathematician Gottlob Frege, whose project was to anchor the foundations of mathematics in logic, as part of which he proposed a formal way to represent propositions. After the Chomskyan turn brought formal methods into syntax, the logician Richard Montague proposed a formal approach to semantics that assumes a systematic relationship between syntax and semantics (Montague 1970). According to this approach, natural language is a formal language just like predicate logic. Since logic, by its nature, is universal, the formal representation of semantics also ascribes universal properties to natural languages. In this framework, the goal of the semanticist is to establish a theory of meaning that can account for the properties of natural languages. A crucial feature of formal semantics is its adherence to the principle of compositionality – that is, the meaning of the

whole (e.g., the sentence) is a function of the meanings of its parts (e.g., noun and verb phrases) and the way they are syntactically combined. Semanticists who accept these assumptions therefore consider only synchronic data and, *prima facie*, do not need to take diachronic considerations into account.

Since these approaches emerged from such different backgrounds, the scholarship produced by these two schools is rarely brought together: traditionally, historical linguists examined forms and explained phenomena in individual languages, while semanticists examined meaning and aimed to come up with a universal, logical representation for linguistic expressions. Thus de Saussure's dictum, that synchronic and diachronic analyses must be separated conceptionally, has held sway in the academic study of linguistics (cf. Bar-Asher Siegal 2017). However, the proposal of the Prague School, in particular Vilém Mathesius and Roman Jakobson, to integrate these two isolated spheres has recently gained more prominence (Mathesius 1928, and more broadly Vachek 1966, esp. Chapter 1).

Studies combining formal semantics and historical linguistics began to emerge only recently,[10] and usually fall under the category of Formal Diachronic Semantics, focusing on change in the semantics of specific expressions (inter alia, von Fintel 1995; Eckardt 2006, 2010; 2011; Merin 2003; Kiparsky & Condoravdi 2006; Bary 2009; Sitaridou 2014; Beck & Gergel 2015; Condoravdi & Deo 2014; Deo 2014, 2015; Eckhoff & Haug 2015; Caudal 2015). The assumption that undergirds this type of inquiry, as articulated by Eckardt (2010), for example, is that truth conditional semantics (formal semantics) proposes the most exact, explicit, and sophisticated way to capture the meaning composition of linguistic expressions.

The interaction between these two fields of study resulted from the recent interest in semantic change as part of grammaticalization, i.e., the complex process through which grammatical meanings develop from lexical ones (inter alia Bybee et al. 1994; Hopper & Traugott 2003; Traugott & Dasher 2002; Narrog & Heine 2011). However, it has been argued that the concept of grammaticalization is of limited explanatory power, and that it is in fact an epiphenomenal result of semantic change, structural reanalysis, and phonological reduction (Campbell 2001; Newmeyer 2001; Lightfoot 2006 among others). Accordingly, studies of semantic change often focus instead on cases of reanalysis, and formal diachronic semantics seeks to provide a truth-conditional reflection of the change in meaning this process involves.

---

**10.** By contrast, in the field of syntax a combination of the formal and historical approaches has been employed for more than two decades (inter alia Lightfoot 1999; Roberts & Roussou 2003; Roberts 2007; Gelderen 2011 and the 18 meetings of DIGS [=Diachronic Generative Syntax]). Regular meetings of FoDS [Formal Diachronic Semantics] began only recently.

Previous studies in diachronic semantics seem to have the following characteristics:

1. They address cases in which the form stays constant (at least at first) but the meaning changes;
2. They explain how and why semantic change takes place, given the truth conditional meaning of the relevant linguistic expressions.

Eckardt (2006), for example, demonstrates how the reanalysis of lexical expressions as functional ones is better understood when principles of formal semantics are applied. More specifically, she illustrates how pragmatic inferences at the propositional level can become conventionalized, and how these meanings are then redistributed over the lexical material, which leads to the creation of new functional expressions. The current discussion follows Eckardt (2010), among others, in focusing on cases of semantic reanalysis repeated cross-linguistically. A few notes on the nature of reanalysis are therefore in order:

Scenarios of reanalysis:

$$F$$

Scenario 1:   $\{G_1, M_1\}t_1$                                  $\{G_2, M_2\}t_2$

Scenario 2:   $\{G_1, M_1\}t_1$                                  $\{G_1, M_2\}t_2$

Scenario 3:   $\{G_1, M_1\}t_1$                                  $\{G_2, M_1\}t_2$
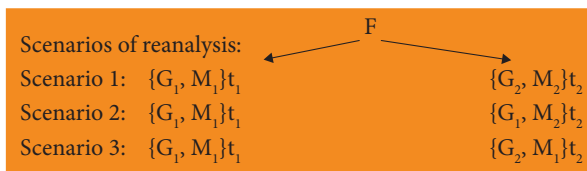
**Figure 3.** Modeling Reanalysis

Reanalysis can be schematically described as follows:[11] for a stream of phonemes F to be meaningful, it must have a (morphological or syntactic) grammatical structure G and a certain truth-conditional interpretation M. The reanalysis of a given stream of phonemes F involves cases in which F is associated with two different pairings of structure and meaning {G, M} at two different points in time (t). Reanalysis can involve both the morphological/syntactical level and the semantic level (Scenario 1), or alternatively be restricted to one level (Scenarios 2–3). Diachronic semantics is concerned only with cases where there is a change in mean-

---

11. Reanalysis is often considered in a narrower sense, as a syntactic mechanism of change, in which a new underlying structure is assigned to a surface sequence, without an overt modification of that sequence (Langacker 1977: 58; Harris & Campbell 1995: 61). Here, we are considering also reanalyses that are only at the semantic level. Similarly to the criticism concerning grammaticalization as a distinct phenomenon, it has been argued that reanalysis lacks explanatory force as well (McDaniels 2003; De Smet 2009, 2014 among others). For the purposes of the current discussion, however, it does not matter whether reanalysis is an explanation or merely a schematic description of historical changes that should be explained via other, more distinct, mechanisms.

ing (Scenarios 1–2).[12] The pivotal claim of the formal semantic studies is that, at both points of time ($t_1$ and $t_2$), G matches M in a compositional manner – this is necessary for reanalysis to occur (see inter alia Eckardt (2006, esp. Chapter 8)). In fact, accepting this assumption might add an element for the semantic analysis to explain; namely, it must be able to fully account for the historical change in terms of reanalysis. This requirement, in turn, may have some significant ramifications: whenever two semantic analyses are equally consistent with the data, an analysis that can also account for the historical reanalysis is preferable. Thus, awareness of the constraint on reanalysis – the requirement of compositional interpretations at both $t_1$ and $t_2$ – paves the way to new types of inquiry: examining how historical studies can affect synchronic semantic studies, which is one of the goals of this book.

To summarize, the leading hypothesis of formal diachronic semantics is that a model-theoretical analysis of the semantics of a given expression yields a better understanding of the historical processes in which it is involved. This book employs model-theoretic semantics, and in some of its discussions it will also adopt the methodology of diachronic semantics. However, an additional goal is to develop a new perspective on the interaction between these two linguistic sub-disciplines, i.e., to bring diachronic data into consideration in synchronic semantic analyses, and vice versa. This book aims to demonstrate how tracing historical developments in a given language can improve our understanding of universal semantic properties as they are expressed in that particular language and in Language at large. It attempts to shed new light on some general questions about the diachronic–synchronic interface in semantics. Consequently, the discussions in this book can also advance our understanding of how this emerging field, which combines formal semantics and historical linguistics, should be organized, and what its objectives should be. This book suggests a new direction, namely to use the findings of historical research to decide debated issues in the (synchronic) formal semantics literature. Thus, it aims to develop new methods that can be applied to other topics beyond that of reciprocity.

The following section restates, in greater detail, the working hypothesis of this book pertaining to the intersection of formal semantics and historical linguistics.

## 7.2    Working hypothesis

Prima facie, model-theoretic semantic analyses do not depend on historical validity. However, the broad hypothesis that this book aims to establish is that historical reanalyses, both syntactic and semantic, are nevertheless relevant for the synchronic semantic analysis of certain expressions. This project explores two

---

**12.** Cases involving a change in the G without a change at M will be discussed in § 2.4.3.1.

ways in which the historical development of a given phenomenon may be relevant to its semantic analysis:

> **Strong relevance**, adding an explanandum: Semantic reanalysis means, by definition, that the expression in question has two different compositional interpretations, i.e., an original meaning and a new one. The semantic representation of an expression which was produced through semantic reanalysis (Scenarios 1–2 in Figure 1) should therefore be able to trace the course of this reanalysis. In other words, historical data provide additional facts that a semantic analysis should be able to explain, and thereby can provide another criteria for deciding between competing analyses. Given two competing semantic analyses, both equally consistent with the data, an analysis that can also account for the historical reanalysis is preferable.

This direction will be pursued in the semantic sections of the book. As I will argue in Chapter 7 (based on the historical analysis that will be conducted in Chapter 1), the origin of the various constructions of the NP-strategy provides an argument in favor of a specific semantic analysis of these constructions.[13]

> **Weak relevance**, insights from correlations: When there is a correlation between grammatical environments that exhibit particular semantic features and environments which went through a particular historical grammatical change (especially when this correlation is repeatedly observed in different languages,) the correlation should be examined to detect patterns of regularity, in the hope that a better understanding of the grammatical change can shed light on the semantic peculiarity under discussion. This claim for relevancy is programmatic by nature. It promotes a direction of investigation, without setting constrains on the final conclusions.

In this book, the claim for such relevancy will be established, for example, for certain syntactic and semantic peculiarities of constructions that originally consisted of demonstratives. It will be shown that their origin is still relevant for explaining various synchronic facts (see e.g., Sections § 4.3–5; 4.4.3–5).

---

**13.** It should be noted that some studies employ this kind of methodology in practice. For example, Deo (2009) argues that one of the advantages of her semantic analysis of the imperfective and progressive aspects is that it allows to motivate an attested path of historical change in the meanings of progressive and imperfective markers; similarly, Fabricius-Hansen (2001) argues that a semantic analysis of *wieder* in German and *again* in English should also account for their parallel semantic development. However, to the best of my knowledge, the explicit methodology and the arguments for it have never been explicitly phrased.

## 8.    The scope and goals of the book

### 8.1    The topics

This book covers a variety of topics. Its first part (Chapters 1–2) employs semantic criteria as the basis for defining the set of constructions to be analyzed. As will become clear, understanding the semantics will be crucial for exploring the history of these constructions, and conversely the history of these construction will contribute to the understanding of their syntax, even at the synchronic level.

The second part of the book (Chapters 3–6) concentrates on various historical developments in individual languages that shed light on syntactic and semantic aspects of the constructions of the NP-strategy for expressing reciprocity.

The third part (Chapters 7–8) concentrates on the semantics of NP-strategy constructions and provides a new account for their various interpretations. Unlike previous analyses, it will be argued that the basic meaning of these constructions does not involve the denotation of symmetric relations. The third part relies on the conclusions of the first (historical) part of the book, as it examines the significance of the constructions' history for the analysis proposed.

Many of the historical and syntactic analyses will rely on identifying various types of constructions of the NP strategy cross-linguistically. These analyses are co-dependent and should demonstrate how the different types of studies can interact and enrich one another.

### 8.2    The languages

As for the languages discussed in this book, the historical section (Chapters 1–6) focuses on Semitic languages, with parallels from other families to demonstrate broader typological implications. In the semantic part (Chapters 7–8), many of the examples will be from English as well, so as to address the literature on the relevant English constructions.

The historical sections do not aim to provide a full account of the relevant constructions in all of the Semitic languages.[14] Since the historical aspect is dominant in the book, it will deal mainly with Akkadian, Aramaic and Hebrew, which are probably the most historically documented languages of the Semitic family. The next section is a brief overview of this family, with focus on these three languages.

---

**14.** Studies that address the constructions of the NP-strategy in the Semitic languages are very few. For a preliminary review of the forms see Rubin 2005: 22-23. For a study of Standard Arabic, see Kremers 1997; on Biblical Hebrew, see Jay 2009, and on Modern Hebrew, see Halevy 2010, 2011a, and 2011b. On Amharic, see Goldenberg (1991: 537–541), and several studies by myself referenced in this book.

A branch of the Afro-Asiatic language family, the Semitic family is one of the oldest attested families of languages. Figure 4 presents standard genealogical tree for these tongues,[15] divided into East Semitic, of which Akkadian is the main representative, and West Semitic, the branch to which most of the documented languages belong.
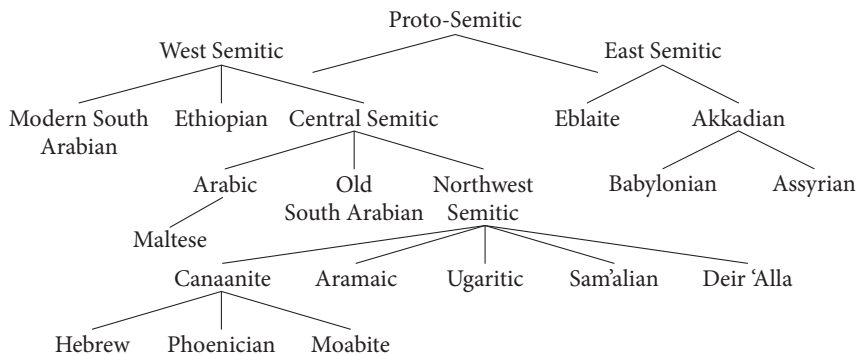


**Figure 4.**  the genealogical tree of the Semitic languages

As stated, Akkadian is the main language in the eastern branch of the Semitic languages. This extinct language was spoken in ancient Mesopotamia, and texts in it are attested from the third millennium BCE until the first century CE. By the second millennium BCE, Akkadian had split into two variants, known as the Assyrian and Babylonian dialects. The literature usually divides Akkadian into the following historical layers, which also differ in terms of the areas where they were spoken:

Old Akkadian, 3500–200 BCE
Old Babylonian/Old Assyrian, 2000–1500 BCE
Middle Babylonian/Middle Assyrian, 1500–1000 BCE
Neo-Babylonian/Neo-Assyrian, 1000–600 BCE
Late Babylonian, 600 BCE–100 CE

Old Babylonian came to be regarded as the classical period of Akkadian, and scribes living in both Babylonia and Assyria in later periods therefore attempted to emulate it, creating a literary dialect that Assyriologists call Standard Babylonian.

The West Semitic languages are divided into three branches: the Ethiopian languages (including the classical Ethiopian language Ge'ez and the modern dialect of Amharic, examples from both of which will be provided in this book); Modern South Arabian (six languages spoken in eastern Yemen); and Central Semitic.

---

**15.** Following Hetzron (1972, 1974, 1975, 1976); this genealogical tree is taken from Rubin (2008). Cf. Huehnergard & Rubin 2011.

The last branch is itself divided into three: Arabic, Old South Arabian and the Northwest Semitic languages. Arabic examples in this book will be from the classic period (the language of the Qur'an) and from the Neo-Arabic dialects, but there will also be examples from Modern Standard Arabic (the *fuṣḥá*), the standardized variety of Arabic used in formal register throughout the Arab world, for I will describe a difference between a construction in Classical Arabic and its counterpart in Standard Arabic that has not hitherto been mentioned in the literature (§ 2.4.2).

Two languages that will be repeatedly discussed here are Aramaic and Hebrew, both belonging to the North West Semitic languages. Aramaic has over three millennia of documented texts. It was originally the language of Aramean tribes, who inhabited the region between the Levant and the northern Euphrates Valley. In the first millennium it gained prominence under the Neo-Assyrians and later the Persians, and became the administrative tongue of empires (Official Aramaic.) This role may be the reason for its considerable influence on other languages, a phenomenon that will be addressed repeatedly throughout this book. According to the standard periodization of Aramaic introduced by Fitzmyer (1979), the language is divided into five phases:

Old Aramaic (925–700 BCE)
Official Aramaic (700–200 BCE)
Middle Aramaic (200 BCE–200 CE)
Late Aramaic (200–700 CE)
Modern/Neo-Aramaic (700 CE–)

Late Aramaic is divided into the eastern and western dialects, and this book will be demonstrate how the study of the NP-strategy constructions can be relevant to a comparative linguistic discussion about the relationship between the various eastern dialects across periods (Chapter 6).

Hebrew belongs to the Canaanite subgroup of languages. There are various approaches to the periodization of Hebrew, and, since the differences between the approaches are important for some of our discussions, they will be reviewed in Chapter 4. The basic division of Hebrew into periods is the following:

Biblical Hebrew (1000 BCE–200 BCE)
Qumran, Samaritan, Mishnaic Hebrew (200 BCE–700 CE),
Middle Hebrew (700 CE–1900 CE)
Modern Hebrew (1900 CE–)

Some of the discussions will involve an overview of phenomena in several Semitic languages, while others will concentrate on specific issues in only one or two of these languages (with references to parallels in other languages.) Notably, since Aramaic and Hebrew are still spoken, it is possible to trace various developments

as they are happening today. In the case of Hebrew, as a native speaker, I have access to native judgments, which are extremely important for the discussion on the syntax and the semantics of these constructions (they will play a significant role in the discussions in Chapters 3, 4, 7 and 8).

However, the book will also consider languages other than the Semitic ones. Since the broader goal of the historical part is to discover recurring patterns of historical development, it is only natural to survey parallel phenomena in other language families whenever they can be identified.

Different parts of the book have different goals, and in each of them the comparison between languages has a different objective. Some of the discussions focus on what is common to the constructions in the various languages, while other parts of the book emphasize how they diverge. When focusing on similarities, the goal is to identify the resemblance in the syntax and semantics of the relevant constructions across languages, and thus to recognize recurring patterns of development. As we shall see, tracing similar developments in several languages simultaneously yields a better understanding of the relevant historical processes. At the same time, following the diachronic changes in a single language can improve our understanding of certain general syntactic and semantic properties of the constructions, and makes it possible to understand phenomena that, had they been studied in isolation, would have been difficult to understand. The exploration of parallel developments in different languages will occasionally yield unexpected conclusions. For example, Chapter 3 will argue (based on observations in Chapter 2) that certain forms in Modern Hebrew and Modern Italian should be analyzed synchronically as relics of previous constructions. Accordingly, although they are represented at PF (phonological form), they do not have interpretative properties.

In parts of the book that focus on the differences between the constructions in various languages, the goal will be to understand how the components of specific constructions are responsible for the syntactic and semantic peculiarities. The variations between constructions within one language and cross-linguistically will form the basis for exploring the unique characteristics of some of them (Chapters 5–6).

## 9.    The structure of the book and the intended audience

The book is constructed in a modular manner, so that different readers can choose to read different chapters, without necessarily reading the entire work. While it is my belief that there is an advantage to covering all aspects of the topic together, and it is my hope that this book demonstrates how each type of study may shed unexpected light on the other types of studies, I have tried to make individual chapters accessible on their own.

The first two chapters lay the foundations for the rest of the book in terms of the data and basic analyses. They present the various types of constructions of the NP-strategy for expressing reciprocity and explore their origins. Chapter 1 demonstrates the significance of an accurate semantic description of these constructions for understanding how they came to be part of the NP-strategy. Chapter 2 explores constructions of one type that developed into constructions of another type within the same language, while also examining their basic syntactic structures.

The second part of the book (Chapters 3–6) applies various conclusions from the first part to phenomena in specific languages. Each of the chapters in this part of the book introduces a different type of linguistic inquiry. Chapter 3 applies conclusions from Chapter 2 to constructions in contemporary Hebrew and contemporary Italian. It demonstrates how the conclusions from the historical study sheds light on the synchronic syntactic analysis of these constructions, which are still in use today.

Chapter 4 relies on the overview in the previous chapters of the different types of constructions and what sets them apart, and addresses them in the context of linguistic variation. The discussion of linguistic variation focuses on constructions from all periods of Hebrew. It examines their origin in other languages, and seeks to determine to what extent their different components affect their synchronic grammar. Chapter 5 focuses on Akkadian and explores two diachronic phenomena: (1) an NP-strategy construction that evolved into an adverbial-strategy construction for expressing reciprocity – which leads to an exploration of the differences between these two strategies; (2) an NP-strategy construction that came to express sociative relations as well. These discussions will facilitate an exploration of the multifunctionality of these constructions (see above § 0.3) and its potential connection to diachronic shifts. Chapter 6 likewise relies on the overview of the different construction types, but concentrates on the history of Aramaic, examining the relationship between the Late and the Neo-Eastern Aramaic dialects through the prism of NP-strategy constructions.

Finally, the last part of the book, focuses on the semantics of the NP-strategy. Here too the phenomenon of multifunctionality plays a significant role. After reviewing a variety of cases in which NP-strategy constructions allow non-reciprocal readings, Chapter 7 will argue for a new semantic analysis of these constructions, one that assumes that their basic meaning is weaker than strong reciprocity. I will demonstrate how their history, as introduced in Chapter 1, supports this particular formal semantic analysis, and also present other theoretical and empirical facts to support this view. The chapter will converse with various formal studies of the semantics of NP-strategy constructions. Chapter 8 will complete the semantic analysis by providing a semantic account for how the basic weak meaning of the NP-strategy can be semantically strengthened in a given context, leading to the

state of multifunctionality described earlier (§ 0.6). Readers with interest only in this type of questions can read this part of the book, with only some basic acquaintance with the data and analysis from the first chapter of the book.

As stated, this book focuses on just one strategy for expressing reciprocity: the NP-strategy, and aims to provide a complete treatment of its history, syntax and semantics. Clearly, this study is only the beginning of a broader inquiry into the expression of symmetric relations in natural languages. Future research projects of this sort should focus on other strategies for expressing reciprocity. It is my hope that this study can provide a useful model for studying these strategies.

PART 1

# The types of constructions and their origin

## 1.1 Introduction

This chapter has two goals: (1) to introduce various types of NP-strategy constructions for expressing reciprocity; and (2) to explore the origin of these constructions. More broadly, as noted in the introduction, this and the following chapter set the foundations for the rest of the book in terms of data and analyses. It begins with a historical overview of the NP-strategy for expressing reciprocity, focusing on internal developments within various languages that have evolved constructions with NP-strategy characteristics. At the same time, it demonstrates an imperative for an accurate semantic analysis of such constructions to inform historical analysis.

The structure of this chapter is as follows: Section 1.2 introduces two major types of NP-strategy constructions for expressing reciprocity in Semitic languages. Section 1.3 surveys the range of such constructions found in this language family and proposes a typology based on their semantics. This chapter's principal objective is to trace these constructions' grammaticalization trajectories, and more specifically, to show that these processes are best understood in light of their semantic analysis as unspecified constructions, as defined in the introduction (§ 0.6), and repeated for convenience in (1), with a formal representation in (2):

(1) **Unspecified constructions**: expressions denoting that, within a given binary relation R between at least two (defined) ordered sets, it is not specified which set occupies which position.

(2) a. $|A| \geq 2$ and $\forall x \in A \exists y \in A \ (x \neq y \wedge (Rxy \vee Ryx))$
    b. $|A| = 2$ and $\exists x, y \in A(x \neq y \wedge Rxy)$

The formula in (2a) captures the definition in (1) for a set A with two or more members and a relation R. For reasons elaborated in what follows, a representation of the truth conditions when set A has only two members is provided in (2b).

## 1.2   Types of NP-strategy constructions for expressing reciprocity in Semitic languages

In the current study, constructions are relegated to the NP-strategy category based on two criteria:

a.   They share the same range of uses (as surveyed in § 0.6, and captured by (2));
b.   The encoding is not through verbal morphology. Unlike verbal strategies for expressing reciprocity, the verbs in NP-strategy constructions are ordinary transitive verbs.

In Semitic and various Indo-European languages, NP-strategy constructions appear to fall into two major types:[1]

I.   Two-unit constructions: constructions with two components, each filling a different predicate argument position.
II.   One-unit constructions: constructions with a one-unit expression which co-refers with another plural NP in the clause; the expression is never in the non-embedded subject position, but may occupy any other position as required by the predicate.

The various forms of this type are analyzed as anaphoric in the framework of Government and Binding, whereby anaphors are variables that have to be bound in their governing category. Accordingly, I will refer to one-unit expressions of this type as "anaphors".

Akkadian, for example, has both types. Its two-unit construction involves the reiteration of *aḫum* "brother", while the one-unit type contains variants of *aḫāmiš/aḫāiš*. The former was predominant in the earlier dialects (3a), whereas the latter developed only in the Middle Babylonian and Middle Assyrian (3b) (Bar-Asher Siegal 2011a):

(3)   a.   Old Akkadian:
  *urkatam   aḫ-um      ana aḫ-im      lā    inappuš*
  afterwards brother-NOM to   brother-GEN NEG make.a.claim.DUR.3.SG
  "Afterwards one will not make a claim against the other." (TCL 19 63: 45)

---

1.  Cf. Haspelmath's (2007: 2138) division between 'bipartite anaphor' and 'single-part anaphor.' However, while Haspelmath distinguishes between three types of anaphors – (1) separable bipartite anaphor; (2) inseparable bipartite anaphor; (3) single-part free anaphor – the main division salient for the historical analysis here is clearly between constructions with a two-unit and one-unit expression. In addition, as will be explained below, Haspelmath's categories are not parallel to the ones proposed in the current discussion.

b.  Late Babylonian:
*aḥāmeš ippalū*
RECP    pay.DUR.3.M.PL
"They will compensate each other."                    (Dar 321:29)

Classical Arabic uses only the two-unit construction, with a repetition of *baʿḍ* "some" (4a) (with a possessive pronominal suffix attached to the first unit, which grammatically agrees with the participants of the reciprocal relation). This construction also appears in Modern standard Arabic (4b), in addition to two others: a one-unit construction with the first element only (4c), and an ostensibly two-unit construction with only one pronoun marked for case and the other caseless (4d):

(4)  a.  Classical Arabic:
*danā                 baʿḍ-u-hum            min  baʿḍ-in*
approach.PST.3.M.SG some-NOM-POSS.3.M.PL from some-GEN.IND
"They approached each other."          (AS 161, Kremers 1997: 31)

b.  Standard Arabic:
*qāla            baʿḍ -u-hum            li  baʿḍ-in*
say.PST.3.M.SG some-NOM-POSS.3.M.PL to some-GEN.INDF
"They said to each other…"                (Cantarino 1975: 137)

c.  Standard Arabic:
*muraddidīna         ʿalā  masāmiʿ-i  baʿḍ-i-him              ḥikāyāt-i*
repeat.AP.M.PL.ACC on    ear.PL-GEN some-GEN-POSS.3.M.PL story-PL.GEN
*l-ʾayyām-i          wa-l-layāl-ī*
DEF-day.PL-GEN and-DEF-night.PL-GEN
"Retelling [*lit.* repeating to the ears of] to one another stories of the days and nights…"                (Cantarino 1975: 137)

d.  Standard Arabic:
*tuʿazzizāni            baʿḍ-a-humā            l-baʿḍ*
strengthen.IMP.F.DU some-ACC-POSS.3.DU DEF-some
"They strengthen each other."                (Kremers 1997: 55)

Likewise, Syriac employs both a two-unit construction comprising a reiterated *ḥad* "one" (5a) and a one-unit correlate that includes the form *ḥədādē* (5b):

(5)  Syriac:
a.  *mallel[u]        rāʿaw-ātā   ḥad   ʿam ḥad*
speak.PST.3.M.PL shepherd-PL one.M with one.M
"The shepherds spoke with each other."                (Luke 2:15)

b.  *mšaḥlp-īn      rēḥāy-hon        men da-ḥdādē*
different-M.PL smell-POSS.3.M.PL from of-RECP
"Their smells are different from each other."

(Life of Simon Stylites 382: 8)

The discussion in this and the following chapter will reveal that, in Semitic languages, two-unit NP-strategy constructions predominantly resulted from the grammaticalization of their constituent NPs as their integral part, and that the anaphors of one-unit constructions developed, without an exception, from two-unit constructions, and never directly from nominal expressions. The shift from a two- to a one-unit construction is well attested cross-linguistically. Compare, for example, *one… another* in English to *einander* in German. This and the following chapter present the various types of NP-strategy constructions for expressing reciprocity, and seek to reveal the mechanisms that propelled their emergence, with reference to the following two questions:

I.    How did the various types of two-unit constructions evolve?
II.   Could diachronic chains be proposed to trace the development of one- from two-unit constructions?

Question (I) has been addressed in the literature, with focus on the range of phrases likely to become reciprocal markers (inter alia Heine 1999; Frajzyngier 1999; Heine & Kuteva 2002: 92; Heine & Mysashita 2008: 177–182; Nedjalkov 2007b: 155). Such accounts, however, do not point to precise mechanisms through which these constructions developed their meanings. My argument, elucidated in (§ 1.3), is that semantic considerations, as set forth in (1) and (2) above, are crucial for understanding the evolution of NP-strategy constructions in the Semitic, and very probably in other language groups as well, as is evidenced by the examples adduced. The literature concerned with the second of the above two questions is reviewed in the next chapter, and some novel solutions in this regard are proposed as well.

In exploring the origin of two-unit constructions (Question I above), I survey their different types found in a number of Semitic languages, and proceed to hypothesize how they developed to denote unspecified relations (2). My proposals regarding the various constructions are motivated by the meaning of their constitutive elements in contexts other than NP-strategy. In other words, I conjecture that these components could be interpreted in a compositional way as expressing such relations.

Figure 1 provides the range of construction types, all but one (those with universal quantifiers) found in the Semitic languages. The rubrics are organized according to the origins of the constructions they represent, and to the aspects of their composition that induce the semantics of unspecified relations. The rationale behind the organization of this diagram will be elucidated in the discussions of similarities between the different types of constructions in terms of form and function.
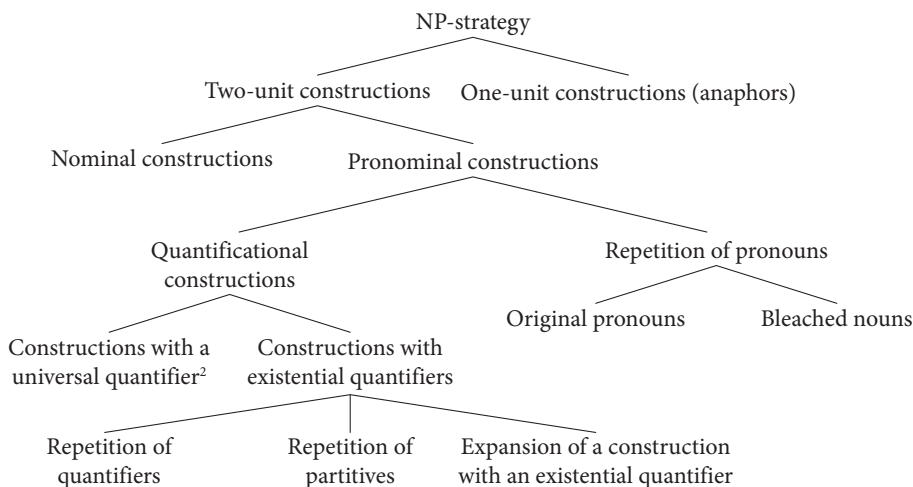
**Figure 1.** The range of construction types used to express unspecified relations

The following subsections focus on the branches of the diagram in Figure 1, and demonstrate how the various types of constructions it represents either express the unspecified relations directly, or could be grammaticalized to do so.

## 1.3    Two-unit constructions: Origin and semantics

### 1.3.1    Two-unit constructions: A nominal construction

A well-known phenomenon in Indo-European and other families (Nedjalkov 2007b: 154; Plank 2008: 359; Evans 2008: 64 and Haas 2010: 11) is a repetition of a referential expression without specifying a particular referent for each of its tokens. Among the relations that can be expressed in this way is reciprocity, as in the following Latin proverb:

(6)   Latin:
      *hom-o      hom-ini    lup-us      est*
      man-NOM.SG man-DAT.SG wolf-NOM.SG be.PRS.3.SG
      "Man is wolf to man."

I dub this type of construction "nominal" as it employs regular referential expressions – nouns in the classical terminology. However, to the extent that noun reiteration is also used with contextual reference, the nominal construction appears in a range of contexts above and beyond generic (cf. Nedjalkov 2007b; Haas 2010),

---

**2.**  Later on (§ 1.3.2.2.4), I will argue that this type belongs to the one-unit category.

and is found in a wide variety of languages, including Semitic (e.g., reciprocity is indicated by a repetition of nouns in Biblical Hebrew (7a–b), Qumran Aramaic (7c), and in different dialects of Akkadian (7d–e)):

(7)  a.  Biblical Hebrew:
         *wat-taʿărōk        iśrāʾēl û-pĕlišt-īm       maʿărākâ liqraʾt  maʿărākâ*
         and- lead.IPF.3.F.SG Israel and-Philistine-PL battle     toward battle
         "Israel and the Philistines were drawing up their lines facing each other
         [*lit*. line of battle against line of battle]."          (1 Sam. 17:21)

     b.  *gibbôr  bĕ-gibbôr  kāšālû*
         warrior in-warrior stumble.PRF.3.M.PL
         "One warrior will stumble over another."                  (Jer. 46:12)

     c.  Qumran Aramaic:
         KLA YDŠWN          ʿM    L-ʿM    YDWŠ
         all   crush.IMPF.3.M.PL nation to-nation crush.IMPF.3.M.SG
         MDYNH L-MDY[N]H
         city      to-city
         "They will all crush, nations will crush each other, and states (will crush)
         each other."                                      (4Q246 1ii3)[3]

     d.  Old Babylonian:
         *šarr-um  šarr-am  ina kakk-i    idâk=ma*
         king-NOM king-ACC in   battle-GEN defeat.DUR.3.SG=and
         "One king will defeat the other in battle."          (YOS 10, 56ii37, Izbu)

     e.  Neo Assiryan:
         *kuss-û      kuss-â      idarris*
         throne-NOM throne-ACC overthrow.DUR.3.SG.
         "One throne will overthrow the other."                (CT 27 25: 24)

This two-unit structure is not a *construction* in the literal sense, as it does not contain any lexical or grammatical component unique to it, and the semantics of these sentences derives directly from the syntax. Neither can it be regarded as a construction grammaticalized to express unspecified relations, since the repetition of any referential expression may, in some contexts, indicate an unspecified relation between the referents of these nouns.

   Accordingly, in the case in point, the semantics of an unspecified relation between two sets may be derived compositionally, merely by repeating a word. When a noun is repeated within a clause, it must be interpreted as having a different referent each time, to avoid violating condition C of the traditional binding theory (8):

_____

**3.** See, Muraoka (2011: 51) for a survey of nominal strategies to express reciprocity found in Qumran Aramaic.

(8)  An R-expression cannot have an antecedent that c-commands it.

Therefore, the meaning conveyed by a repetition of an NP is that one referent of the repeated NP stands in a relation to a different referent of the same NP, both being included in the denotation of the same NP (cf. Plank 2008: 359 and Sichel 2009: 716–717). Thus, the basic semantics of such sentences with a repetition of referential expressions (especially when the situation described involves only two participants) is similar to unspecified relations (1) as represented in (2). Note that, at this point, we are not concerned with how such sentences can be strengthened to convey that the relation in question is symmetric. This point will be discussed in Chapter 8, where I focus on the semantics of these constructions.

The interpretation of (6) seems stronger than the formulation in (2), since prima facie its truth conditions require strong reciprocity. However, as we will see below, this is not always the case. More specifically, with definite plurals the truth conditions are the same as for NP-strategy constructions (cf. Glinert 1983: 199). Consider Example (9), which can be interpreted in several ways:

(9)  The boys fed the boys and the girls fed the girls.

This sentence can be true even if, in a given set of boys and girls, only some of the boys fed all the other boys and some of the girls fed all the other girls. In certain circumstances it can, of course, mean that all the boys were fed, and that the feeding was done by all the boys (and the same holds true for the girls), or that all of the boys and girls were divided to pairs of the same gender and participated in reciprocal feeding. Interestingly, although the definite article with plural expressions implies maximality, in this case the maximality meaning is anchored in the entire clause: For the sentence to be true, each and every boy must be either among the feeders or among those who are being fed. The truth conditions of a repeated definite plural expression are, accordingly, similar to what has been formulated in (2), repeated below:

(2)  $|A|{\geq}2$ and $\forall x{\in}A\exists y{\in}A\ (x{\neq}y{\wedge}(Rxy{\vee}Ryx))$

As noted, (2) states that, for each member of a given set, it is true that it is a member of a subset of two members of the set A, standing in the relation R. Figure 2 illustrates various states-of-affairs in which the first clause in (9) can be expressed truthfully – and which also apply to the equivalent NP-strategy sentence "the boys fed each other".

Accordingly, a repetition of a noun indicates this semantic relation as follows:

(10)  [For a given set of individuals denoted by an NP, every individual belongs to a pair of members from this set, in which] – NP R NP

Good ==> $boy_1$ $boy_2$ $boy_3$ $boy_4$ → $boy_1$ $boy_2$ $boy_3$ $boy_4$      Not good ==> $boy_1$ $boy_2$ $boy_3$ $boy_4$ → $boy_1$ $boy_2$ $boy_3$ $boy_4$

Good ==> $boy_1$ $boy_2$ $boy_3$ $boy_4$ → $boy_1$ $boy_2$ $boy_3$ $boy_4$      Good ==> $boy_1$ $boy_2$ $boy_3$ $boy_4$ → $boy_1$ $boy_2$ $boy_3$ $boy_4$
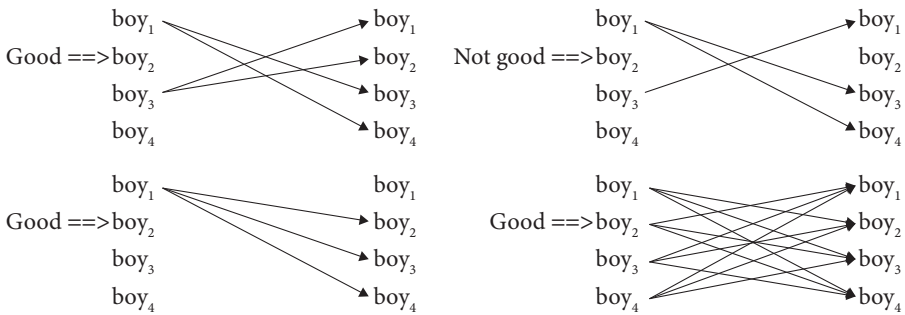
As the following sections will demonstrate, the ability of constructions comprising the elements "NP R NP" to express an unspecified relation sheds light on the constructions found in Semitic languages and in other languages as well. An account of the first, bracketed, part of (10) is provided in detail below (§ 1.4). In the case of a set with only two members, the formula NP R NP represents (2b) directly. Thus, it is plausible that such constructions started out by expressing a relation only between two members of a set and later on grammaticalized to cover larger sets as well (see § 5.5 for evidence for this proposal at the morphological level.)

The similarity in meaning between NP-strategy constructions and reiteration of two nominal expressions in other related constructions is demonstrated below. In (11b) the English NP-strategy (the pronouns *one-other*) with the antecedent in the sentence (*dogs*) replaces the repetition of the NP "dog" in (11a):[4]

(11)  a.  They entered the room, dog after dog.
      b.  These dogs entered the room one after the other.

In situations encompassed by (11), the relation between the dogs is not symmetric, but it nevertheless falls under the category expressed by unspecified constructions, based on what was established above regarding the semantics of the latter: each of the dogs in the set is either following or being followed by one of the dogs in the same set.

A similar conclusion can be drawn in regard of Semitic languages. Thus, from the semantic point of view, it is of no consequence that sentences (12a–b), from an Old Babylonian source, do not express reciprocity in the literal sense. In all likelihood, in the scenario described by (12a), only one king defeats the other. Neither is it important that (12c), in Jewish Babylonian Aramaic, does not necessarily describe reciprocal visits. Such sentences have a bearing on the current discussion in

---

4. The semantic relation between these two constructions is beyond the scope of the current investigation, but it seems reasonable to reconsider it in light of the semantics of unspecified pronouns discussed here (cf., Beck & von Stechow 2006, I wish to thank Luka Crnič for this reference).

respect of the way their referential expressions denote relations between different sets: In both cases these relations are conveyed through a repetition of a nominal expression (as is also reflected in the English translation).

(12)   a.   Old Babylonian:
šarr-um   šarr-am   ina kakk-i      idâk=ma
king-NOM king-ACC in   battle-GEN defeat.DUR.3.SG =and
"One king will defeat the other in battle."            (YOS 10, 56ii37)

b.   *qaqqar-um    eli    qaqqar-um*[5] *utelli*
surface-NOM over surface-NOM high.DUR.3.SG
"How much higher is one level [of water in the water clock] than the other level?"                        (TMB 26 50: 3)

---

**5.**  Sentence (12b) is irregular in that both nouns representing the participants of the reciprocal relation described are in the nominative (*qaqqarum eli qaqqar**um***). The second noun follows a preposition and should therefore be in the genitive (as is the case both in 50:3 and in 52:4; while 51:1 is a restoration). This particular instance could be merely an error, but we find a similar phenomenon in other Akkadian sentences comprising NP-strategy constructions, namely, both participants are in the nominative, while grammatically the second requires accusative, as the following examples illustrate:

i.   Late Babylonian, Seleucid:
*pitrušt-u*              *pitrušt-u*                    *itappal*
ambiguous(sign)-NOM ambiguous(sign)-NOM correspond.3.SG.DUR
"One ambiguous sign corresponds to another."                  (TCL 6 5 37f)

ii.   Neo Babylonian [Standard Babylonian]:
*amēl-u*    *amēl-u…*    *lā*    *igammilū…*
man-NOM man-NOM… NEG spare.3.M.PL.DUR
"One man may not spare the other man."                  (Cagni Erra IV 135,)

The recurrence of this grammatical "abnormality" is striking indeed. Possibly, the reason is that, in a "reciprocal relation", both participants are in many senses equally the "subjects", as at the semantic level both occupy subject position, and the semantics of these examples affects their syntax. This possibility finds further support in Evans (2008: 64), who describes a similar phenomenon in Bangla with respect to a repetition of a restricted list of NPs: both nominals are in the ergative case. It should be noted, however, that of the three Examples (12b and i+ii in this footnote), (12b) is the most compelling, as it is from a text written in Old Babylonian that, based on the language and the writing, is usually dated to the first Dynasty of Babylon or shortly thereafter. The other two examples are from later periods, during which marking was not always consistent, and one can find the nominative ending *-u* when the accusative *-a* is expected. Therefore, this hypothesis needs to be validated using more examples from earlier periods. Note, however, that in (i) the verb is in the Gt stem (which is reserved exclusively for intransitive verbs), and hence the direct object is unexpected.

c. Babylonian Aramaic:
*nəše   ləgabbe nəše   šəkīḥ-ī        d-āzl-ī        gabr-e*
women to      women find.PTCP.PASS-PL REL-go.PTCP-PL man-PL
*ləgabbe gabr-e    lā   šəkīḥ-ī         d-āzl-ī*
to       man-PL NEG find.PTCP.PASS-PL REL-go.PTCP-PL
"Women visit each other frequently; men do not visit each other
frequently."                                    (Yebam. 26a)

Negative sentences with noun reiteration, however, lend themselves only to a liter-
ally negative reciprocal reading, in the sense that neither relation, aRb or bRa,
holds:

(13)   Late Babyloinan, Achaemenid:
*awīl-u      eli awīl-i    mimma el-īšu*
person-NOM to person-GEN thing   NEG-have.PST.3.SG
"They do not owe each other a thing."               (MDP 24 328: 8)

This is actually a logical deduction: even if, in the root sentences (the sentence
without negation), each noun/pronoun picks only one unspecified referent, in
negative sentences with a wide-scope, sentential, negation, it must pick both
referents, as is illustrated in (14):

(14)   a.   "It is not true that <u>one of the two</u> did R to <u>the other one</u>."
           This sentence is semantically equivalent to:
           "The two persons did not do R to each other."
       b.   The following three formulae are semantically equivalent for the set A
           that contains only the two members a, b: A={a, b}:
       i.    $|A|{\geq}2$ and $\forall x{\in}A \sim\exists y{\in}A$ $(x{\neq}y{\wedge}(Rxy{\vee}Ryx))$
       ii.   $\sim(Rab{\vee}Rba)$
       iii.  $\sim Rab{\wedge}\sim Rba$

In Chapter 7, I will show that negative NP-strategy clauses always convey a nega-
tive reciprocal meaning, and that this property stems from an interaction between
(2) and the negative operator. Therefore, such sentences fall under the rubric of
unspecified constructions. To the extent that affirmative NP-strategy clauses de-
note unspecified relations, the negative reciprocity reading derives naturally from
the semantics of the former. This issue and its ramifications for the analysis of the
basic meaning of the NP-strategy are discussed at length in § 7.7.2.

     To conclude, noun reiteration yields what Haspelmath termed a "free
construction."[6] Insofar as the semantics of such sentences derives from their

---

**6.** Cf. Haspelmath's (2007: 2090) division between "free expressions" and "specialized recipro-
cal constructions".

syntax due to the repetition of a noun, which appears in two separate slots in the clause, the same logical relations hold for a repetition of any noun in the lexicon.

The rest of the discussion throughout this chapter focuses on "grammaticalized constructions", those with designated forms, either lexical nouns or grammatical expressions. This process is scrutinized in an endeavor to capture how such constructions developed their semantics. I hypothesize that a promising approach in this regard would rely, to a large extent, on the observation that many NP-strategy constructions involve a repetition of two NPs. The question that underpins the inquiry in this and the following chapters is whether the semantics of unspecified relations is established by the NP-strategy construction *in toto*, or whether a more feasible strategy would be to interpret such sentences compositionally, on the assumption that their semantics is obtained from their constitutive elements and syntax.

In this connection, it is important to recall Plank's (2008: 359) important caveat concerning the nominal construction:

> A more general drawback of the strategy of identical NP repetition is that it does not work when the participants in a reciprocal relation are differently categorized: from 'earl(s) hated queen(s)', it is asking for too much to infer that the same relation also obtained in reverse between the same referents.

In my view, it is this restriction that may have propelled the grammaticalization of some NP-strategies – a line of argument that is developed below.

## 1.3.2    Two-unit constructions: Pronominal constructions

This category includes grammaticalized sequences of unspecified pronouns consisting of two pronominal expressions that fill the two argument positions of the predicate. In this context, the term "pronoun" is used in the general sense, as a free form whose interpretation depends on another referential element, namely, the antecedent. In the case of an unspecified relation, the antecedent is the set participating in the relation described by the predicate.

This broad category of pronominal NP-strategy constructions can be subdivided into several subtypes according to formal distinctions related to the functions of their constituent elements, as well as to the way the meaning of the unspecified relation is conveyed.

As in the previous category, which involves noun-reiteration, in these constructions, too, the relation between the participants is marked through NP reiteration, but the expressions repeated function in other grammatical contexts as pronouns of different types, including demonstrative and indefinite (in the sense used by Quirk et al. 1985: 376 and Haspelmath 1997). For example, consider the

use of indefinite pronouns in the Judeo-Arabic Moroccan dialect of Tafilalt (15), proximal demonstratives in Aramaic dialects (16) and in Mishnaic Hebrew (17), and the cardinal number "one",[7] which functions in other contexts as an indefinite pronoun, in other dialects of Aramaic (18) and various other languages (Nedjalkov & Geniušienė 2007: 426).

(15) Judeo-Arabic Moroccan dialect of Tafilalt:
*muḥmmǝd u-musa ṭaw si l-si kadu*
Muhammad and-Moses give PST.3.M.PL someone to-someone gift
"Muhammad and Moses gave each other a gift."

(16) Biblical Aramaic (Official Aramaic):
*wě-ʾarkubb-āt-ēh dā' lě-dā' nāqš-ān*
and-knees-PL-POSS.3.M.SG DEM.F.SG to-DEM.F.SG strike.PTCP-F.PL
"And his knees were striking one another." (Dan. 5:6)

(17) Mishnaic Hebrew:
*ʾen dān-īn lō' ze ʾēt ze*
NEG judge.PTCP-M.PL NEG DEM.M.SG ACC DEM.M.SG
"They should not judge each other" (*t. Sanh.* 5:4)

(18) Galilean Aramaic (Western Late Aramaic):
*ʾinnūn pǝlīg-īn ḥdā ʿal ḥdā*
they be.at.variance-M.PL one.F on one.F
"They are at variance with each other." (*y. Ḥal.* 3:2)

In the following subsections, I show that the pronominal constructions in this category fall into two major types: those which employ pronouns in the stricter sense of the term (such as demonstratives) and those which comprise quantifiers.

**1.3.2.1** *Constructions with a repetition of anaphoric pronouns*
This section demonstrates that constructions with reiterated anaphoric pronouns constitute a different realization of the nominal construction, in which a nominal expression is repeated twice (§ 1.3.1). In the analytical framework proposed here, such constructions are assumed to have emerged naturally, in that pronouns are used in lieu of reiterated referential expressions.[8] A schematic layout of such constructions discussed earlier is provided in (19):

(19) $NP_{i \in A}$ R $NP_{i \in A}$ => $NP_A$ – Pronoun $_{i \in A}$ R Pronoun $_{j \in A}$

---

7. For the use of "one" as an indefinite pronoun in English, see Quirk et al. (1985: 386–388).

8. See Glinert (1983) for a different account that argues for a synchronic connection between the constructions with demonstratives and the ones with noun reiteration.

The pronouns encountered in this type of constructions in various Semitic languages are demonstratives, as in (16–18), and they have also been attested in other language groups, e.g., in two-unit constructions in Khoekhoe (Central Khoisan) (see Rapold 2011: 66), and perhaps also in Hittite (Inglese 2017: 973).

Pronouns have the same index as their antecedents, and as demonstrated by Sichel (2008), demonstratives fall under this generalization as well. Thus, in addition to other syntactic restrictions (Sichel 2001, 2008), two demonstratives cannot co-index lest they violate Principle C of the Binding theory. It follows that, in the NP-strategy, they are interpreted as denoting different sets/set members of their antecedents' extensions. Note that no NP-strategy constructions with personal pronouns have been attested – in all likelihood, because personal pronouns are not subject to similar syntactic restrictions.[9] Accordingly, the evolvement of the NP-strategy applies only to constructions with demonstrative pronouns, as such syntactic configuration parallels a repetition of referential expressions.

In the majority of NP-strategy constructions, the reiterated pronominal expressions appear in the singular, which indicates, as suggested earlier, that cross-linguistically, these constructions grammaticalized to denote an unspecified relation for sets with only two members (2b). Moreover, as also already noted, the strategy of noun reiteration has a drawback (see above § 3.1), in that it cannot be used when the participants of the unspecified relation are denoted by different nouns. Using pronouns solves this problem, as they are interpreted distributively.

Pronouns marked for number and gender can capture finer relations among the participants, as is evident in the distinction between (20a) and (20b) from Mishnaic Hebrew:

(20)   Mishnaic Hebrew:
  a.   *haś-śôkēr*            *'et   hā-'ûmmān-īn*        *wĕ-hiṭ'û*
       DEF-hire.PTCP.M.SG ACC DEF-craftsman-M.PL and-deceive.PST.3.M.PL
       *ze        'et   ze*
       DEM.M.SG ACC DEM.M.SG
       "If one hires craftsmen and they deceived one another."    (*B. Meṣiˁa* 6:1)
  b.   *šĕttê   ḥăbûr-ôt bi-zman šem-mi-qṣāt-ān           rô'-īm*
       two.F.PL group-PL in-time  REL-from-few-POSS.3.F.PL see.PTCP-M.PL
       *'ēllû   'et   'ēllû*
       DEM.PL ACC DEM.PL
       "If two separate parties… if some members of each party are able to see some members of the other company…"                       (*Ber.* 7:5)

---

**9.** Furthermore, it must be assumed that, at the time of the grammaticaliation, languages in which such constructions are grammaticalized did not have the discrimination effect (see § 4.4.3) that is often encountered with demonstratives.

While, in both sentences, the pronoun antecedents represent plural entities ("craftsmen" and "two parties", respectively), only in (20b) does the reiterated demonstrative take plural. The reason is that (20a) describes a reciprocal relation between individuals (two craftsmen), whereas (20b) – between sets (two parties). Therefore, in the case in point, the agreement is semantic rather than morphological, since the target of the agreement is controlled by the actual number of members within each set participating in the reciprocal relation (cf. Glinert 1989: 69 in the context of Modern Hebrew and Heine & Miyashita 2008: 169–170). We shall return to this issue in § 4.3.3.1 and § 4.4.5.

### 1.3.2.2   *Quantificational constructions*
This category includes constructions with at least one of the constitutive elements expressed by a quantifier. In the following subsections we will survey a variety of such constructions.

**1.3.2.2.1** *Existential quantifiers.*   Similar to (19), (2) can also be expressed with existential quantifiers such as the English "someone", as follows:

(21)   [For a given set of individuals denoted by NP, every individual is part of a pair of members from this set, in which] SOMEONE R SOMEONE

In fact, it is (2b) – where the unspecified relation obtains between only two participants – that is expressed by the sequence "someone R someone". On this rationale, the grammaticalization of various elements to jointly form an NP-strategy construction, and to express (2a) more broadly, involves applying what is true for one pair to a larger set. The latter is denoted by a plural NP that is interpreted distributively, as is articulated in the brackets. This issue will be developed further in Section 1.4.

In light of the analysis above, one would expect to encounter a construction comprised of two indefinite pronouns that function as existential quantifiers – which is the case in (22), in the Judeo-Arabic Moroccan dialect of Tafilalt:

(22)   Judeo-Arabic Moroccan dialect of Tafilalt:
muḥmməd   u-musa   ṭaw        si      l-si      kadu
Muhammad and-Moses give PST.3.M.PL someone to-someone gift
"Muhammad and Moses gave each other a gift."

This line of reasoning sheds light on the origin of two other types of constructions which are presented below.

**1.3.2.2.2** *Expansion of a pronominal construction.*   Under this category fall constructions whose first element is used in other syntactic environments as an

indefinite pronoun with the semantics of an existential quantifier. Consider, for example, the first element in the Biblical Hebrew construction below (24), namely, *ʾīš* "man", a lexeme which is also used as a regular indefinite pronoun, as in (23):[10]

(23)  Biblical Hebrew:
    *ʾīš    kî    yiddōr        neder la-Yahwe*
    man when vow.IPF.3.M.SG vow   to.DEF-Lord
    "When someone makes a vow to the Lord…"               (Num. 30:3)

(24)  *wĕ-ʾīš    ʾāḥ-īw            lōʾ  yidḥāqû*
    and-man brother-POSS.3.M.SG NEG prod.IPF.3.M.PL
    "They do not jostle each other."                     (Joel 2:8)

In (24), the indefinite pronoun is accompanied by a second, different, correlative component: *ʾāḥīw* "his brother", and in other contexts by *rēʿēhû* "his fellow", both these nouns bearing a genitive suffix pronoun referring to the first component, i.e., *ʾīš* "man".

    The supplementation of *ʾīš* with a correlative element presumably began when *ʾāḥīw/rēʿēhû*, otherwise common-core content nouns, came to be used in contexts such as below:

(25)  *ʿibĕrû         wā-šûbû                 miš-šaʿar lā-šaʿar*
    pass.IMP.2.M.PL and-come.back.IMP.2.M.PL from-gate to.DEF-gate
    *b-am-maḥăne wĕ-hirgû        ʾīš  ʾet  ʾāḥ-īw         wĕ-ʾīš*
    in-DEF-camp  and-kill.IMP.2.M.PL man ACC brother-POSS.3.M.SG and-man
    *ʾet  rēʿ-ēhû         wĕ-ʾīš  ʾet  qĕrōb-ô*
    ACC fellow-POSS.3.M.SG and-man ACC neighbor-POSS.3.M.SG
    "Go back and forth through the camp from one end to the other, each of you should kill his brother, his friend and his neighbor."    (Exod. 32:27)

In the context of the verse in (25), the word "brother" is used in its authentic lexical meaning. To the extent that the words "brother", "friend", and "neighbor" belong to the same semantic field, or set, it stands to reason that, in certain scenarios, the meaning of "brother" was extended to encompass other individual members of this set. Thus, initially, only *ʾīš* was used as an indefinite pronoun in combination with various other participants ("brother," "fellow," etc.), but with time, these words *ʾāḥīw/ rēʿēhû* underwent what is known as semantic "bleaching" and likewise assumed the role of indefinite pronouns – and as such also the function of existential quantifiers. Accordingly, with these lexemes grammaticalized as indefinite pronouns, this construction can be seen as a subtype of the one discussed previously that involves a repetition of existential quantifiers, and can thus be schematically represented as (21).

---

**10.**  For a discussion on the semantics of this noun in Biblical Hebrew, see Stein (2008).

At an early stage, elements that referred to human beings (man, brother and fellow) were likely used to designate only human beings, as is the case in other languages.[11] In Biblical Hebrew, however, the grammaticalization process went further, and these lexical expressions may also refer to animals (26)[12] and even inanimate objects (27):

(26)   *way-yittēn        ʾīš    bitr-ô         liqra't   rēʿ-ēhû*
       and-give.IPF.3.M.SG man cut-POSS.3.M.SG towards fellow-POSS.3.M.SG
       "And he arranged the halves (of a heifer, a goat and a ram, each three years old, along with a dove and a young pigeon) opposite each other."

<div align="right">(Gen. 15:9–10)</div>

(27)   *ḥămēš  ha-yĕrīʿ-ōt      tihyenā      ḥōbĕr-ōt       ʾiššâ    ʾel*
       five.F.PL DEF-curtain-F.PL be.IPF.3.F.PL join.PTCP-F.PL woman to
       *ʾăḥōt-āh*
       sister-POSS.3.F.SG
       "The five curtains should join each other."            (Exod. 26:3)

I assume that the origin of NP-strategy constructions comprising two different pronominal expressions (such as *one another* in English or *exad-hašeni* "one-the second" in Modern Hebrew (to be discussed in Chapter 4)) is the same, as are also their evolutionary trajectories, in that their constitutive elements both came to function as indefinite pronouns. The variability of the second element in such constructions (i.e., *other, second* etc.) can be plausibly ascribed to the semantic distinctness requirement (x≠y) they must satisfy (see (2)).

**1.3.2.2.3** *Constructions with partitives.*   I proceed to make a case for a connection between the construction with a repetition of existential quantifiers and that with a repetition of a partitive in Arabic ((4a)–(d), with one example repeated in (28)).[13]

---

**11.** In other languages, this part of the grammaticalization did not take place, and certain pronouns are used for either human or animate objects alone. This is, e.g., the case in Mishnaic Hebrew, as well as in Middle Aramaic, the language of Onkelos, the translator of the Pentateuch. This issue will be discussed in § 4.3.5 and in § 6.3 (n.7).

**12.** For a similar account see Jay (2009: 7).

**13.** A similar construction is found in two dialects in the history of Aramaic. First, the actual Arabic construction is in use in the Neo-Western Aramaic dialect of Maʿlula:

*ḥmul baʿḍ-innu*
look  some-3.PL
"They look at each other."            (Werner 1991: 93, line 44)

Similarly, in the Western Late dialect of Christian Palestinian Aramaic, the following is found:

(28)    Standard Arabic:
    *danā*                          *baʿḍ-u-hum*                *min  baʿḍ-in*
    approach.PST.3.M.SG some-NOM-POSS.3.M.PL from some-GEN.IND
    "They approached each other."                    (AS 161, Kremers 1997: 31)

Such a construction should be analyzed analogically to those with a repetition of indefinite pronouns (§ 3.2.2.1), in line with the formula below involving existential quantification:

(29)    $NP_A$ – Some-of-$NP_A$ R Some-of-$NP_A$

Just like the constructions with indefinite pronoun reiteration, the one in (29) represents (2a). This construction is, in fact, the only exemplar overtly indicating that the set whose members participate in the unspecified relation expressed may contain more than two members.[14]

**1.3.2.2.4** *Constructions with a universal quantifier.*    Previous studies on the origin of NP-strategy constructions, such as Plank (2008) and Haas (2010), focused mostly on the kinds in which one of the elements expresses universal quantification, e.g., *each* in English. They reasonably suggested that the construction in (30b) derives historically from (30a):

(30)   a.   Each one of them saw the other.
       b.   They saw each other.

It must be noted that *each-other* in (30b) is an anaphor, and therefore the construction constitutes a single unit (to be further discussed throughout the next chapter) – as is evident, *inter alia*, in the behavior of prepositions, which precede the entire expression: "on each other" versus "one on the other".

  A reanalysis of *each* as part of the anaphor became possible in the early stages of English, when grammar enabled the floating of *each*, on a par with quantifiers, which need not appear adjacent to the NP they quantify. As a result, *each* could

---

    *w-hawu*        *memallel-in*        *pleg-hon*            *ʿim  pleg*
    and-be.3MPL speak.PTCP-M.PL part-POSS.3.M.PL with part
    "And they were talking to each other."                    (Luke 4:36)

See (§ 6.3, n. 1) for further historical discussion of this construction in Aramaic. A calque of this construction was also used in Medieval Hebrew, mostly, but not exclusively, in translations of Arabic texts; see Rabin (2000: 104–105).

**14.**  Accordingly, in cases where a reciprocal reading is induced, it stems from the logical acceptability of using the quantifier *some* also in contexts where it must imply the exhaustion of the set (i.e., when it would be more natural to use the quantifier "all"). We will deal with the question of how reciprocal reading can be induced in Chapter 8.

precede *other*, as is illustrated in (31) in an example with the preposition "to", cited by Haas (2010: 70):

(31)    *And there vppon they cast eche to other their gloves…*

(Helsinki Corpus, ME IV [1420–1500]).

With predicates that do not require a preposition, it can be conjectured that *each* immediately preceded *other* and the two could be reanalyzed as a single unit.

While (30a) and (30b) are likely related historically, synchronically they differ at the semantic level. Sentence (30a), with its universal quantifier, is not an unspecified construction in the sense described above (2). Thus, the similarity between the sentences holds properly only in propositions involving two sets such that the participants of one are in a reciprocal relation with those of the other.[15] With a larger number of participants, constructions of the (30a) type do not allow for 'weak distributivity', while the *each other* constructions, as in (30b), lend themselves to such readings. Compare (32a) with (32b):

(32)    a.    Each child was kissing the other.
         b.    The children were kissing each other.

While (32a) entails strong distributivity, namely, a reading whereby every child was a *kisser* of (at least) one other child, (32b) could be true even under weak distributivity. In other words, (32b) is an NP-strategy construction for expressing reciprocity, and as such, it is an unspecified construction that may denote a scenario in which some of the children were only kiss recipients, and did not necessarily kiss any of the other children. It can therefore be concluded that the evolution of a one-unit construction such as *each other* from those with universal quantifiers is attended by a semantic shift.

To the extent that, in English, the "each other" construction is of the one-unit type, its development did not necessitate a reanalysis of a universal-quantification construction as an unspecified construction. Such a reanalysis took place only when preceded by a syntactic change in which "each-other" morphologically univerbalized as an anaphor. At this point in the history of English, in this construction, "each" ceased to operate as a quantifier. The question remains what motivated this semantic shift. One possibility is that it occurred via analogy to other NP-strategy constructions.

---

**15.** Dougherty (1974) and Heim et al. (1991: 70), who argue for a synchronic relation between the constructions in (30), admit that the semantic similarity is manifested properly in sentences with only two sets of participants. In this book, the semantic relation between sentences such as (30a–b) is extensively discussed in § 7.3.

Such one-unit construction has not been attested in a Semitic language and is not common cross-linguistically either. It is plausible, then, that the evolution of NP-strategy constructions may proceed along two different trajectories, one of which is associated with semantic change (from universal to existential quantification via syntactic reanalysis) and the other involving only grammaticalization, without semantic change (which we encountered in the previous sections).

### 1.3.2.3    *Repetition of semantically bleached nouns*

The "free" construction, which involves content-noun reiteration (§ 1.3.1), most likely served as the source for constructions comprising a repetition of semantically bleached nouns. I use the term "bleaching" to denote a process whereby the semantic content of a word is reduced, and its grammatical content often increases. Note the following examples:

(33)  a.  Neo Assyrian [Standard Babylonian]:
          *innašqū*[16]       *aḫ-u*          *aḫ-i*[17]
          kiss.ING.PST.3.M.PL brother-NOM brother-GEN
          "They began to kiss each other."                    (En. El. III132)
      b.  Amharic:
          *ərs   bä-ras-aččən       annəṭṭala*
          head in-head-POSS.1.PL fight.NEG.JUSSIVE.1PL.REC
          "Let us not fight with each other."                 (Leslau 2000: 27)

The constructions above, in Akkadian and Amharic, include lexemes that in other syntactic environments denote "brother" and "head", respectively. In the contexts presented in (34a) and (b), however, their grammatical content is similar to that of the pronouns discussed in the previous section (existential

---

16. This form is in the N-stem, but this particular root expresses reciprocity in the T-stem; thus the case in point is not a verbal strategy for expressing reciprocity. Moreover, in (33a) the N-stem seems to be used ingressively, and therefore the translation should be: "They began to kiss each other" – which also fits the larger context where this line appears ["They entered before Anshar, filling Ubshukinna. They began to kiss one another in the Assembly" (En. El. III 130–132)]. Concerning the ingressive use of the N-stem, see *inter alia* Von Soden (1952 GAG [§ 90e-g]) and Kouwenberg (1997: 99). Testen (1998: 138) goes so far as to argue that this is the original function of the N-stem.

17. The genitive is not expected here. It should be noted, however, that in another manuscript, it is written logographically (ŠEŠ-u ŠEŠ) and only the first ŠEŠ has a phonetic representation of the case. Von Soden (1931: 186–187, n.1) proposes that, in that case, the /u/ should be read as the conjunction "and" rather than a case marker. Furthermore, /u/ in Akkadian occasionally functions as an associative preposition "with", and the noun that follows takes genitive case (see also Von Soden, GAG § 114i). Thus, the genitive case in (34a) is also accounted for. I wish to thank Uri Gabbay for these references.

quantifiers). Considering (33a), the following stages of pronoun grammaticalization may be posited:

I.   Originally, no single word existed to exclusively express reciprocity, and the word *aḫum* "brother" was used only in contexts that required its literal meaning.
II.  With time, the word *aḫum* underwent semantic bleaching and became a pronoun.

It is conceivable that this process began when *aḫum* was used in contexts such as the following:

(34)   Standard Babylonian:
bīt-u      itti  bīt-i     inakkir          aḫ-u       aḫ-a
house-NOM with house-GEN hostile.DUR.3.M.SG brother-NOM brother-ACC
idâk
kill.DUR.3.M.SG
"Family will turn hostile against family, brother will kill brother." (KAR 148:13)

This relatively late example involves a context in which the original meaning of "brother" could still be relevant, but a more general translation is not precluded either: "one will kill the other". That said, at earlier stages, *aḫum* was most likely used only for people, retaining the gender distinction, as in the following example:

(35)   Old Babylonian:
a.   *aḫāt aḫāt-am  ina puzr-i     awāti umma*;
     sister sister-ACC in   secret-GEN word DSM
     "You (F.PL) are saying secretly to each other…"      (Kraus AbB 1 135: 22)
b.   *aḫāt-um    ana    aḫāt-im   ul  iraggam*
     sister-NOM against sister-GEN neg sue.DUR.3.SG
     "One woman will make no claim against the other."      (CT 6 42b: 9f)

Once grammaticalized, *aḫum* has come to refer also to animals (36a) and inanimate objects (36b). As will be demonstrated (§ 4.3.5), the latter development does not always take place cross-linguistically, at least not immediately after grammaticalization.[18]

---

18. Another possible change is the lack of gender agreement. A clear-cut instance with a feminine antecedent has yet to be found, but below is a possible example from Middle Babylonian:

*PN u    PN₂ aššas-su     ina eql-i     u   libbi ā[l-i]   palaḫ-a       ša*
PN and PN₂ wife-3MG.POSS in  field-GEN and in   city-GEN obligation-ACC of
*aḫ-u       a-[ḫi]      eppušū*
brother-NOM brother-GEN do.DUR.3.M.PL
"PN and PN₂, his wife, will serve each other's obligations in the country and the city alike."
(TIM 4 45: 8)

(36)  a.   Neo Assyrian, Standard Babylonian:

[*šumma er-û*]          *aḫ-u*          *aḫ-i*          *issū=ma*

COND     eagle.PL-NOM brother-NOM brother-GEN call.DUR.3.MP =and

"When eagles call each other…"          (CT 39, [Plate] 25, Sm1376: 9).[19]

b.   Old Babylonian:

*aḫ-um*          *aḫ-am*          *idris*

brother-NOM brother-ACC press.PST.3.SG

"[two gates…] one presses the other."          (YOS 10 24: 7)

From a semantic point of view, it can be suggested that the bleached nouns discussed earlier grammaticalized as pronouns only in a construction designated to express unspecified relations, and as such fall under the category of NP-strategy for expressing reciprocity.

## 1.4    A compositional explanation for the origin of the NP-strategy constructions

From what we have seen throughout this chapter, two-unit constructions may originate from two possible sources:

a.   They may have evolved from the repetition of two nominal expressions, either nouns or pronouns. This category includes demonstratives (20) and bleached nouns (33).

b.   Alternatively, they reiterate existential quantifiers: by repeating the quantifiers such as indefinite pronouns (Moroccan Arabic, (22)), by repeating partitives (Standard Arabic, (28)), or by developing a correlative (Biblical Hebrew, (23)).

Thus, schematically, two types of constructions can be distinguished:

(37)  I.    $NP_A$ – $Pronoun_{i \in A}$ R $Pronoun_{j \in A}$

II.   Someone R Someone

---

Unfortunately, the relevant part has been restored, and on the copy, the copyist did not mark the edges of the original tablet; hence, there is no way to ascertain whether the tablet had enough space for the two signs that designate the syllables required for the feminine form *aḫati*. Moreover, this is an example of an antecedent that contains a pair differing in gender. As will be explained in (§ 4.4.4), this creates complications in languages (such as Modern Hebrew) in which the components of NP-strategy constructions have grammatical gender. I wish to thank Mary Frazer for assisting me in the reading of this paragraph from Middle Babylonian.

**19.**  This example is in Standard Babylonian, a literary dialect that imitates the Old Babylonian of the classical period.

These two formulae differ in that (I) requires an antecedent whereas (II) does not. Consequently, the expectation is that, in contexts without an antecedent only (I) will be available.[20] With an explicit antecedent, the anaphoric expressions in (I) refer to it, while the domain of the quantification in (II) is restricted to the set of individuals denoted by the NP in that antecedent.

So far, in this chapter I have analyzed the linguistic means through which the two types of constructions in (37) express unspecified relations. I will now elaborate the processes whereby these constructions grammaticalized to express such relations as described in (1), repeated below. I will also demonstrate how the meaning reflected in (1) is expressed compositionally.

As noted, the formula in (2a) captures the definition in (1) for the set A with two or more members and the relation R, and (2b) is a representation of the truth conditions when set A has only two members.

(37)   **Unspecified constructions**: expressions denoting that, within a given binary relation R between at least two (defined) ordered sets, it is not specified which set occupies which position.

(2)   a.   $|A| \geq 2$ and $\forall x \in A \exists y \in A\ (x \neq y \land (Rxy \lor Ryx))$
       b.   $|A| = 2$ and $\exists x, y \in A(x \neq y \land Rxy)$

I have established in this chapter (in Examples (10), (19), (21) and (29)) that (2a) can be expressed by either of the constructions presented in (I) and (II) above, as shown in (38a) and (38b), with the parts outside the brackets ("NP R NP" and "someone R someone") formally represented by (2b).

(38)   a.   [For a given set of individuals denoted by NP, every individual is part of a pair of members from this set in which] – SOMEONE R SOMEONE
       b.   [For a given set of individuals denoted by NP, every individual is part of a pair of members from this set in which] – NP R NP
            This relation can also be expressed by a construction with a reiterated demonstrative:
            $NP_{i \in A}\ R\ \ \ NP_{i \in A} => NP_A$ – Pronoun $_{i \in A}\ R\ \ \ $ Pronoun $_{j \in A}$

Thus, in order to extend the use of these constructions for sets larger than two, as represented in (2a), it is necessary to add a component similar to what appears in the brackets in (39) to interact with (2b).

---

**20.** This difference is crucial to the viability of these constructions when used in casuistic laws, as will be discussed at length in (§ 4.3.4).

(39)    **[For a given set B of individuals, every individual is part of a pair A of members from this set in which]** – $|A|=2$ and $\exists x,y \in A(x \neq y \wedge Rxy)$
This is captured formally in the following:
$\{x \mid x \in B \rightarrow x \in A \wedge A \subseteq B \wedge |A|=2 \wedge \exists x,y \in A(x \neq y \wedge Rxy)\}$

Since the quantification, which in (39) is outside of the brackets, is expressed by a variety of NP-strategy constructions, the remaining task is to understand which of the elements in the construction convey the meaning formulated in the brackets. This part has two components:

(40)    i.    The division of the plurality into pairs.
        ii.   The requirement that all members of the plurality be part of at least one pair (distributivity).

I will show that the meaning of these two components can be derived directly from the plural expression that functions as the antecedent in an unspecified construction.[21] The interpretation that I adopt is in a framework aligned with a broader approach to the distributive reading of plurals proposed by Higginbotham (1981), which was further developed by Gillon (1987), and by Schwarzschild (1996) (among others). I will introduce this approach and then apply it in the context of the NP-strategy semantics.

Plural nouns are known to have a range of readings, including distributive and collective, thus rendering (41) ambiguous between (at least) (41′a) and (41′b):

(41)    The men wrote operas.

(41′)   a.    The men wrote operas together.
        b.    Each of the men wrote operas separately.

However, the set denoted by the plurality "men" can be divided in other ways as well, without violating the truth conditions of (41). For example, when "the men" denotes Mozart, Handel, Gilbert, and Sullivan, (41) is true although neither the collective (41′a) nor the distributive reading (41′b) is true: The four men did not collaborate on any opera, but neither Gilbert nor Sullivan ever wrote an opera alone. The sentence in (41) is true for this set only if it is evaluated when divided into three cells: one contains Gilbert and Sullivan, another Mozart, and the third Handel (as depicted in (42)). In this division, the predicate "wrote operas" is true of each of these three cells.

(42)    <Mozart> <Handel> <Gilbert, Sullivan>

---

In the specific partition represented in (42), each member of the set denoted by the plural expression "the men" in (41) is a member of a different set. In other contexts, however, a partition of this kind is not always necessary. Consider the following example:

(43)   The men wrote musicals.

If the "men" are Rodgers, Hammerstein, and Hart, (43) is true, since Rodgers and Hammerstein collaborated to write musicals and so did Rodgers and Hart, as depicted in (44):

(44)   <Rodgers, Hammerstein> <Rodgers, Hart>

The partition of the set in (42) for the sentence in (41), and one in (44) for the sentence in (43) demonstrate that a distributive reading of a plural NP does not necessarily involve dividing the plurality to cells of individuals. It can also obtain when a plurality is divided into other subsets, as long as the predicate is true with respect to a particular division salient in a given context.

Thus, to capture the semantics of a plural NP, Gillon (with some modification introduced by Schwarzschild) proposes the notion of COVER (45b) to encompass the possible ways of dividing the set denoted by the plural NP, as defined in (45a):

(45)   a.   $[_s \text{ NP }_{plural} \text{ VP}]$ is true iff there is a COVER of the set denoted by NP such that VP is true for each element in it.

 b.   A covers B iff $A \subseteq P(B) \wedge UA = B \wedge \varnothing \notin A$ ("$P(B)$" denotes the power set of B).
The above can be paraphrased as follows:
A is a cover of B if and only if:
 a.   A is a set of subsets of B.
 b.   Every member of B belongs to some set in A.
 c.   $\varnothing$ is not in A.

For the discussion at hand it is important that, in some contexts, the set denoted by the plural NP is most naturally divided into pairs, as in (46):

(46)   The shoes cost $45.

A reasonable interpretation of this sentence is that $45 is the price for each pair of shoes. Yet, we can also think of stores in which the customers need to pair a left-shoe with a right-shoe, so that (46) is true for pairs in which any left-shoe can be a paired with any right-shoe. In a store with four individual shoes, (46) is true for all pairs in (47):

(47)   <left-shoe$_1$, right-shoe$_1$>, <left-shoe$_1$, right-shoe$_2$>, <left-shoe$_2$, right-shoe$_1$>, <left-shoe$_2$, right-shoe$_2$>

We may now stipulate that a kind of COVER in which the set denoted by the plural NP is divided into pairs is a PAIR-COVER, defined as follows:

(48)　A is a PAIR-COVER of B if and only if:
　　a.　A is a set of subsets of pairs of B.
　　b.　Every member of B belongs to some set in A.
　　　　$(\forall x \in B \exists y \in B\ x \neq y \wedge <x,y> \in A)$
　　c.　$\varnothing$ is not in A.

Thus, (49) is true only if there exists a PAIR-COVER of the plurality "shoes" for which it is true.

(49)　The shoes were sold for \$45.

Schwarzschild (1996) emphasizes that different covers may be salient in different contexts; therefore, he adds a contextual variable, as per the definition in (50).

(50)　$[_s$ NP $_{plural}$ VP] is true in some context Q iff there is a salient COVER of the set denoted by an NP which is salient in Q such that VP is true for each element in that set.

While the type of COVER salient in a given context is usually covert, Schwarzschild (1996) notes that various lexical items impose restrictions on the value that can be assigned to the free contextual variable, rendering the type of COVER overt. Such lexical items, include the floated quantifier *each*, the adverbs *respectively* and *together* (especially in a sentence-initial position), and phrases such as *one by one* and *in groups of three*.

　　At this point, we have covered sufficient ground to return to the semantics of the NP-strategy. First, I assume that the notion of COVER is relevant for the interpretation of NP $_{plural}$ in general, regardless of its syntactic position or function. In particular, then, it is relevant for cases in which the NP $_{plural}$ interacts with complete propositions, as in the definition below:

(51)　[NP $_{plural}$ P] is true in some context Q iff there is a COVER salient in Q for the set denoted by the NP such that P is true for each element of this set.
　　　P stands for proposition

Let us return to (39), repeated below, which is equivalent to the semantics of an unspecified relation (formulated in (2)), and resume our attempts to established how it is expressed by NP-strategy constructions.

(39)　**[For a given set B of individuals, every individual is part of a pair A of members from this set, in which]** – $|A|=2$ and $\exists x,y \in A(x \neq y \wedge Rxy)$

As noted in (40), the part in the brackets contains the following two components:

(40)   i.    The division of the plurality into pairs.
       ii.   The requirement that all members of the plurality be part of at least one pair (distributivity).

In light of the previous discussion, these two components can be derived directly from a plural NP: (40i) is a case of PAIR-COVER, defined in (48); while (40ii) derives directly from the definition of COVER (45b) in general and PAIR-COVER in particular.

Relying on (51), the semantics of the NP-strategy represented by (2a) can be determined compositionally as a semantic interaction of the plural expression requiring a PAIR-COVER (48) with a proposition (Q), whose truth conditions are represented by (2b):

(52)   [NP $_{plural}$ Q] $_{NP\text{-}strategy}$ is true iff there is a PAIR-COVER for the set denoted by the NP such that Q is true for each element in this set.
       $[[Q]]= |A|=2$ and $\exists x,y \in A(x \neq y \wedge Rxy)$

Taking into account the detailed semantic representation above, let us consider an example from Modern Hebrew (a discussion of reciprocals in Modern Hebrew is found in § 3.2, and a parallel historical account for Italian in § 2.4.2).

(53)   *ha-ylad-im,  ha-exad yašav          al  ha-šeni*
       DEF.boys-PL DEF-one sit.3.M.SG.PST on DEF-second
       "The boys – one sat on the other."

In the case where the NP "boys" denotes a set of six, one of the scenarios in which (53) is true is if the boys are divided in three pairs, and in each pair, one boy is sitting atop the other. The definite plural "the boys", in the left periphery of the sentence, interacts with the proposition "one sat on the other", and renders it true when interpreted as a PAIR-COVER. This account is based on the premise that, in an unspecified relation, the antecedent is positioned in the left periphery of the clause, as is discussed in the next chapter (§ 2.4.1).

At this juncture, we can return to the issue of NP-strategy grammaticalization. In respect to this process, such constructions can be regarded as an overt operator that imposes a specific kind of COVER, in the case in point, the PAIR-COVER. Accordingly, their components may be compared to the lexical items of the type *together, each*, and *respectively*.

To summarize: it was proposed in the introduction to this book (§ 0.6) that NP-strategy constructions are essentially unspecified constructions, defined in (1) and represented formally by (2a). This meaning can be derived compositionally by combining the two parts (a and b) of the formula below:

> [**For a given set B of individuals denoted by an NP, every individual is part of a pair A of members from this set in which**]$_a$- [|A|=2 and $\exists$x,y$\in$A(x$\neq$y$\wedge$Rxy)]$_b$
> This is captured formally in the following way:
> {x | x$\in$B → x$\in$A $\wedge$ A$\subseteq$B $\wedge$|A|=2 $\wedge$ $\exists$x,y$\in$A(x$\neq$y$\wedge$Rxy) }

Part A – [**For a given set B of individuals denoted by an NP, every individual is part of a pair A of members from this set in which**]$_a$ – this specific distributive reading, formulated in part a, can be derived from the semantics of plural nouns, when interpreted with PAIR-COVER.

Part B – [|**A|=2 and** $\exists$**x,y**$\in$**A(x**$\neq$**y**$\wedge$**Rxy)**] – the various lexical items used in NP-strategy constructions express this quantification (2b).

(The interaction between the two parts was defined in (51) above.)

It can thus be concluded that the main aspect of the NP-strategy grammaticalization has to do with evolving the property of selecting a particular type of COVER: the PAIR-COVER (defined in (48)). The grammaticalization trajectory of such constructions can therefore be traced through a compositional approach.

In Chapter 7, I will provide further support for the claim that the semantics of the NP-strategy is accurately represented by (2a).

## 1.5    Conclusions

This chapter has demonstrated that the grammaticalization of two-unit NP-strategy constructions is better understood when they are conceived of as denoting unspecified relations. More broadly, the analysis presented here moves away from the notion that these expressions grammaticalized as "reciprocal constructions", in the sense of designating symmetric relations. Rather, the rationale underlying the analysis broadens the semantics of the NP-strategy to denote all unspecified relations, as defined in (1–2).

Furthermore, the methodology proposed in the introduction for investigating types of strategies to express reciprocity has proven useful, at least for the historical aspect of this study. In the next chapter, I explore the origin of one-unit constructions. As has already been suggested, and as will be further elaborated in what follows, such expressions always evolve from two-unit constructions, which precede them chronologically (an exception will be examined in § 5.5).

# The diachronic development from a two-unit to a one-unit construction

## 2.1 Introduction

While the discussion in the previous chapter focused on the provenance of the various types of two-unit constructions, this chapter is concerned with the origin of their one-unit counterparts. The distinction between the two types is repeated below for easy reference:

I. Two-unit constructions: constructions with two components, each filling a different argument position of the predicate.

II. One-unit constructions: constructions with a one-unit expression (henceforth, anaphor) which co-refers with another plural NP in the clause and never occupies the non-embedded subject position, but may occupy any other position, as required by the predicate.

As noted at the beginning of the previous chapter, a phonological affinity can be clearly discerned between two- and one-unit constructions across the different historical stages of a given language or in related languages. For example, *one another* in English is similar to *einander* in German. As it is often possible to trace the phonological derivation of a one-unit construction from a two-unit correlate, but not vice versa, I propose that the development proceeded in this direction, and therefore the task at hand is to probe its motivating factors. Thus, it stands to reason that the archaic Dutch pronoun *elkander* (the source for contemporary *elkaar*) originated from a fusion of *elk* "each" and *ander* "other". Similarly, the example from Akkadian adduced previously, and repeated below, involves the reiteration of a bleached noun *aḫum* "brother" in the two-unit construction, and the variants of *aḫāmiš/aḫāiš* "each other" in the one-unit anaphor. The former was predominant in the earlier dialects (1a), while the latter evolved only in Middle Babylonian and Middle Assyrian (1b) (Bar-Asher Siegal 2011a).

(1) a. Old Akkadian:
   *urkatam  aḫ-um      ana aḫ-im      lā    inappuš*
   afterwards brother-NOM to   brother-GEN NEG make.a.claim.DUR.3.SG
   "Afterwards one will not make a claim against the other." (TCL 19 63: 45)

b.   Late Babylonian:
*aḫāmeš ippalū*
RECP    pay.DUR.3.M.PL
"They will compensate each other."                    (Dar 321:29)

Nedjalkov, among others (König & Kokutani 2006: 281; Haspelmath 2007: 2098–2099), regards this process as grammaticalization, observing that "the degree of fusion manifests the degree of grammaticalization of a reciprocal pronoun" (2007b: 156), but offering no further clarification as to the nature of the changes described. In order to establish whether and to what degree such a fusion does indeed manifest grammaticalization, it is necessary to examine its various aspects. Accordingly, in this chapter I will endeavor to point to the mechanism that drives the change from the two- to the one-unit constructions in various languages.

This transition necessarily encompasses a network of structural changes, which need to be analyzed across different languages to propose a comprehensive account. This task is undertaken in the current chapter: I will identify and examine similar types of processes occurring in multiple languages and show that a methodology of following parallel developments cross-linguistically has a number of advantages. In particular, I will demonstrate that exploring in depth the nature of a particular phenomenon in one language is helpful in understanding similar developments in other languages. To this effect, I will argue that different formal changes that occur in different languages may actually be realizations of the same structural development.

I proceed by elaborating the structure of the current chapter. At the outset, I point out some drawbacks of a previous account regarding the shift from the two- to the one-unit construction (§ 2.2). Next, I will identify syntactic differences between these two types of constructions (§ 2.3). In Section § 2.4, I will first provide a syntactic analysis of each of these constructions separately, and then elucidate the diachronic process whereby one develops from the other through syntactic reanalysis. A rigorous syntactic analysis, it will be argued, reveals how a similar syntactic development can be reflected in different phonological changes and manifested by a variety of syntactic phenomena. Section § 2.6 explores a case in which the transition is in the opposite direction: from a one- to a two-unit-construction. In conclusion, Section § 2.7 surveys the issue in a broader perspective, and probes the ramifications of the various questions addressed in this chapter for the other topics relating to the reciprocal NP-strategy discussed later in the book – among these, the extent to which the semantics of such constructions is expressed holistically, by the construction as a whole, versus compositionally, as a sum of its components.

## 2.2    Previous proposals for the emergence of the one-unit construction

To the best of my knowledge, the only explanation for the diachronic change from two- to one-unit constructions (excluding those with universal quantification) was advanced by Visser (1963: 445) and reformulated by Haas (2010: 83–86), namely, that the one-unit formula is a reduced clause functioning as an afterthought:

(2)   a.   The knights hugged; one hugged another.
     b.   The knights hugged$_1$; one $e_1$ another.
     c.   The knights hugged one another.

While this dynamic is plausible, it likely obtains only in languages such as English, in which verbal reciprocity is morphologically unmarked, and consequently, the transitive and the reciprocal forms of the same root are homophonic. In other languages, the form of the verb in the two clauses is not the same, and therefore, the omission of the second verb is less probable. Moreover, as discussed in Siloni (2002, 2012) and Bar-Asher (2009), an equivalent of the third stage (2c) would be ungrammatical in many documented languages (based on the results of the cross-linguistic questionnaire administered by Nedjalkov & Geniušienė 2007) since they are monovalent,[1] as illustrated in (3b) for Modern Hebrew:[2]

(3)   a.   *ha-ʾabir-im    hitnašqu       exad nišeq    et  ha-šeni*
         DEF-knight-PL kiss.RECP.PST.3.PL one.M kiss.PST.3.M ACC DEF-second.M
         "The knights kissed; one kissed another."
     b.   *\* *ha-ʾabir-im    hitnašqu       exad et  ha-šeni*
         DEF-knight-PL kiss.RECP.PST.3.PL one.M ACC DEF-second.M
         Intended reading: "The knights kissed each other."

Furthermore, the verbal strategy for expressing reciprocity does not designate unspecified relations, and also differs in various semantic features from the NP-strategy (to be discussed in Chapter 7). Thus, languages with verbal encoding

---

**1.**   See also Haspelmath (2007: 2117–2118); this observation derives from his Universal 3.

**2.**   One could conjecture that a development parallel to (2) might have occurred in language like Hebrew, with a sociative preposition in the so-called discontinuous construction:

    *ha-ʾabir-im    hitnašqu       exad hitnašeq     im  ha-šeni*
    DEF-knight-PL kiss.RECP.PST.3.PL one.M kiss.REC.PST.3.M with DEF-second.M
    "The knights hugged; one kissed (with) the other."

However, if this were the case, we would expect that the construction would have grammaticalized with the sociative preposition (for example, *im* "with" in Hebrew). As far as I know, such a grammaticalization process has not been attested, at least not in the Semitic languages.

of reciprocity, attested, e.g., among the Semitic languages (at least), requires an alternative account for the shift from two- to one-unit constructions.

To exemplify the divergent syntactic features of one- versus two-unit constructions found across a variety of languages that possess both such constructions, I begin with Akkadian.

## 2.3    Syntactic differences between the one- and the two-unit construction

As already mentioned, this section illuminates the syntactic differences between the two types of NP-strategy constructions based on examples from all periods of Akkadian (specified, whenever feasible, in brackets following the translation). Similar instances could have been presented from any other language that has such constructions.

In Akkadian, the one-unit anaphor *aḫāmiš* appears in the same clause as its antecedent; the two-unit constructions, which repeat *aḫ*+CASE, are used only when the antecedents are not part of the main clause.[3] Thus, in the clauses containing *aḫāmiš*, the subjects are participants of the unspecified relation designated by the structure; they appear either as coordinated singular nouns (4a), or as plural collective noun (4b):

(4)  a.  *šumma surd-û      u    ārib-u      itti   aḫāmiš ṣalt-a*
         COND   raven-NOM and falcon-NOM with RECP     fight-ACC
         *īpušū=ma*
         do.PST.3.M.PL=and
         "If a falcon and a raven fight, and…"
                                    (CT 39 30: 3 5, Neo Assyrian, Standard Babylonian)
     b.  *māt-āt-i         ana aḫeiš iqabbûni*
         country-F.PL-OBL to   RECP say.DUR.3.M.PL
         "The countries say to each other…"   (Craig ARBT 1 26: 8, Neo Assyrian)

In the two-unit constructions, the grammatical subject of the clause is expressed not by the nominal antecedent denoting the participants of the unspecified relation, but by a pronominal expression (henceforth, pronominal, for brevity) in the nominative case. The verbs in the clause agree with this latter element. In most cases in Akkadian, the first element between the two pronominals is the subject

---

**3.** Previous works on Akkadian, such as GAG § 43b, group all pronouns together and do not discuss their distribution. See also Kouwenberg (1997: 325–326) for a review of the strategies used to express reciprocity in Akkadian. The current survey is based only on examples from the relevant entries in the CAD. For a description of the corpus used in this study and the rationale behind its compilation, see Bar-Asher Siegal (2011a: 23–24).

in the nominative (*aḫum*), while the second fills the slot of the other argument in the sentence and appears in either genitive or accusative, as required (ACC: *aḫam* or GEN: *aḫim*), as in (5–6):

(5)  *aḫ-um      eli      aḫ-im      mimma      ul  īšu*
  brother-NOM toward brother-GEN something NEG have.PST.3.SG
  "No one has a claim upon the other."          (PBS 8/1 81: 17, Old Babylonian)

(6)  *atta u    nakir-ka          taṣṣabbatāma          aḫ-um*
  you and enemy-2MSG.POSS get.int.fight.DUR.2.M.SG brother-NOM
  *aḫ-am        ušamqat*
  brother-ACC destroy.DUR.3.SG
  "You and your enemy will get into a fight, and one will destroy the other."
                      (YOS 10 50: 8, Old Babylonian)

The two-unit constructions are used predominantly in impersonal contexts (very often in legal discourse). The antecedent may occur earlier in the text, be missing altogether (6), or be situated in the left periphery of the clause (7) (to be further discussed later on). Thus, it is likely that a sentence comprising the two-unit construction with an explicit subject (such as "the children saw one another") would have been ungrammatical.[4]

   Although the antecedent in such a sentence is not the subject in the two-unit construction, it can still appear in a left-peripheral position:

(7)  *atta      u    nakrī-ka          aḫ-um        ina pāni aḫ-im*
  you.NOM and enemy-POSS.2.M.SG brother-NOM from     brother-GEN
  *udappar*
  withdraw.DUR.3SG
  "You and your enemy will withdraw from each other."
                      (YOS 10 47: 81, Old Babylonian)

In (7), the coordinated phrase "you and your enemy" is in the nominative, as indicated by the form of the pronoun, yet does not function as the subject of the

---

4.  In the rare but intriguing cases where the two elements of a two-unit construction replace a reflexive pronoun, the first element is in the accusative. Such examples are attested, e.g., with the verb *kabāsum*, which generally means "to put pressure on", but with a reflexive pronoun (*ramanu*) "to exert oneself". Thus in a sentence such as the following one, we find a unique case of a two-unit construction instead of the reflexive pronoun:

*gamr-am…    aḫ-am      ana aḫ-im      lā    takabbas*
expenses-ACC brother-ACC to   brother-GEN NEG put.pressure.DUR.2.M.SG
"Do not exert pressure one on the other with regard to the expenses"
                      (BIN 4 51: 13–14, Old Akkadian)

main clause, as is indicated by the form of the verb (3.M.SG rather than 2.PL), which agrees with the first element of the NP-strategy construction (*aḫum* "brother"). This can be demonstrated by contrasting (8), a case of noun reiteration (see § 1.3.1), with (9). When the verb encodes reciprocity, it is 1.PL (9), unlike the singular verbal adjective in (8):

(8)  *ištu  pānānumma anāku u   kâti awīl-um   ana awīl-im   paqid*
     since formerly      I.NOM and you man-NOM to   man-GEN VADJ.trust
     "Our relationship had been for ever such that one trusted the other [*lit*. I and you trusted man to man]."              (TCL 17 31: 8 f, Old Babylonian)

(9)  *inūma anāku u    kâti ina GN nuštāt-û*
     when  I       and you in  GN see.RECP.PST.1.PL-SBJV
     "When you and I saw each other in GN…"   (PBS 7 108: 10, Old Babylonian)

While the components of the two-unit construction, *aḫum-aḫam*, fill the argument positions of the verb (subject, object and oblique), the one-unit anaphor, *aḫāmiš*, can occupy any argument slot selected by the verb but never the subject position.

Insofar as such constructions do not allow one-unit pronouns in the subject position, the latter warrant an analysis as anaphors, in line with Government and Binding theory (inter alia, Belletti 1982; Lebeaux 1983; Chomsky 1986 and Everaert 2008). As reflexive pronouns, one-unit NP-strategy anaphors expressing reciprocity ostensibly require a referent in the same clause, as well as a particular syntactic configuration.

Although *aḫāmiš* and *aḫum-aḫam* have a different distribution, they do not exclude each other cross-clausally. Thus, in (10), both strategies are used in the name of poetic parallelism:

(10)  *aḫ-u       aḫ-a       lā  igammalū        linarrū        aḫāmeš*
      brother-NOM brother-ACC NEG spare.DUR.3.M.PL slay.PRC.3.M.PL RECP
      "One should not spare the other, they should slay each other"
                       (Cagni Era IV 135, Neo Babylonian [Standard Babylonian].)

To summarize what has been demonstrated so far, the two types of constructions differ not only in the number of components, but also in the way they express an unspecified relation. The characteristics salient in this regard are enumerated in (11):

(11)  In two-unit constructions:
      i.   Each pronominal fills a different argument selected by the predicate (subject, object, etc.).
      ii.  Each of the arguments selected by the predicate is filled with a pronominal.

iii. The participants of the unspecified relation, if expressed overtly, are not part of the grammatical relations in the clause and therefore may appear only at its left periphery.

In one-unit constructions:

i. The anaphor co-occurs in the same clause with the set(s) participating in the unspecified relation.

ii. The participants of the relation occupy the subject position, while the anaphor occupies the position of the other predicate argument (or participates in other grammatical relations, such as genitive, as in "each other's book").

Thus, in analyzing one-unit constructions as deriving historically from their two-unit counterparts, it is necessary to explain not only the merging of two constituent forms into one, as was the focus in previous studies, but also the attendant shift in the grammatical relations between the various components of the sentence.

It is important to add at this point that, in the above Akkadian examples of constructions with two independent pronominal elements, *aḫum* occupies the subject position and, accordingly, the verb is usually in the singular. However, on rare occasions, the verb appears in the plural:

(12)  a.  *aḫ-um      aḫ-am      lā    ibaqqarū*
          brother-NOM brother-ACC NEG raise.a.claim.DUR.3.M.PL
          "None should raise claims against the other."

                              (YOS 8 99: 19f, Old Babylonian)

      b.  *aḫum       aḫam       ina    mê     lā*
          brother-NOM brother-ACC concerning water.OBL NEG
          *udarrasū*
          treat.opressively.DUR.3.M.PL
          "One should not treat the other oppressively on account of the water."

                              (TCL 7 23: 29, Old Babylonian)

Such Akkadian sentences are similar to standard constructions in Biblical Hebrew, which comprise a plural verb although the NPs in all syntactic positions are morphologically singular:

(13)  Biblical Hebrew:
      *way-yaḥăziqû       ʾīš    bĕ-rōʾš    rēʿ-ēhû*
      and-hold.IPF.3.M.PL man in-head.of fellow-POSS.3.M.SG
      "Each man grabbed his opponent by the head."          (2 Sam. 2:16)

Thus, the NP-strategy in Biblical Hebrew (and other languages as well) differs from both standard constructions with *aḫum-aḫam* and *aḫāmiš*. While the NP-strategy variants in Biblical Hebrew are ostensibly two-unit constructions, the

verb is almost invariably plural, such that the first pronominal does not agree with it and hence can be construed as outside the subject position.

Such a hybrid construction also occurs in other languages. In a language with morphological case, the singular or plural NP (hereafter, NP(s)) denoting the set participating in the unspecified relation and the first of the two pronouns are both in the nominative. This pattern, which is presented in (9), also occurs outside the Semitic languages, e.g., in Icelandic:

(14)  Icelandic:
    *Þeir*     *elska*       *hvor*     *annan*
    they.NOM love.3.PL.IND one.NOM other.ACC
    "They love each other."            (Everaert 1999: 69)

In light of the above, I propose a historical account for the three types of constructions in the following order:

(15)  two-unit construction > hybrid construction > one-unit construction.

The intermediate, hybrid, stage is not imperative, since as will be explained, the one-unit construction is the result of reanalysis, which may take place either immediately after the first stage, or subsequent to the second one.

## 2.4    The diachronic development within the NP-strategy

In light of the data from the various Semitic languages, as well as from the other languages mentioned briefly above, the two-unit constructions similar to those found in Akkadian can be plausibly considered as the initial stage. However, to gain a better understanding of the nature of the diachronic process involved, it is necessary to examine the structure of a variety of NP-strategy constructions at each of the three developmental stages outlined above.

### 2.4.1    Stage I

For the purpose of the historical discussion, it is important to note that in the two-unit construction, the two pronominals occupy the argument positions of the main clause, and the NP denoting the set participating in the unspecified relation, if present, must be located in its left periphery, as per the structure in Figure 1. In what follows, I elaborate briefly on the syntax of the left-peripheral element.

| {NP$_1$, NP$_2$…NP$_n$.NOM} | VERB.SG | pronoun$_1$ NOM.SG | pronoun$_2$ ACC.SG |
|---|---|---|---|
| Broad Subject | | Subject | Object |

Figure 1. The structure of the two-unit construction

The left-peripheral element is presented in brackets, as it is optional. When it does appear, however, it is in the nominative, as is already noted. As indicated in Figure 1, this element has the characteristics of a broad subject (the history of this term is outlined below).[5] Some brief background information, as well as a motivation for this analysis, is in order at this point.

In syntactic terms, elements in the left-peripheral clausal position are either base- generated there, or have moved there from another position in the clause. As mentioned earlier, in the two-unit constructions, the left-peripheral NP is associated with two arguments in the main clause, and is unlikely to have originated in two separate syntactic positions. A more plausible assumption would be that it is base-generated in the left periphery of the clause.

Moreover, this NP is in the nominative, and I assume that, similar to other multiple-nominative constructions (MNCs), it demonstrates other features of a subject as well. As such, it should be analyzed similarly to what, in respect of Japanese, is termed a Major Subject (discussed by Kuno 1973; Kuroda 1986 and Heycock 1993) and, in the context of Hebrew and Arabic a Broad Subject (Doron & Heycock 1999, 2010; Heycock & Doron 2003; Alexoppulou et al. 2004 and Spector Shirtz 2014: 53–61). According to these analyses, the nominative case can be assigned in more than one position, to any element that is subject-like (whether narrow or broad); at the same time, the assignment of the nominative case provides a strong motivation for analyzing such elements as subjects.[6] Additional subject characteristics displayed by the left-peripheral NPs in two-unit constructions are demonstrated below.

While evidence from Ancient languages is scarce, the status of these NPs can be effectively tested using two-unit NP-strategy constructions in Modern Hebrew (see Chapter 3).[7] For example, it has been repeatedly noted (Doron & Heycock 1999,

---

5. In previous work (Bar-Asher Siegal (2012, 2014a), I referred to these elements as topics, a term used by Chafe (1976) that, in this context, designates the elements that circumscribe a domain in which the predication takes place. For a broader picture of the nominative case in such syntactic environments in the Semitic languages, see Bar-Asher (2009: 54–77).

6. Cf. Everaert (1990–1: 298–300), who considers this use of nominative in the left periphery to be evidence for the hypothesis that, in Icelandic (and other languages), the nominative case is tantamount to a "lack of case", since the left-periphery is a non-case-assignment position.

7. Khan (2016) observes, in respect of Neo Aramaic dialects, that prosody is a salient parameter in distinguishing between broad subjects and left-peripheral dislocation: in the latter case, the

2010; Heycock & Doron 2003 and Alexoppulou et al. 2004) that, in coordinated sentences, both the broad and the narrow subject can be shared between two conjuncts. This is evidenced by the following example, in which "Yossi and Danny" are the broad subject of the first clause, and the narrow elliptical subject of the second:

(16)   Modern Hebrew:
  *yosi ve-dani   ha-exad ozer      la-šeni      ve-lo*
  Yossi and-Dani DEF-one help.PRS.M.SG to.DEF-second and-NEG
  *mitlonen-im*
  complain.PRS-M.PL
  "Yossi and Danny help each other and do not complain."

The position of this element in the left periphery is not a result of dislocation or topicalization, as sentences in this construction include features typical of the broad subject that are not shared with these phenomena. Thus, e.g., the structure may be embedded in the antecedent of a conditional (17) or succeed an adjunct (18). Left-dislocation does not allow either of these modifications: (19) and (20). In addition, in some languages such as Arabic (21), the main clause comprises a pronominal which is bound by the NP in the left-periphery – an impossible configuration under topicalization (22).

(17)   Modern Hebrew:
  *im    be'emet yosi ve-dani   ha-exad mešaxed    et ha-šeni   az*
  COND really   Yosi and-Danny DEF-one bribe.PRS.M.SG ACC DEF.second so
  *ex   hem lo   ba-kele*
  how they NEG in-prison
  "If indeed Yossi and Danny bribe each other, how come they are not in prison?"

(18)   *be-pariz yosi ve-dani   ha-exad tomex  ba-šeni*
  in-Paris Yosi and-Danny DEF-one support in.DEF-second
  "Yossi and Danny support each other in Paris."

(19)  *If indeed Ruti she has patience how come she hates crossword puzzles
                              (Example 18b Alexopoulou et al. 2004)

(20)  *In the classroom, Ruti she has some patience
                              (Example (19b) Alexopoulou et al. 2004)

---

initial item is less integrated prosodically, while after a broad subject, no prosodic boundaries are discernible. This seems to be also the case in the sentences investigated here: in (16), for example, no prosodic gap is observable between *yosi ve-dani* and *ha-exad*. However, more meticulous and subtle studies are required to establish these differences in Modern Hebrew, since as noted by Avanzi et al. (2010), among others, they can be elusive.

(21)  Classical Arabic:

danā                  baʿḍ-u-**hum**              min  baʿḍ-in
approach.PST.3.M.SG some-NOM-POSS.3.M.PL from some-GEN.IND
"They approached each other."                      (AS 161, Kremers 1997: 31)

(22)  *Shoes like those I would never wear them


## 2.4.2    Stage II

The only formal difference between Stages I and II is that the verb in the latter is in the plural, as shown in Figure 2.

| {NP$_1$, NP$_2$…NP$_n$.NOM} | VERB.PL | pronoun$_1$ NOM.SG | pronoun$_2$ ACC.SG |
|---|---|---|---|
| Broad Subject | | Subject | Object |

**Figure 2.**  The structure of the hybrid constructions

According to the analysis adopted here, Stage II still retains both a broad and a narrow subject, and hence requires an explanation why the verb, which should agree with the narrow subject, appears in the plural rather than singular form. One could argue that the plural agreement reflects a reanalysis of the broad subject as the argument of the verb. I would like to propose, however, that the plural agreement results from the semantics of the unspecified relation expressed by the construction.

As we saw in (12) (from Akkadian, repeated below in (23)), plural agreement can also be found when the only element in the nominative is pronominal; also in Biblical Hebrew (24), the verb is in the plural even in the absence of a broad subject, in case in point, in the "nominal construction", when the same NP occurs in two different positions in the sentence.

(23)  Old Babylonian:
aḫ-um         aḫ-am        lā    ibaqqarū
brother-NOM brother-ACC NEG raise.claims.DUR.3.M.PL
"None should raise claims against the other"                  (YOS 8 99: 19f)

(24)  Biblical Hebrew:
ki gibbôr  bě-gibbôr  kāšālû
as warrior in-warrior stumble.PRF.3.M.PL
"One warrior will stumble over another."                      (Jer. 46:12)

The plural verb in the example from Biblical Hebrew (24) cannot be attributed to a reanalysis of a broad subject as *the* subject of the clause, since in this case, there is no antecedent to the participant of the relation expressed in the sentence. In other

words, the motivation behind the plural form of the verb cannot be explained by appealing to the syntactic relations in the clause. I propose, instead, that the plural agreement can be accounted for by the semantics of the NP-strategy for expressing reciprocity.

The plural agreement in (24), then, can be analyzed as anchored in semantics rather than morphology. The phenomenon of semantically driven agreement occurs in the case of collective nouns, which are morphologically singular but denote a plurality. For example, the noun *committee* may trigger both singular and plural agreement, both acceptable in some dialects of English (25) (inter alia Perlmutter 1972; Levin 2001; Corbett 2006: 155–160):

(25)   a.   The committee has met on Friday.
       b.   The committee have met on Friday.

In the case of collective nouns, plurality is part of the denotation, in the sense that the NP signifies more than one entity. In respect of the unspecified relation, however, the state of affairs is not as perspicuous. The clear-cut instances of the hybrid construction with plural agreement that we have encountered so far designate a strong reciprocal relation, namely, a symmetric relation between the participants. The plurality, in such sentences, may be rooted in the nature of **the reciprocal relation**, which – along with various other unspecified logical relations – entails that, semantically, more than one member of the set occupies the subject position. In other words, the same expression signifies a multiplicity of entities all participating in the reciprocal relation described. Accordingly, the plurality is not a phi-feature of the NP in the subject position; rather, it has to do with the number of individuals participating in the relation denoted by the verb, and therefore derives from the semantics of the clause in its entirety. If this analysis has validity, this observation regarding the hybrid construction may have broader ramifications for the issue of semantic agreement in general. An in-depth exploration of this topic is beyond the scope of the current study and is left to future research.[8]

Returning to the data at hand, the hybrid construction that constitutes the intermediate stage of the reciprocal NP-strategy is often elusive. For example, nowhere does the literature mention a subtle change in the history of Arabic germane to this development. Compare the sentences in (26) from Modern Standard Arabic with those in (27) from Classical Arabic. In both periods one can find examples of constructions with existential quantifiers involving a repetition of partitives

---

**8.** See inter alia Elbourne (1999), den Dikken (2001), Sauerland (2004a, b), and Smith (2017). Theories such as Smith's (2017), whereby collective nouns are simultaneously singular and plural, cannot account for the NP-strategy constructions expressing reciprocity.

(1.3.2.2.3). In all of the examples below, the speakers participate in a reciprocal relation. In Modern Standard Arabic, the verb is in the first person plural:

(26)   Modern Standard Arabic:
  a.   *naḥnu nuwaddiʿu        baʿḍ-u-na            baʿḍ-an*
       we    say.farewell.IMP.1.C.P some-NOM-POSS.1.C.PL some-ACC.INDF
       "We bade farewell to each other."            (Cantarino 1975: 137)
  b.   *linusāʿida       baʿḍ-u-na            baʿḍ-an*
       assist.SBJV.1.C.P some-NOM-POSS.1.C.PL some-ACC.INDF
       "Let us assist each other."γ
  c.   *palnuḥibbu    baʿḍ-u-na            baʿḍ-an*
       love.SBJV.1.C.P some-NOM-POSS.1.C.PL some-ACC.INDF
       "Let us love each other."γ

In the classical period, in the Qur'an, the verb agrees with the partitive *baʿḍ-* "some" and takes third person masculine singular:

(27)   Classical Arabic:
  a.   *rabb-anā      stamtaʿa           baʿḍ-u-na*
       lord-POSS.1.PL 3.M.SG.PST.make.profit some-NOM-1.PL
       *bi-baʿḍ-in*
       in-some-GEN.INDF
       "Our Lord! We made profit from each other."         (6: 128)
  b.   *yakfuru       baʿḍ-u-kum           bi-baʿḍ-in*
       3.M.SG.IMP.deny some-NOM-POSS.2.M.PL in-some-GEN.INDF
       "You will disown each other."                (29: 25)

The classical period exemplifies Stage I, with *baʿḍ-* as the grammatical subject. In (27) the speaker (plural) in a reciprocal relation is the grammatical subject (Stage III, below), or at least in control of semantic agreement (Stage II).

   Notably, in all the above Examples (23)–(24), (26)), the verb either precedes or follows both elements of the construction. In the Jewish Neo-Aramaic Dialect of Challa (26), however, a plural verb form is positioned between the two elements:

(28)   Neo-Aramaic Dialect of Challa:
       *xa lu      mšaboḥe  'əl-xé*
       one COP.3.PL praise.PRF to-one
       "One is praising the other."                (Fassberg 2010: 48)

Since the two elements of the construction are separated, it stands to reason that one is the subject and the other the object; thus, in light of the fact that there is no morphological agreement, it is reasonable to propose that this is an example of Stage II and, accordingly, an instance of a semantic agreement.

A similar development can be traced outside of the Semitic languages in the history of Italian,[9] where the most common NP-strategy is via the pronominal construction discussed in § 1.3.2.2.2, consisting of the indefinite pronoun *l'uno* "the one" expanded with the second element *l'altro* "the other".[10] The thirteenth-fourteenth century Italian expression *l'uno l'altro* occurs as a two-unit construction with a verb in the singular form (thus, *l'uno* is the subject, and *l'altro* the object). The two elements may occur either separately, or together post-verbally.

(29)  a.  *Quando lo amico     ama        la  sua        amica*
          when   DEF friend.M.SG love.PRS.3SG DEF POSS.3.M.SG friend.F.SG
          *per dilettazione, e    quella    ama        lui per utilità,   non*
          for pleasure     and DEM.F.SG love.PRS.3.SG him for convenience NEG
          *ama         l'uno        l'altro        per diritto bene.*
          love.PRS.3SG DEF=one-M.SG DEF=other-M.SG for right   good
          "When the friend loves his girlfriend for pleasure and she loves him out of convenience, the one does not love the other for the right reason."
                                                          (Tesoro volg (XIII))
      b.  *perche queste   due cose        seguita         l'una*
          because DEM.F.PL two thing.FEM.PL follow.PRS.3.SG DEF=one.F.SG
          *l'altra        igualmente.*
          DEF=other.F.SG equally
          "Because these two things follow each other equally…"
                                                          (Andrea Cappellano (XIV))

In Italian texts from the thirteenth century, only a few examples of two-unit constructions are attested that demonstrate characteristics of Stage II, in which *l'uno l'altro* appear in combination with a plural verb. Such a configuration occurs only if the set participating in the relation is in the left periphery of the sentence, as in (30). However, the pattern of *l'uno l'altro* preceded by the plural verb becomes very frequent in fourteenth-century texts.

(30)  *La  prima ragione si è,  che    le  cose        della   natura*
      DEF first   reason  REFL be.3.SG DEF thing.F.PL of.DEF nature
      *generano         l'   una        l'   altra …*
      generate.PRS.3PL DEF one.FEM.SG DEF other-F.SG
      "The first reason is that the things of nature each generates the other."
                                                          (Egidio Romano (volg., 1288))

---

9.  See also Inglese (2017: 990) for a possible attestation of Stage II in Hittite.

10.  The data (and the translations) are taken from Vezzosi (2010), who follows Plank (2008) in assuming that *un* in Italian is similar to the English distributor *each*, a conjecture was never completely validated.

Finally, one encounters a shift to a construction with the following changes: (1) the verb regularly takes the plural form; (2) the end of the fourteenth century is marked by the emergence of the elided form *l'un l'altro*, which gradually gains ground; (3) with relations that require prepositions, the preposition governs only the second element (31b):

(31)  a.  *perché   facciamo     l'un          l'altro            tapini …*
          because make.PRS.1PL DEF=one.M.SG DEF=other.M.SG miserable.M.PL
          "Because we make each other miserable…"

                                                     (Bioardo Lib. 1 can. 2.17 ('400))

     b.  *il    veder   la    miseria l'un          dell'altro            e*
          DET see.INF DEF misery  DEF=one-M.SG of.DEF=other.M.SG and
          *l'aversi            compassione l'un            all'altro*
          DEF=have.INF.REFL pity        DEF=one.M.SG to.DEF=other.M.SG
          "Seeing each other's misery and pitying each other…"

                                          (Firenzuola Ragionamenti Giorn. 1 nov. 1.4 (500))

This last stage is very similar to contemporary Italian, which will be discussed at length in the next chapter.[11] The above historical discussion of NP-strategy constructions in Italian demonstrates the significance of the current study beyond the Semitic languages.

   In sum, the second stage does not manifest a change in the syntactic structure of the clause, in that both the broad and the narrow subject are still present. The only change is in the agreement features of the verb, specifically, a transition from singular to plural – which, according to the mechanism proposed here, is semantically driven.


### 2.4.3   Stage III

#### 2.4.3.1   *The basic changes*
The final stage is marked by the evolvement of a one- from a two-unit construction. I argue that the main transition within this process is related to a phenomenon well known from various other diachronic changes whereby a left-peripheral element is syntactically reanalyzed as the (narrow) subject of the clause (Li & Thompson

---

**11.** In Modern Italian, reciprocity must be indicated also with the reflexive pronoun *ci*. Thus, the equivalent of (31a) is the following:

   *perché  ci    facciamo      tapini         l'un          l'altro*
   because REFL make.PRS.1PL miserable.M.PL DEF=one.M.SG DEF=other.M.SG
   "Because we make each other miserable…"

I wish to thank Margherita Farina for helping me with the Italian data.

1977; Bar-Asher Siegal 2011b; 2013; Givón 2015: 29–31). In the case in point, the NP(s) that denotes the set participating in the unspecified relation is reanalyzed as an argument of the main predication and as the syntactic (narrow) subject. I will further claim that, as a consequence, the two separate pronouns come to be perceived as a one-unit anaphor:

| {NP$_1$, NP$_2$...NP$_n$.NOM} | VERB.PL | pronoun$_1$-pronoun$_2$ ACC.DU/PL |
|---|---|---|
| Subject | | Object |

**Figure 3.** The structure of the one-unit construction (syntactic reanalysis)

Once a different element is posited as an argument of the main predicate and as the syntactic (narrow) subject, pronoun$_1$ can no longer operate as the subject, and must as a consequence be analyzed, on a par with pronoun$_2$, as part of an expression denoting the unspecified relation. As a result, both pronominals come to fill the same syntactic position. This is a case of a syntactic reanalysis without a concomitant semantic change, and it aligns with Scenario 3 discussed in the introduction in relation to the various types of reanalysis (§ 0.7.1, see Figure 3).

Figure 4 improves on Figure 3, by indicating that, at this stage, the non-subject position assigned by the verb is filled by a single pronominal.

| {NP$_1$, NP$_2$...NP$_n$.NOM} | VERB.PL | RECP.ACC.PL |
|---|---|---|
| Subject | | Object |

**Figure 4.** The structure of the one unit-constructions with an anaphor

A number of changes that take place in the final stage set apart the one- from the two-unit construction:

(32)  a.   A shift from a two-unit to a one-unit expression, known as univerbation
      b.   A change in the grammatical number of the pronominal expressions: singular=>plural
      c.   A change of grammatical case: loss of an NP in the nominative case.

Previous studies (inter alia Plank 2008; Haas 2010) focus on the univerbation part, which according to the current analysis is motivated phonologically, owing to the linear proximity between the elements. Less attention has been accorded to other structural aspects of this process. I endeavor to demonstrate, however, that at the core of the change is a reanalysis of the left-peripheral element as the narrow subject. Once this reanalysis has taken place, the univerbation of the two pronominal expressions is morphologically imperative, by virtue of their shared syntactic position; in addition, the clause forfeits the place for another element in the nominative case, as the original narrow subject is not an independent element

but part of another argument of the predicate. Finally, the pronominal is bound within the clause, becomes an anaphor, and as such, must agree with the antecedent by taking plural.

The above claim is more iconoclastic than meets the eye. An accepted premise in linguistic research is that no diachronic change in a language is necessary. Yet, to the extent that grammatical relations such as subject, object, etc. obtain in a sentence,[12] once the topic in the construction studied has been reanalyzed as its grammatical subject, a reanalysis of the pronoun must necessarily follow, since clauses cannot have two (narrow) subjects (cf. Eckardt (2006), who also argues for necessary syntactic changes resulting from reanalysis).

While previous analyses maintained that univerbation is the only characteristic that marks a construction as belonging to Stage III, according to the rationale proposed here, the manifestation of any of the above three characteristics (32a–c) relegates a construction as Stage III. The best way to investigate these three components is by probing parallel developments in a variety of languages, a task undertaken in what follows. The three characteristics are structurally interdependent, such that a formal indication of even one of them should suffice to establish that the language has reached Stage III and evolved a one-unit construction. It is plausible to assume that not all characteristics will be formally expressed at once, since formal changes are not bound to predictable patterns. The following section presents formal manifestations of each of the Stage III characteristics and demonstrates how the analysis proposed here may change previous accounts of salient data from several languages.

#### 2.4.3.2   *Univerbation*

On the approach advanced in this book, at the final evolutionary stage of the NP-strategy for unspecified relations, only one syntactic position for a pronominal is available, and it can accommodate only a single element. However, since in the previous stages, the construction comprised two pronominal elements, they need to fuse in order to meet this requirement. Moreover, the frequent use of this construction can lead to phonological reduction (Bybee 2003: 615–617, inter alia). Thus, already early in the twentieth century, Macdonell (1927: 174) hypothesized that the one-unit Sanskrit anaphor *anyonyam* originates from a pronominal construction consisting of a repetition of *anyo + 'nyam* ("other" in NOM and ACC),

---

**12.** For the purposes of this discussion, it is irrelevant whether or not grammatical functions such as subject and object are primitives, or whether they should be defined structurally as grammatical categories, an approach promoted in the syntactic literature since Chomsky (1965).

suggesting that this is "a kind of irregular compound in which the nom. masc. form, due to frequent syntactical juxtaposition, became generalized".[13]

Indeed, the phenomenon Andersen (1987) terms as univerbation is encountered in many languages – it is essentially a phonological fusion as a result of which constructions with two separate pronominals become single-unit expressions. Andersen subdivides univerbation into three types: morphological univerbation (loss of morpheme boundaries), prosodic univerbation (stress shift) and segmental levelling (phonological reduction). NP-strategy constructions found in the Semitic languages underwent a morphological univerbation that also includes prosodic and segmental changes. In the Old Babylonian texts from Susa,[14] for example, the one-unit anaphor is either *aḥmaḥam/im* or *aḥmāmam/im* (see CAD, A1 p. 193).[15] The former is clearly a fusion of the older two-unit construction (a repetition of *aḥum*, 13a). The elision of the second /ḥ/ in the second form is most likely a result of haplology:[16] *aḥmaḥam > aḥmaḥam*+CASE = *aḥmām*+CASE, following a reanalysis of the boundaries between the two forms. A similar case of haplalogy seems to have occurred in the Syriac form (14d) †*ḥadḥad > ḥadḥad+ē* = *ḥədādē* (with the addition of the plural marker, to be discussed in the next section). In both instances, the loss of a consonant results in a lengthening of the subsequent vowel. Haplology may also account for the Greek form: ἄλλη (another, f) ἀλλήλων (each other).[17]

In addition to univerbation, a two-unit pronominal construction may shift to a one-unit construction with a singular "word" through the process of deletion and as a frozen form. Both of these phenomena are found among the Semitic languages.

---

13. I wish to thank Maayan Nidbach for this reference.

14. The dialect of Susa is considered "peripheral" Akkadian, and the assumption is that Susa speakers used a different language as a substrate. This circumstance, however, has no bearing on our typological discussion about the etymology of such pronouns.

15. Note that in the CAD, the entries for these pronouns (and nouns, in general) are in the nominative. As already noted (§ 2.3), in their function as a one-unit anaphor, these elements cannot appear in the subject position ("one loves the other" vs. "*each other loves"). For more on these pronouns, see Von Soden (1933: 130, n.1), Meyer (1962: 70), and Salonen (1962: 100–102). I wish to thank John Huehnergard for these references.

16. See also Nedjalkov (2007: 201).

17. See also Kulikov (2007: 727–728) for a description of univerbation that resulted in the Sanskrit form *anyonyam*, via a repetition of the adjective *anyá* "another, one of a number, the other". This is a case of segmental levelling, called *sandhi* in the context of Sanskrit, which took place in the boundaries between the two instantiations of an adjective.

**(1)** *Deletion –*

As stated above, at Stage III, the two pronominals fill one syntactic position, and consequently, one of these forms may be elided, as in the Standard Arabic construction exemplified in the previous chapter (4c) and repeated below:

(33)   *baʿḍ -u-humā li ba̶ʿ̶d̶i̶n̶ > li- baʿḍ-him*

Another, albeit less perspicuous, example of deletion comes from Akkadian. While the shift from the two- to the one-unit pronoun is discernible, the one-unit pronoun *aḫāmiš/aḫāiš*[18] (1b) represents only one occurrence of *aḫum*. It would be reasonable to assume, however, that the one-unit pronoun emerged as a result of a deletion of one of the two original instantiations of *aḫum* (1a). Further evidence that deletion is at play in such instances will be provided in § 5.5 below.

**(2)** *Frozen forms –*

Frozen forms have two distinct phonological elements that, at the synchronic level, function as a one-unit construction, as is evident from the syntax. In Amharic, for example, the pronominal comprises the reiterated element *ərs/ras* "head", as per the formula below:

(34)   *ərs bä +ras* + pronominal (plural) suffix agreeing with the subject

The element *bä* is a vestige of the preposition *bä* "in", following the loss of its grammatical function in this formula, and it has become part of the reciprocal NP-strategy constructions, as demonstrated in the following sentence:

(35)   Amharic:
       *ərs    b-ärs-aččen         annäṭṭala*
       head in-head-POSS.1.PL NEG.fight.IMPF.1.PL
       "Let us not fight with each other."                         (Leslau 2000: 27)

Example (4d) in the previous chapter likewise illustrates an occurrence of a frozen stage in the shift from two- to one-unit constructions, as only the first element is inflected to fit the syntax of the sentence.[19] A similar phenomenon may be found in Finnish, where *toinen* "another, second" can be used as an anaphor to express reciprocity when it is in a non-nominative case and has a pronominal suffix (36a). There is, however, another equifinal construction with a frozen normative form (36b):

---

**18.**  In Section § 5.5 we will discuss the putatively adverbial ending *-iš* in these forms.

**19.**  A similar phenomenon is known in other languages, such as Kannada (Bhat 1978: 44–45), where the NP-strategy constructions comprise reiterated terms designating "one person" (*obbaru*) or "one thing" (*ondu*), with appropriate case suffixes attached only to the first constituent.

(36)  Finnish:
  a.  *he    odottavat    tois-iaan*
      they wait.PRS.3PL other.PL-PAR.3.POSS
  b.  *he    odottavat    toinen       tois-iaan*
      they wait.PRS.3PL other.SG.NOM other.PL-PAR.3.POSS
      "They are waiting for each other." (Sulkala & Karjalainen 1992: 280–281)

On this analysis, in languages where the forms in Stage III are not a result of either fusion or elision, the single syntactic slot available for the anaphor is filled by a frozen expression, even though it consists of two (phonologically) distinct elements. While such frozen expressions are similar to Stage I in appearance, as it were, synchronically they differ from it in terms of grammatical relations. We explore this further in the next chapter.

Prima facie, it is syntactically significant whether or not the two elements are separable, and this aspect could be taken as a criterion as regards the evolutionary status of the NP-strategy construction as either Stage II or III (cf. Haspelmath 2007: 2113). Thus, the separability of the two components in (28), from the Neo-Aramaic dialect of Challa, is taken as an indication for Stage II; conversely, as I show in the next chapter, the inseparability of the two components in Hebrew indicates the shift to Stage III (§ 3.2). That said, in studying ancient languages, treating inseparability as a decisive criterion could be problematic, as not enough data are available to determine whether the components were indeed inseparable or simply happen to appear next to each other in all attested examples. A discussion of separability in contemporary languages is found in the next chapter.

### 2.4.3.3  *Insertion of an agreement marker*

According to the current analysis, the shift to a one-unit construction entails a change in the grammatical number of the pronominal expression, as the latter is an anaphor referring to the (narrow) subject of the clause, which c-commands it. Insofar as the unspecified relation by default involves multiple participants, the one-unit pronoun has to be plural. Sometimes, this propels the development of an agreement feature, as demonstrated through Mehri (a Modern South Arabian language).

Occasionally, Mehri expresses unspecified relations with a two-unit construction with the reiteration of *ṭayt* "one":

(37)  Mehri:
      *yeṭḳawḳ          ṣəwayr ṭayt ð̣ar ṭayt*
      throw.IPFV.3.M.SG stone.PL one  upon one
      "They throw stones at one another."                          (Johnstone 16:2)

Crucially, the commonly used one-unit anaphor *ṭāṭīday-* – which, in all likelihood, is the product of a fusion resulting from the repetition of *ṭayt* – agrees in number (plural or dual) with its antecedent (Rubin 2010: 50–51):

(38) Mehri:
    a. *ʾāmərō        hə-ṭāṭīday-hi*
        say.PRF.3.M.DU to-RECP-DU
        "They (two) said to each other…"        (Johnstone 4:17)
    b. *tōli fəhēməm        ṭāṭīday-həm*
        then understand.PRF.3.M.PL RECP-3.M.PL
        "Then they understood each other."        (Johnstone 59:14)

It stands to reason, then, that the one-unit anaphor, once developed, became similar to other pronouns and acquired a nominal declension. The dependency between the anaphor and the subject resulted in the subject-pronoun agreement, as demonstrated in the following table (Rubin 2010: 51):

|    | Dual | Plural |
|----|------|--------|
| 1c | (*ṭāṭīdayki*) | *ṭāṭīdáyən* |
| 2m | (*ṭāṭīdayki*) | *ṭāṭīdaykəm* |
| 2f |  | (*ṭāṭīdaykən*) |
| 3m | *ṭāṭīdayhi* | *ṭāṭīdayhəm* |
| 3f |  | *ṭāṭīdaysən* |

**Figure 5.** One-unit anaphors in Mehri (unattested forms in parentheses)

According to this rationale, the ending *-ē* in the one-unit anaphors *ḥədādē* (Syriac) and *hədāde* (Jewish Babylonian Aramaic) in the Late Eastern Aramaic dialects may likewise mark grammatical agreement. These anaphors (discussed in greater details in § 6.3–4) originated from a repetition of *ḥad* "one" (Stage I). The ending *-ē*, which is either a vestige of a dual form (*-ay* > *-ē*) or the usual Late Eastern Aramaic plural marker *-ē*, can be regarded as an added agreement feature:

(39)   *ḥad ḥad* > †*ḥadḥad* > †*ḥadḥad* > †*ḥədād* > [*ḥədād+ē* =>] *ḥədādē*

In Chapter 5 (§ 5.5.), I propose a similar explanation for the Akkadian one-unit anaphor.

    The deletion of one of the two components of the two-unit construction, along with an addition of an agreement marker, is known outside of the Semitic languages as well. An example from Finnish is presented below (König & Kokutani 2006: 281, Sulkala & Karjalainen 1992: 280–281):

(40)  Finnish:
      *tois-emme*<sup>other.ACC-POSS.1PL</sup>
      *tois-enne*<sup>other.ACC-POSS.2PL</sup>
      *tois-ensa*<sup>other.ACC-POSS.3PL</sup>

One point needs to be clarified at this juncture. According to our analysis, as an anaphor, the one-unit pronominal in the NP-strategy construction agrees with its local antecedent, which is usually the subject of the clause. It is thus the agreement, in and of itself, that is at issue, and not the requirement that the pronominal designate plurality. The latter is a derivative of the unspecified relation expressed by the construction, in which the antecedent must denote a set with at least two members. Accordingly, when the antecedent NP is morphologically singular, both the verb and the anaphor should be in the singular as well. This is, for example, the case in Modern Hebrew when the antecedent is *zug* "a couple". Morphologically, it is a singular noun, and as such it controls a singular verb, as in the following documented example:

(41)  Modern Hebrew:
      *haim    zug    garuš    **yakol**    lehiqaver       ze*
      whether couple divorced **can.M.SG** burry.PASS.INF DEM.M.SG
      *be-ṣad  ze?*
      next.to DEM.M.SG
      "Can a divorced couple be buried next to each other?"<sub>γ</sub>

#### 2.4.3.4  *A change of grammatical case*

In the two-unit construction, each pronominal occupies one of the predicate argument positions. In the one-unit construction, however, the first argument in the clause, usually the subject, is (often) expressed by an overt NP(s), and therefore only one pronominal element can be assigned a case. When both pronominal elements are conveyed from an earlier stage, one of the following three alternatives may apply to the pronoun that was previously in the nominative: (1) it may lack any morphological case marking; (2) it may assume a frozen nominative form, whereby the morphological marking is retained but *de facto* no case is assigned; (3) the entire expression is analyzed as a single unit and all its elements are assigned the same case. The following languages exhibit each of the three options:

*Lack of grammatical case on one of the elements:*    Standard Arabic (see, § 1.2) has a construction with two elements, of which only the first is marked for case (42), while the second is syntactically frozen and always caseless:

(42)  Standard Arabic:
      *tuʿazzizāni*          *baʿḍ-a-humā*          *l- baʿḍ*
      strengthen.IMP.F.DU some-ACC-POSS.3.DU DEF-some
      "They strengthen each other."                    (Kremers 1997: 55)

*Frozen nominative:*    In Russian, the first element is frozen, as the nominal *drug*
appears even when it is not warranted:

(43)  Russian:
      *On*      *ne otliča-et*                *zolot-o*        *i*      *med'*
      he.NOM NEG distinguish.IPFV-3.SG.PRES gold.N-SG.ACC and copper.F.SG.ACC
      *drug*          *ot*      *drug-a*
      other.NOM from other-GEN
      "He can't distinguish gold from copper (lit. one from the other)."
                                                          (Knjazev 2007: 688)

*All elements take the same case:*    Icelandic displays a case-shift. Alongside the
two-unit construction (in 44a) in which each pronominal takes a different case,
there is another variant (Thráinsson 1979: 129 n. 34) with both elements in
the accusative (44b):[20]

(44)  Icelandic:
      a.  *Þeir*      *elska*        *hvor*      *annan*
          they.NOM love.3.PL.IND one.NOM other.ACC
          "They love each other."
      b.  *Þeir*      *elska*        *hvorn*    *annan*
          they.NOM love.3.PL.IND one.ACC other.ACC
          "They love each other."          (Everaert 1990–1: 283 Example (14))

In Kirghiz (Nedjalkov 2007b: 156), the NP-strategy construction generally case-
marks the second element, but sometimes also the first. (Occasionally, a personal-
possessive marker is added to both elements, and the postpositions are usually
inserted between the elements.)

(45)  Kirghiz:
      a.  *biri biri-Ø-n* (Ø = 3.PL, -n = ACC)
      b.  *biri-Ø-n biri*
      c.  *biri-biri-biz-di* (-biz- = 1.PL, -di = ACC)
      d.  *biri-biz-di biri-biz*

---

**20.**  One must distinguish between the phenomenon whereby both elements are in the accusa-
tive, pointing to the third stage, from the scenario where both are in the nominative, as described
in the previous chapter (ft. 4), which appears to be due to semantic agreement.

Thus, in all the constructions presented above, both pronominal elements share the same syntactic position, as is reflected in the formal expression of the grammatical relations in the clause.

One final typological consideration is salient for our discussion: A priori, a fusion or a deletion resulting in a one-unit anaphor are more likely if, in the earlier stages, both pronominals (pronoun$_1$ and pronoun$_2$) are juxtaposed (adjacent), an arrangement that is usually found in verb-final (SOV) and verb-initial (VSO) languages. Among the Semitic languages that have one-unit anaphors, (non-literary) Akkadian is strictly verb-final (with SOV as the unmarked order) and Arabic is a VSO language. In Syriac, word order is free, with a preference for VSO (Nöldeke 2001: 258–259). Mehri has a free word order as well, but the default at the time when the one-unit anaphor emerged is unknown. The current study does not explore this hypothesis, and only cross-linguistic typological analyses could determine the correlation between word order, the shift to Stage III, and the phonological developments involved.

## 2.5    An interim summary and the significance of the observations

So far, this chapter has focused on the diachronic shift from the two- to the one-unit NP-strategy construction for expressing reciprocity. Based on syntactic analysis at each stage, the main motivation for this transition has been established as the syntactic reanalysis of the broad subject in the left periphery of the clause as the narrow subject. Three processes have been identified as underpinning this change: (1) univerbation (a shift from a two- to a one-element unit); (2) changes in the phi-features of the pronominal expression, which has assumed the status of an anaphor and must therefore agree with its antecedent, which is mostly plural; and (3) the loss of one case assignment. It has also been demonstrated that, in the final stage, the construction may display a variety of formal features: elements may be fused together; an element may be deleted; frozen forms may occur; an overt plural agreement may be added; and the grammatical case of one constituent may be changed. Each of these phenomena would indicate that a given construction is at Stage III.

The significance of unraveling the links in the diachronic process resulting in an anaphor expressing reciprocity goes beyond historical inquiry. Stages I and III present two types of constructions with two distinct syntactic structures. Previous studies of the NP-strategy have foregrounded Stage III, which evolved a specific instance of a reciprocal construction (the second type). Yet, the conclusions of such studies were extrapolated to reciprocal constructions in general. Among the statements set forth are the following:

i.   Reciprocal pronouns are never the subject of the sentence (Everaert 1990–1; Nedjalkov 2007b: 154; Brame (1977: 387–390); and Koster (1987); cf. Haspelmath's (2007: 2095) Universal (6);
ii.  Reciprocal pronouns are grammatically plural (Fiengo & Lasnik 1973; Kamp & Reyle 1993).

These observations motivated the analysis of such pronominal expressions as anaphors within Government and Binding (Chomsky 1981). It was observed that, like reflexive pronouns, these anaphors must have a referent in the same clause, which in turn must have a particular syntactic configuration. Unlike reflexives, however, reciprocal pronouns require plural antecedents (Fiengo & Lasnik 1973).

Even if these observations are correct (and they have been disputed; see Everaert 1999; Haas 2010: 18–19), our study shows that statements (i)–(ii) are relevant only for one-unit constructions (as noted for Italian by Beletti 1982). In contrast, the elements of two-unit constructions have been shown here to function as pronouns and not as anaphors (cf. König & Kokutani 2006). Thus, positing a relation between the semantics of reciprocal constructions in general and a specific type of syntactic configuration would be unwarranted. This important conclusion will serve as the starting point for the discussion of the semantics of the NP-strategy in Chapter 7.

The distinction drawn throughout this chapter between constructions at Stages I and II, and those at Stage III, is relevant to typology studies as well. The structural distinctiveness of the two-unit constructions has not been recognized previously. In fact, some of the universals proposed by Haspelmath (2007) based on the cross-linguistic data collected in Nedjalkov (2007) need to be revised. Consider the following two universals:

> **Universal 3**:
> No language has a reciprocal construction in which there are two mutuant[21]-expressing arguments that are coded like the A (most agent-like argument) and the P (most patient-like argument) of a typical transitive clause (Haspelmath 2007: 2092).

> **Universal 4**:
> Only verb-marked reciprocals allow a discontinuous reciprocal construction [=a construction in which the representation of the two participants are expressed by two different arguments, EABS] (Haspelmath 2007: 2093).

---

**21.** The term "mutuant" designates a participant of the "mutual relation". It was coined by Haspelmath (2007) to distinguish between the semantic plane and the linguistic expressions, the former concerned with mutual relations while the latter pertaining to reciprocal constructions.

These universals are correct only to the exclusion of the pronominal expressions used in the two-unit constructions (cf. König 2011: 337), since as we saw, the latter allow two elements in different syntactic positions, of which one is often the "most agent-like argument" while the other the "most patient-like".

Having characterized the two types of constructions and having delineated a historical trajectory along which the one-unit construction derives from its two-unit predecessor, we will now examine the possibility of an opposite shift.

## 2.6   From one- to two-unit constructions

This section makes a case for the evolution from one- to two-unit constructions in some idiolects of Neo-Aramaic spoken by Jews in the region of Arbel. Residents in this area commonly use the expression *dixle*, which is a single-unit anaphor found in many other local Neo Aramaic dialects (see § 6.4) – but in some of them it serves as the second component in a two-unit construction with *xa* "one" as the first element:

(46)   Arbel (Neo Aramaic):
   *mxélu      xá   l-dìxle*
   beat.PST.3.PL one to-RECP
   "They beat one-another."                    (Example (3) from Khan 1999: 223)

In default of salient historical data, we can only speculate that this construction could have emerged via two alternative processes. The two-unit construction may have evolved from the form *dixle* (which, as already stated, is found in other dialects and used by some speakers of Arbel as well), to which the first element *xa* was adjoined probably under the influence of another language with a two-unit pronoun (Modern Hebrew, Kurdish, or another Aramaic dialect, see § 6.4, for Arbel residents were in contact with all of these groups).[22]

Alternatively, this construction could stem from an old phenomenon, explained below. However, the following background information is required first:

a.   All one-unit forms found in the eastern dialects of Aramaic derive from
   [†]*ḥaḏḥaḏē*, a fusion of the reiterated *ḥaḏ* "one" with an adjoining agreement marker (see § 6.4.)

---

**22.**  A similar phenomenon can be traced in the dialect of Amedia. The parallel construction has the components xa and *ʾəġde*, while the one-unit construction may appear as *ʾəġdade* (Greenblatt 2011: 83).

b.   *xa* is the form of the cardinal number "one" in the NENA dialects. (The final /d/ of the Late Aramaic word for the cardinal number *ḥaḏ* "one" apocopated; see *inter alia* Bar-Asher Siegal (2016a: 61–62).)

It is, therefore, conceivable that the two-unit construction consisting of the elements *xa* and *dixle* resulted from a reanalysis of the one-unit pronoun:

(47)   †*ḥaḏḥaḏē* > †*xaḏxaḏē* > †*xaḏxalē* > †*xa dxalē* > †*xa dəxəlē* > *xa dixle*

The vowel change in the last step is phonologically predictable in classical Aramaic: (1) the shortening of the unstressed vowel, and (2) the insertion of a short vowel between two *schwas*. (This analysis assumes that, in the final form, the stress fell on the ultimate syllable.)[23]

If the development did indeed proceed along this course, we are witness to a rare instance of what Méndez Dosuna (1997) calls "de-univerbation", a process in which a single morpheme splits into two separate elements. According to Méndez Dosuna, such a process can occur only if it opposes opacity. In the case in point, the form *xaḏxalē* is completely opaque, and the separation of *xa* renders the construction more semantically transparent, as elements denoting "one", as does *xa*, are common in the NP-strategy constructions and are also used as indefinite pronouns (see § 1.3.2.2).

Regardless of whether *xa dixle* was formed through the addition of *xa*, under the influence of other languages, or as a result of the reanalysis/deuniverbation of †*xadixle*, we are faced with an uncommon diachronic shift from a one- to a two-unit construction. The transition in this direction has several other possible attestations, e.g., in Akkadian, discussed briefly in § 5.7, and in several other languages (§ 4.4.2).


## 2.7    Conclusions and extrapolations

### 2.7.1    Diachronic developments, syntax and semantics

In the first two chapters of this book, I have endeavored to trace the evolutionary trajectories of different types of NP-strategy constructions for expressing reciprocity. To this end, I differentiated between the one- and the two-unit construction, demonstrating that the two differ in syntactic structure (§ 2.4).

---

**23.** This assumption is justifiable in light of the apocopation of final vowels, both long and short, which occurred in Late Eastern Aramaic. See inter alia Morag (1988: 117–119), for the challenges in attempting to establish the position of the stress in Late Eastern Aramaic dialects.

In the first chapter I make a case that two-unit reciprocal constructions in the Semitic and other languages historically derive from two sources:

(1)  A nominal construction with a repetition of nouns, via two mechanisms:
    a.   Pronouns are used instead of the nouns
    b.   Nominal expressions bleach and *de facto* function as pronouns

(2)  Repetition of existential quantifiers

In addition, it was demonstrated that a feasible approach to tracing the grammaticalization of such constructions is by analyzing them as denoting unspecified relations.

As regards the one-unit anaphors, the discussion in Chapters 1 and 2 has traced their development via two alternative processes:

i.   In Germanic languages, via a reanalysis of constructions with universal quantifiers (§ 1.3.2.2.4);
ii.  In Semitic and other languages, via a reanalysis of two-unit constructions denoting unspecified relations (§ 2.4).

It must be noted that, while these two processes are equifinal, they differ in an important aspect. The first involves a semantic shift (§ 1.3.2.2.4), since the original construction with the universal quantifier necessarily denotes strong symmetry. The one-unit construction that evolves from the universal quantifier has a weaker semantics, as it designates a variety of situations in which an unspecified relation is at play. In the second process, at both stages, the constructions have the same semantics of denoting unspecified relations (in the typology of reanalyses discussed in the introduction (§0.7.1), this is a case of Scenario 3).

The evolvement of two constructions with different semantics into a similar structure expressing an unspecified relation suggests that the one-unit construction is a semantically independent strategy to fulfill this function, rather than a vehicle for conveying a meaning inherited from an earlier expression. The one-unit construction, whether analyzed holistically or compositionally, should therefore be regarded as semantically independent.

Furthermore, in § 2.6 I demonstrated that, alongside the more standard change from two- to one-unit constructions, a shift in the opposite direction is also possible, and the end-result likewise lends itself to both a holistic and a compositional analysis. If both the syntax and the semantics of the one- versus two-unit construction require a separate account, the possibility of bi-directional development is not surprising: Each type of construction employs different compositional mechanisms for expressing the unspecified relation.

As illustrated in Figure 6, de-univerbation is attested only for two-unit constructions whether with various pronouns or with existential quantifiers, but not for universal quantification. Such a limitation is expected, since this process involves only a syntactic reanalysis but no semantic change. A change to a construction with a universal quantifier would entail the formation of a new universal quantifier and a distributor; a motivating factor for such a semantic reanalysis is unlikely.

Universal quantificational construction

Two-unit construction
(pronominal construction)

One-unit construction (unspecified pronouns)
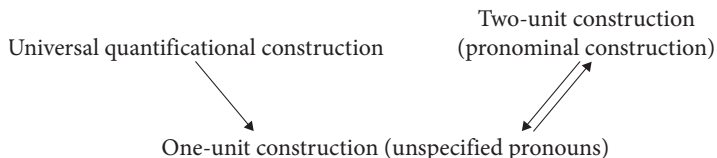
**Figure 6.** Types of historical shifts between the two constructions

## 2.7.2    The nature of the change from two- to one-unit constructions

As noted earlier in the discussion, previous studies tend to assume a uniform mechanism underlying the emergence of the one-unit construction. König and Kokutani (2006: 281) and Nejalkov (2007b: 156) characterize it as grammaticalization, but do not elaborate how, exactly, the shift from the two- to the one-unit pronoun takes place. Yet, is the contention that the one-unit anaphors are more grammaticalized than their two-unit counterparts actually warranted, and if so, based on what considerations? For all intents and purposes, the question regarding the characterization of this shift remains open: Does it indeed constitute an instance of grammaticalization?

If the shift from two- to one-unit constructions can, indeed, be attributed to grammaticalization, evidence for the process operating in the direction *one-unit > two-unit constructions* presents a challenge for a broader issue in historical linguistics, namely, the unidirectionality hypothesis. Investigations in this field are premised on the assumption that grammaticalization invariably proceeds from less grammatical to more grammatical forms and constructions.[24] Thus, potentially, the example from the Jewish Neo-Aramaic of Arbel (§ 2.6) can be considered as counter-evidence to the unidirectionality hypothesis.

---

**24.** In the approach proposed by Heine et al. (1991) and Traugott & Heine (1991), unidirectionality is part of the definition of grammaticalization. Similarly, for Lehmann (1995), Haspelmath (1999 and 2004) and Heine (1994 and 1997), unidirectionality is a constraint on grammatical change in general. Campbell (2001), Janda (2001) and Joseph (2001 and 2005) criticize the inclusion of this hypothesis in defining grammaticalization. For a critical review of the literature on unidirectionality, see Chapter 2 in Norde (2009).

Returning to the question whether the shift from the two- to the one-unit construction is anchored in grammaticalization, let us review some common definitions of this concept.

> "[A]dvancing from a lexical to a grammatical or from a grammatical to a more grammatical status" (Kuryłowicz 1975 [1965]: 52).
>
>   "[T]he change whereby lexical items and constructions come in certain linguistic contexts to serve grammatical functions and, once grammaticalized, continue to develop new grammatical functions" (Hopper & Traugott 2003: 18).
>
>   "A grammaticalization is a diachronic change by which the parts of a constructional schema come to have stronger internal dependencies" (Haspelmath 2004: 26).

As is evident, the definitions suggested by Kuryłowicz's, and by Hopper and Traugott put emphasis on the shift from lexicon to grammar (see von Fintel 1995 for various suggestions regarding conceptual boundaries between lexicon and grammar). While the data in § 1.3 reveal that some (but not all) of the two-unit constructions evolved from a bleaching of some lexical items to pronouns, this lexical process cannot be posited at the core of the change from two- to one-unit constructions, all of whose elements are equally grammatical expressions.

The above definitions also posit a change in the degree of grammaticality: From being less grammatical, elements become more so. Yet, in the shift of the NP-strategy constructions from two- to one-unit, it is not self-evident which of the two are "more grammaticalized". The emergence of the two unit-construction, in and of itself, attests to grammaticalization.[25] Two-unit constructions are neither more lexical nor less grammatical than their one-unit counterparts, and the functions of both are similar. Finally, a propos of Haspelmath's definition (2004), the syntactic analysis in § 2.4 has shown that each of the two types is characterized by its own "internal dependencies".

The development of one- from two-unit constructions may be explored at the formal level as a case of what the literature terms *decategorialization* (Hopper & Traugott 2003: 106–115, Norde 2009: 72–77). Such a process involves a cline of categoriality:

> major category > (intermediate category >) minor category

"Major categories" in this schema are nouns and verbs, "intermediate categories" are adjectival and adverbial forms, and "minor categories" include prepositions, conjunctions, auxiliary verbs, as well as demonstratives and other pronouns.

---

**25.**  It is worth noting that some studies have challenged strict definitions of grammaticalization as a 'box metaphor', in the sense of a shift from one box [lexicon] to the other [grammar]. See, for example, Himmelmann (2004).

Morphosyntactically, decategorialization is usually accompanied by formal changes such as the loss of inflection.

The two types of constructions, one- and two-unit, both functionally represent two possible grammatical relation set-ups within the NP-strategy, but both types belong to the "minor category" as they contains pronouns. Despite this similarity, only the provenance of two-unit pronouns is often formally transparent, while the one-unit anaphor is usually opaque. Thus, some of the two-unit constructions comprise bleached nouns, which in other environments have semantic content. Moreover, two-unit pronouns deriving from nouns often retain nominal inflection for gender and case. In contrast, one-unit anaphors often undergo various phonological changes, and their derivation from earlier two-unit forms can only be traced at the historical level; synchronically, they are not related to other lexical items.

At the same time, as has already been demonstrated (§ 2.4.3.4), the shift from two- to one-unit pronouns is often attended by the addition of agreement features, such that the resulting anaphor gains morphosyntactic properties. As such, this transition may be regarded as "recategorization".[26]

In light of these observations, the one- to two-unit transition exemplified in § 2.6 on the Jewish Neo-Aramaic of Arbel may in fact not be counter-evidence to the unidirectionality hypothesis. Norde (2009) rightly cautions against hastily assuming degrammaticalization (the development in the direction opposite to expected) or making a case against unidirectionality. Thus, while a single-unit pronoun within the NP-strategy could be lexically remote from its original form(s) and derived through univerbation, it is crucial to keep in mind that, functionally, both constructions are equally part of grammar.

This discussion serves as a caveat against applying the notion of grammaticalization indiscriminately to instances of grammatical change. All of the processes described in this chapter undoubtedly involve grammatical changes whose underlying mechanisms are often associated with grammaticalization, in the sense of reanalysis, and which often display formal features typical of this phenomenon. However, as has been amply demonstrated above, it would be simplistic to categorize these processes as grammticalization in the commonly accepted sense of this word. Thus, the analysis presented here reveals yet another conceptual problem that the notion of grammaticaliztion is fraught with, and thereby adds to the array of arguments against using it as an umbrella term for a wide range of historical changes (cf. Campbell 2001; Newmeyer 2001, among others). A more fruitful approach, it would seem, is to follow von Fintel's (1995) suggestion to

---

**26.** See Norde (2009: 72–76), who examines the frequency of this phenomenon in discussing degrammaticalization in general.

explore changes in grammar in all their variety, focusing on their implications for semantics.

## 2.7.3    Future typological study

Chapters 1 and 2 have mostly dealt with data from the Semitic languages, but non-Semitic parallels have been adduced throughout. It has been shown that, at least in Semitic, one-unit anaphors invariably evolved from earlier two-unit constructions. Questions that can be probed in this connection are whether other languages have anaphors that grammaticalized directly from nominal expressions, without the intermediate two-unit stage, and to what extent the generalization about the sources for two-unit constructions are relevant cross-linguistically. We will consider one possible exception in § 5.5.

This discussion concludes Part 1 of the book. In Part 2, the observations and conclusions from the first two chapters will be applied to a wide range of linguistic data.

PART 2

# Relics as a syntactic category

## Modern Hebrew and Italian constructions as frozen formulae

## 3.1    Introduction

Chapter 2 explained the nature of the shift from two- to one-unit NP-strategy constructions, and its possible ramifications for the grammar of the sentence. One of the key conclusions derived from the analysis is that this transition involves not only phonological modifications (univerbation) but the entire framework of grammatical relations between the components of the construction.

The current chapter applies this knowledge in a synchronic study of parallel constructions in Modern Hebrew and Modern Italian (for the earlier stages in Italian, see § 2.4.2). As already shown, in the shift from a two- to a one-unit construction, one component is usually excised through either univerbation or deletion. Occasionally, however, it is retained, be it temporarily or permanently, and, at the synchronic level, lends itself to an analysis as a frozen form, which by its very nature is superfluous. This chapter illustrates how a historical study of the NP-strategy can inform a synchronic syntactic analysis of this linguistic phenomenon.

I argue that the expressions *exad* "one"… *hašeni* "the second" in Modern Hebrew and *l'un* "the one" … *l'altro* "the other" in Modern Italian, which in both languages derive from other pronominal constructions and ostensibly include two components, are structurally one-unit anaphors. The rationale is that, although their constitutive elements underwent only partial phonological fusion, the constructions as a whole display characteristic features of one-unit anaphors at Stage III of the two- to one-unit diachronic development (see § 2.4.3).

Section § 3.2 of this chapter describes syntactic features that distinguish the standard NP-strategy construction from a variant with similar lexical components but a different syntax. This discussion informs the syntactic analysis of the standard construction in § 3.3, and corroborates my claim that this formula heralds a new diachronic stage. Section § 3.5 documents a new development that is underway in some Modern Hebrew idiolects and shows that it is predictable based on the analysis of the common construction (§ 3.3).

In this Chapter, I endeavored to illustrate how the diachronic and synchronic analyses can enrich and feed into each other. Through a synchronic analysis here, I will show that, in evolving the above two types of the NP-strategy, Hebrew and Italian have reached a new historical stage. At the same time, the synchronic analysis, itself, will be inspired by probing parallel developments in other languages.

## 3.2    Modern Hebrew and Modern Italian constructions

Some languages have more than one NP-strategy construction that share similar components but have divergent syntactic configurations, as demonstrated, respectively, by the following pairs from Hebrew, the Judeo-Arabic dialect of Tafilalt, and Italian:

(1)  Modern Hebrew:
   a.  *šoš ve-lea   (ha)-axat ohevet     et   ha-šniya*
       Šoš and-Lea DEF-one.F love.PRS.F.SG ACC DEF-second.F
   b.  *šoš ve-lea   ohavot      (a)xat et   ha-šniya*
       Šoš and-Lea love.PRS.F.PL one.F  ACC DEF-second.F
       "Šoš and Lea love each other."

(2)  Judeo-Arabic dialect of Tafilalt:
   a.  *yaʿkub u-musi   si      wkkel       si*
       Jacob   and-Moses someone feed.PST.M.SG someone
   b.  *yaʿkub u-musi   wkkelaw   si       l-si*
       Jacob   and-Moses feed.PST.PL someone DEF-someone
       "Jacob and Moses fed each other."

(3)  Modern Italian:
   a.  *(A proposito di quei    ragazzi) l'uno     non condivide    le   idee*
       as for              DEM.PL guy.PL   DEF=one NEG share.PRS.3.SG DEF idea.PL
       *dell'altro*
       of=DEF=other
   b.  *Quei   ragazzi non condividono   le   idee   l'uno     dell'altro*
       DEM.PL guy.PL  NEG share.PRS.3.PL DEF idea.PL DEF=one of=DEF=other
       "Those guys do not share each other's ideas."

I contend that, despite the lexical similarity between the (a) and the (b) sentence in each pair, they represent different types of construction: the former – the two-unit, while the latter – the one-unit variant.

As argued by Halevy (2011a, b) with respect to the Hebrew construction in (1b), its two elements comprise a single stress unit and therefore display "incipient

grammaticalization". Halevy claims, however, that since there is no fusion, and since other elements can be inserted between the two components of the construction, the grammaticalization process cannot be regarded as completed. Yet, nowhere does Halevy elaborate what, exactly, she means by "grammaticalization" in this context – and, as shown in the previous chapter (§ 2.7.2), one should be cautious in applying this term to the shift from a two- to a one-unit construction.

Notably, in the Modern Hebrew example, the verb in the b-sentence must take plural – which, in itself, indicates that this construction is at least at Stage II, if not III, of the diachronic trajectory described in (§ 2.1.4). A shift to Stage III can be identified based on other characteristics of this development deduced in the previous chapter. In this connection, I will elaborate on some features of the various NP-strategy constructions in the languages cited, besides the different grammatical number on the verb. Specifically, relying mostly on Glinert (1983),[1] I will differentiate structurally between the Modern Hebrew constructions, in light of the syntactic differences between their various pronominal expressions, as illustrated in (4):

(4) a.  *odadnu*$_i$          *et   ha-ylad-im*$_j$  *lelamed  et  aṣmam*$_j$
         encourage.PST.1.PL ACC DEF-child-PL teach.INF ACC REFL.3.M.PL
         *matematika*
         math
         "We encouraged the boys to teach themselves math."

   b.  *odadnu*$_i$          *et   ha-ylad-im*$_j$  *lelamed  otanu*$_i$    *matematika*
         encourage.PST.1.PL ACC DEF-child-PL teach.INF ACC.1.PL math
         "We encouraged the boys to teach us math."

   c.  *\*odadnu*$_i$          *et   ha-ylad-im*$_j$  *lelamed  et  aṣmenu*$_i$
         encourage.PST.1.PL ACC DEF-child-PL teach.INF ACC REFL.1.PL
         *matematika*
         math
         Intended meaning: *"We encouraged the boys to teach us math."

As shown in these sentences, it is the object, rather than the subject, of the main clause that controls the object of the infinitive clause, so a reflexive pronoun in this position must find its antecedent in the object in the main clause – and it agrees with the latter in gender and number. The following four sentences all convey the same intended meaning, as illustrated by the English translation:

---

**1.** Glinert's (1983) analysis concerns only sentences such as (5c–d). As is shown later on in this chapter, he did not regard the two constructions as coexisting synchronically on par with each other and consequently, I will argue, analyzed some two-unit exemplars as specific instances of the one-unit type.

(5)  a.  *(ha-)exad   oded                 et   ha-šeni         lelamed   et
         (DEF-)one.M encourage.PST.3.M.SG ACC DEF-second.M teach.INF ACC
         *aṣmo       matematika*
         REFL.3.M.SG math

     b.  *\*(ha-)exad   oded                 et   ha-šeni         lelamed   et*
         (DEF-)one.M encourage.PST.3.M.SG ACC DEF-second.M teach.INF ACC
         *aṣmam       matematika*
         REFL.3.M.PL math

     c.  *hem odedu               (e)xad et  ha-šeni         lelamed   et*
         they encourage.PST.3.PL one.M  ACC DEF-second.M teach.INF ACC
         *aṣmam       matematika*
         REFL.3.M.PL math

     d.  *\*hem odedu               (e)xad et  ha-šeni         lelamed   et*
         they  encourage.PST.3.PL one.M  ACC DEF-second.M teach.INF ACC
         *aṣmo       matematika*
         REFL.3.M.SG math
         "They encouraged each other to teach themselves math."

While the agreement in (5a) and the ungrammaticality of (5b) are as expected, it is surprising that (5c) is grammatical while (5d) is not, especially as the formal grammatical object in the latter sentence, *hašeni* "the second", is morphologically singular, similar to (5a). The plural morphology of the reflexive pronoun cannot be explained as semantic agreement, since if this were the case, (5b) should also be grammatical, insofar as semantically all these sentences are putatively equivalent. The upshot is that, at some level of analysis, the object of the main clause in (5c) is plural, but not so in (5a).

Similar to (5a, c), each of the Italian constructions shows a different agreement pattern with respect to the number of the reflexive pronoun in the infinitive clause:

(6)  a.  *L'uno      ha incoraggiato     l'altro     ad insegnare a  se stesso  la*
         DEF=one encourage.PST.3.SG DEF=other to  teach.INF to REFL.3.SG DEF
         *matematica*
         math

     b.  *Si     sono  incoraggiati      l'un       l'altro     ad insegnare a*
         REFL be.3.PL encourage.PST.3.PL DEF=one DEF=other to  teach.INF to
         *se stessi   la   matematica*
         REFL.3.PL DEF math
         "They encouraged each other to teach themselves math."

It is plausible that the differences in phi-features (i.e., in one construction the pronominal expression is singular while in the other, plural) are related to the differences, noted in the previous chapter, between the syntactic structures of the

two- and the one-unit construction: in the former, the second pronominal element is singular, while in the latter, the anaphor is plural (§ 2.4.3).

In line with the diachronic analysis in § 2.4, the sentences (5c) and (6b) are clearly at Stage III.[2] In § 2.4.3.3, I provided morphological evidence that, in some languages, the one-unit anaphor is overtly plural and agrees with its plural subject antecedent. Accordingly, in Hebrew (and Italian), the plural morphology of the reflexive pronoun controlled by the pronominal element of the NP-strategy expression, i.e., the object of the main clause, indicates that these constructions are one-unit, despite their outward appearance. In diachronic terms, they are at Stage III and thus contain an anaphoric expression. The two-unit constructions in (5a) and (6a) are two-unit – and are, in fact, marked for high register in both languages.

Several additional observations can be advanced in support of this claim. (Real two-unit constructions will be referred to hereinafter as "a-sentences" and frozen constructions as "b-sentences".) To begin with, the two constructions differ in that, in the b-sentence, the first element *exad* "one.M" or *axat* "one.F" are commonly pronounced with the elided initial vowel: *xad* and *xat* respectively, a kind of articulation that is highly irregular for pronominal uses of the cardinal number "one."[3] The Italian pronominal *uno* likewise elided and is expressed in this construction as *un*. According to the current analysis, the b-sentences represent Stage III, and as such, their anaphoric element is prone to phonological reduction. Once the two components of the anaphor forfeited their status as independent pronouns by virtue of sharing the same syntactic position and function, the unification process came into play – first at the syntactic level and subsequently, also at the phonological as univerbation (see § 2.4.3.2). Thus, the univerbation posited by Halevy based on prosody (stress shift) is also manifested as phonological reduction at the segmental level, through the aberrant pronunciation of the cardinal number "one"(*exad* as *xad* and *l'uno* as *l'un*).

Second, in Hebrew a-sentences, which are at Stage I, the first element, *exad*, is usually prefaced by the definite article. The use of the definite article before the first element of a b-sentence, however, is perceived as an attempt to speak in a higher register, while the article before the second is mandatory (regardless of the semantics). Moreover, in MH, grammatical case can be indicated either through

---

**2.** In Italian, however, transitive predicates require a reflexive pronoun (*si* in 6b) and *l'un-l'altro* stand in apposition to it. It is, therefore, possible to argue that the reflexive pronoun is the controller of the agreement.

**3.** Thus, an elided pronunciation of *exad* "one" is ungrammatical in other syntactic environments:

*raiti*         *yeled e*(\**xad*) / *yeš   raq  e*(\**xad*)
see.PST.1.SG child one/      EXIST only one
"I saw one child." / "There is only one."

the accusative marker *et* or by means of various prepositions, which invariably occur only before the second element *hašeni* (7a–b), and the same restriction also holds for Italian (7c–d):

(7) Hebrew:
   a. *hem dibru    exad  al    ha-šeni*
      they talk.PST.M.PL one.M about DEF-second.M
   b. *\*hem dibru      ha-šeni      al (ha-)exad/ \*al*
      they  talk.PST.M.PL DEF-second.M on (DEF-)one.M  on
      *(ha)exad     ha-šeni*
      (DEF-)one.M DEF-second.M
      "They talked about each other."
      Italian:
   c. *Le  mie      amiche     parleranno     l'una      dell'altra*
      DEF POSS.1.M.SG friend. F.PL speak.FUT.3.PL DEF-one.F of=DEF=other.F
   d. *\*Le mie      amiche     parleranno     l'altra     dell'una*
      DEF POSS.1.M.SG friend.F.PL speak.FUT.3.PL DEF-one.F of=DEF=other.F
      "My friends will speak about each other."

In the b-sentences, then, the two pronominal expressions differ in terms of their tolerance of the definite article, thus displaying a syntactic rigidity that is a hallmark of frozen expressions.

Third, these two elements are inseparable, forming a single constituent. As already stated, in Hebrew, the first element *exad* must precede the accusative case marker *et* or a preposition. Thus, while the order of the arguments of a three-argument verb such as *natan* "he gave" is usually free (8a), the two elements of the construction always co-occur in a fixed order (for Italian, see Belletti 1982: 104).

(8) Hebrew:
   a. *hem natnu    sefer la-more/    hem natnu    la-more*
      they give.PST.PL book to.DEF-teacher/ they give.PST.PL to.DEF-teacher
      *sefer*
      book
      "They gave a book to the teacher."
   b. *hem natnu    exad  la-šeni        sefer*
      they give.PST.PL one.M to.DEF-second.M book
      "They gave each other a book."
   c. *\*hem natnu     exad  sefer la-šeni*
      they  give.PST.PL one.M book to.DEF-second.M
      Intended reading: "They gave each other a book."

Only in one instance can another NP be inserted between the two elements of the pronominal expression: If, in a prepositional phrase, this NP stands in a possessive

relation to the pronominal expression, then *exad* may appear right before the preposition, as in (9):

(9)  *šney ha-gis-im         yaďu        exad al ma'as-av*
two  DEF-brother.in.law-PL know.PST.PL one.M on deed-PL.POSS.3.M.SG
*šel ha-šeni*
of  DEF-second.M
"The two brothers-in-law knew about the each other's affair."~γ~

However, the pronominal possessive pronoun suffix (*ma'as-**av***) indicates that this is a higher-register construction, and is in all likelihood is an adnominal possessive construction of the a-type. The standard construction would be as in (10) (cf. Glinert 1983: 206; for Italian, see Belletti 1982).[4]

(10)  *ani ve-yadid  šeli       șiyarnu  male male al ha-yaday-im exad šel*
I    and-friend POSS.1.SG draw.1.PL much much on DEF-hand-PL one.M of
*ha-šeni*
DEF-second.M
"A friend of mine and I drew a lot of pictures on each other's hands."~γ~

These observations suggest the following preliminary conclusions about the structure of b-sentences in Hebrew and Italian:

(11)  i.   The pronominal expression is plural (as indicated by the verbal agreement and the agreement of reflexive pronouns in control environments).
ii.  The two components of the pronominal expression jointly form a constituent.
iii. Some indications of univerbation are observable, based on the change of stress and the elision in the first element (*exad > xad*, *uno > un*).
iv.  Only the second element (*hašeni, l'atro*) participates in the grammatical relations of the sentence (as indicated by the location of the case marker and of prepositions).

One can thus view the two elements *exad … hašeni/l'un … l'altro* as discontinuous sequences of a single constituent (cf. Belletti 1982). The core elements of these sequences is *hašeni* and *l'altro* because they are assigned case, are prefixed by the definite article, and follow prepositions. Moreover, the adjacent element *exad/l'un*

---

**4.** In a personal communication, Geoffrey Khan suggested that, in (9), it is possible to put contrastive focus on each of the elements separately (*yaďu EXAD al ha-ma'asav šel HA-ŠENI*), while (10) precludes this option. (*\*șiyarnu … al ha-yaday-im EXAD šel ha-ŠENI*). A contrastive focus of this kind could be feasible only for two separate constituents. In the future, I intend to further examine the role of prosody in distinguishing such cases.

loses its independent status as a pronominal expression even at the phonological level. Thus, in both Hebrew and Italian, the diachronic shift of NP-strategy constructions from two- to one-unit followed a similar course.

## 3.3 The syntax of the one-unit construction in Modern Hebrew (and Modern Italian)[5]

As was established in the previous section, the construction with the plural verb exhibits characteristics of a one-unit, frozen, pronominal expression. The question that will be addressed in this section concerns the relation between the two elements in this frozen expression: What constitutes the anaphor in the one-unit construction (b-sentences)? Theoretically, two options are feasible:

a. The anaphor is constituted of *hašeni*, whose number in this construction is plural. If so, then Hebrew must have two different homophonic items *hašeni*. In the a-sentences, *hašeni* is the second element of the two-unit construction, in which it retains its lexical denotation ("the second"/"the other") and is grammatically singular. The other *hašeni* is the one-unit anaphor of the b-sentences, and is plural.[6] In light of this analysis, a question arises as to the syntactic role of *exad* "one" in this latter construction.

b. In the b-sentences, the entire expression *exad* [*et*/preposition] *hašeni* is the anaphor. The position of the accusative marker/preposition in the middle of a nominal rather than before it, as in all other instances of grammatical relations marking in Hebrew, would then be exclusive to these anaphors. This aberrant phenomenon would likewise require an explanation.

Based on the distinction between (5c) and (5d), Glinert (1983) argues for option (a), analyzing *exad* as an appositive of the subject of the sentence. While I tend to concur with Gilnert's analysis of *hašeni* as the only object in the one-unit construction, I take issue with his view of *exad* as an appositive of the subject, as the two are not co-indexed. I would argue instead that *exad* is a frozen expression, and as such, has no syntactic role in the sentence. Thus, it is at Phonetic Form (PF)

---

**5.** The rest of the discussion centers on Hebrew. A similar analysis could very well be relevant also for Italian. However, as has been noted in n. 5, Italian demonstrates a significant development in the modern period (compared with the previous stages, as in § 2.4.2), as the expression of reciprocity via a transitive predicate requires the reflexive clitic *si* as an appositive of *l'un-l'altro*. This development warrants a separate study.

**6.** Notably, in various languages, e.g., Finish (see Example (40) in Chapter 2), the one-unit anaphor derives historically from a lexical item that means "other".

without any interpretive properties. The main motivation for this analysis comes from the cross-linguistic comparison presented in the previous chapter whereby Modern Hebrew and Modern Italian b-sentences display Stage III features of a one-unit anaphor. Furthermore, examples from languages like Arabic and Finnish indicate that the first, non-declined, form is optional, as it can be excised from the sentence (§ 2.4.3.4).

To sum up, at the core of the analysis I propose here are the following two claims:

i.    *exad* is a frozen expression and does not share a referential index with the subject.
ii.   *hašeni* is the pronoun in the construction.

These hypotheses are further elaborated and supported below, in the order they are presented.

It should be noted that, like in many other languages, in Hebrew the subject of an infinitive clause must appear before the infinitive and be preceded by the preposition affix *le-* ("for"), while the object follows the infinitive and is preceded by the regular accusative marker *et*, as illustrated by (13a–c):

(13)  a.   *ze          beseder lisno       et    ha-oyev*
           DEM.M.SG OK      hate.INF ACC DEF-enemy
           "It is OK to hate the enemy."
      b.   *ze          beseder *(le-)medina lisno*
           DEM.M.SG OK        to-country  hate.INF
           Intended: "It is OK for a country to hate."
      c.   *ze          beseder *(le-)medina  lisno      et    ha-oyev*
           DEM.M.SG OK      *(to)-country hate.INF ACC DEF-enemy
           */*ze beseder lisno medina et ha-oyev*
           (<- different word order)
           Intended: "It is OK for a country to hate the enemy."

The occurrence of the entire NP-strategy construction after the infinitive is therefore significant:

(14)  *ze          beseder lisno      exad et   ha-šeni*
      DEM.M.SG OK      hate.INF one.M ACC DEF-second.M
      "It is OK to hate each other."

A likely conclusion from this observation is that *exad* in such contexts is not the subject of the infinitive clause and is probably not assigned nominative case.

Neither can it (*exad*) be conceived of as a floating quantifier (cf. Dougherty 1970, 1974; Belletti 1982), as the latter is precluded after infinitive:[7]

(15) a. *\*ze      beseder lisno    kulam/kulanu et    ha-oyev*
        DEM.M.SG OK      hate.INF all/all.of.1.PL   ACC DEF-enemy
        Intended: "It's OK for everyone to hate the enemy."

Furthermore, in Hebrew and in other languages, when the verb is in infinitival form, VP-fronting includes only internal arguments (see *inter alia* Landau (2006) on this phenomenon in Hebrew) (16a–b). When an NP-strategy construction is fronted, it must be so in its entirety (16c) – indicating that it is a one-unit anaphor in object position:

(16) a. *lehalbiš     et  ha-ylad-im  ha-hor-im      malbiš-im*
        dress.up.INF ACC DEF-child-PL DEF-parent-PL dress.up.PRS-PL
        "As for dressing up the children – the parents do this."
    b. *\*ha-hor-im    lehalbiš      hem malbiš-im     et   ha-ylad-im*
        DEF-parent-PL dress.up.INF they dress.up.PRS-PL ACC DEF-child-PL
        Intended: "The parents dress the children."
    c. *lehalbiš     exad et ha-šeni    hem malbiš-im*
        dress.up.INF one   ACC DEF-second they dress.up.PRS-PL
        "As for dressing up each other – they do this."

As already explained, I consider untenable Glinert's analysis of *exad* as being co-indexed with the subject.[8] Instead, for analyzing the relationship between the two elements, I propose the two avenues outlined above, namely, to regard as the anaphor either only *hašeni* (option [a]), or the entire expression *exad et hašeni* (option [b]).

    The latter option may strike one as implausible insofar as, in Hebrew, grammatical case markers and prepositions do not appear in the middle of an NP but invariably precede it. Yet, *exad* is excluded from embedded clauses, and

---

7. Another reason that *exad* cannot be regarded a floating quantifier has to do with the typology of the frozen forms. If it were a floating quantifier, both elements would have to be assigned grammatical case – but, as demonstrated, this does not hold true for all languages.

8. Belletti's (1982) analysis of Italian dovetails with Glinert's (1983). Belletti argues that the first element of the pronominal expression co-refers with the subject and, moreover, binds the second element of the construction. Her rationale, however, is motivated by the characteristics of the Italian construction, which behaves similarly to the equivalent English anaphor *each other*. The proposal advanced here, on the other hand, relies on the distributional affinity of the Hebrew, Italian, and English constructions – a similarity that points to their shared *de facto* status as one-unit pronouns.

only *hašeni* occurs in subject position – indicating that the latter rather than the former is the pronoun.

(17)  *tamid  hayinu      mesugal-im        lada'at    ma   (\*exad) ha-šeni*
     always be.PST.1.PL capable.PRS-M.PL know.INF what (\*one)  DEF-second
     *xošev*
     think.PRS.M.SG
     "We always knew what each other was thinking."γ

The above restriction suggests that the only "real" pronoun in the construction is *hašeni*, while *exad* is a frozen expression. Indeed, languages in which the anaphor is clearly one-unit, comprising a single element, allow it as the subject of embedded clauses, as in the example from Danish below. This also appears to be the case in the English translation, with the anaphor *each other* (which is fused, and prepositions always precede both elements):[9]

(18)  *vi  vil    gerne vide    hvad hinanden tænker*
     we would like  know.INF what RECP     think.PRS
     "We would like to know what each other is thinking."

Based on this data, it appears that *ha-šeni* is the "real" one-unit anaphor in Modern Hebrew. This analysis also explains why case markers and prepositions occur before this element and after *exad*. Accordingly, *exad* can be plausibly conceived of as a frozen expression that is attached to the anaphor *ha-šeni* at PF, but plays no part in the syntax and has no interpretive properties. Its location is motivated lexically rather than grammatically, and it is placed before the position in which the pronoun receives grammatical case – either accusative from the verb or oblique from a preposition.

  Recall, moreover, that the regular pronunciation of *exad* in this construction is *xad*, unlike the cardinal number "one" elsewhere in Hebrew. This corroborates the above analysis whereby *exad* is not a full-fledged pronominal but merely an element that fills a position adjoining to the NP, which is assigned case. Thus, for example, if the pronoun is part of a prepositional phrase and receives case from the preposition, the structure of the entire phrase is the following:[10]

---

9. It must be noted that, some speakers judge these sentences ungrammatical or marginally grammatical. They expect "One could always tell the other's thoughts", which suggests that, syntactically, the construction in English is on the continuum between the parallel Danish and Hebrew constructions.

10. Language development in children potentially corroborates the assumption that the only "real" pronoun is *hašeni*. To my knowledge, no study on language acquisition of these constructions has been undertaken, and these remarks are based on my careful observation of my twin sons, who are monolingual Hebrew speakers and are therefore naturally and on a regular basis

(19)   $[_{PP}[_{NP}$ *exad* $]$ $[_{PP}$ … *hašeni*$_i]$
       *i* is the same index as on the antecedent participating in the reciprocal
       relation

Two further observations are in order. First, in Hebrew and other languages,[11] the grammatical gender of the first element (*exad/axat*) aligns with the gender of the antecedent. This appears to fly in the face of the analysis advanced above, as the relevant phi features should manifest agreement with anaphoric expressions (*hašeni* (m)/*hašniya* (f)). The data, however, are somewhat more complicated. When the antecedent denotes a set of two members of different genders, then if the first element (*exad/axat*) in the anaphor is not elided, each of its elements can have a different grammatical gender – possibly indicating that the first element is not completely divested of phi-features:

(20)   a.   *yael    ve-rivka     sixku      axat im   ha-šniy-a*
            Yael(f) and-Rivka(f) play.PST.PL one.F with DEF-second-F
            "Yael and Rivka played with each other."
       b.   *yossi    ve-rivka     sixku      axad im   ha-šni /*
            Yossi(m) and-Rivka(f) play.PST.PL one.M with DEF-second.M/
            *ha-šniy-a*
            DEF-second-F
            "Yossi and Rivka played with each other."

We shall return to this issue in the next chapter (§ 4.4.4), but at this point I will add two more comments. To begin with, if, as per the analysis set forth above, the first element is indeed inserted as a relic only at PF and carries no interpretive properties, yet agrees with its antecedent, such a setup is consistent with theories that view agreement (at least in some instances) as a post-syntactic phenomenon (e.g., Bobaljik (2008) and Bhatt & Walkow (2013), among others).

---

exposed to reciprocal expressions. At the age of two and a half, the boys used an NP-strategy construction for the first time, but on that occasion, and for a long time thereafter, they articulated only the second element *hašeni*:

   *yašavnu     leyad ha-šeni*
   sit.PST.1.PL next  DEF-second
   "We sat next to each other."

This aligns with the idea that *hašeni* alone participates in the grammatical relations, while the first element *exad/axat* is a frozen expression. In this connection, I would like to tentatively propose that children first acquire only those structures in their language that are grammatically rule-bound (in the case in point, the occurrence of the accusative case-marker and prepositions before pronominal expressions), and only after being corrected will they insert frozen elements.

**11.**  Inlcuding Sanskrit, where the NP-strategy underwent univerbation (Macdonell 1927: 174).

Second, as indicated by the sentence in (17), repeated as (21) below, the insertion of *exad* case-marked as nominative is precluded:

(21) *anaxnu roṣ-im     ladaat    ma  (\*exad)  ha-šeni*
     we      want-PRS.M.PL know.INF what (\*one.M) DEF-second.M
     *xošev*
     think.PRS.M.SG
     Intended: "We each wish to know what the other is thinking."

Thus, *exad* is precluded if the entire phrase requires nominative.[12] According to our analysis, it may seem unclear why sentence (17/21) should be ungrammatical in Hebrew. It is possible, however, to relate this to the previously stated assumption whereby agreement with *exad* is treated as a post-syntactic phenomenon. Bhatt and Walkow (2013) argue that agreement is post-syntactic only in regard of items in object position – in line with Bhatt's analysis (2005) that agreement with subjects entails case assignment, while agreement with objects is with an already case-licensed argument.

It stands to reason, then, that even though both elements (*exad* and *ha-šeni*) must grammatically agree with their antecedent, as far as case assignment is concerned, such agreement cannot encompass an element which is not part of the syntax. Hence, *exad* is blocked from being expressed in the sentence in the nominative case. These observations are only preliminary and need further investigation.

The above analysis is akin to Belletti's (1982) but differs from it in the underlying rationale and in another, no less crucial, aspect. Belletti (1982: 107–108) argues that, in an NP-strategy construction, the subject of the clause is co-indexed with the first element (*exad*, in Hebrew). By contrast, under the current approach, it is co-indexed with the second element (*hašeni*, in Hebrew), while *exad* is inserted at PF, and hence neither participates in grammatical relations in the sentence nor binds or is bound by the second element.[13]

However, since even in languages with an unambiguously one-unit construction, sentences like (17/21) are not always grammatical, it is still possible that the two elements together form a discontinuous sequence which functions as a single phrase and can therefore be analyzed as a one-unit anaphor. The distinctiveness of this sequence as a frozen expression, a relic of an older construction, still requires a historical explanation. In this respect, at least in Hebrew and Italian, unraveling

---

**12.** In other languages with overt case marking, the frozen element is in the nominative, as e.g. in Russian (see 2.4.3.4).

**13.** Such an approach resolves the paradox presented by Belletti (1982), to the effect that the first element binds other nouns but does not receive case.

the diachronic trajectory of these constructions informs their syntactic analysis at the synchronic level.

The issue of grammatical number calls for further elaboration. While the sentence in (5c/22) marks *hašeni* as plural, in (23) its verbal agreement is singular:

(22)   *odadnu*       *exad et ha-šeni*      *lelamed et*
      encourage.PST.1.PL one.M ACC DEF-second.M teach.INF ACC
      *aṣmenu matematika*
      REFL.1.PL math
      "We encouraged each other to teach ourselves math."

(23)   *bne ha-zug mekav-im*   *še-ha-šeni*       *yikax*         *al aṣmo*
      couple      hope.PRS.PL REL.DEF.second.M take.FUT.3.M.SG on REFL.3.M.SG
      *et*    *ha-tafkid šel ha-merape o ha-metaken*
      ACC DEF-role of DEF-healer or DEF-fixer
      "Each spouse hopes that the other will take upon himself the role of healer or therapist."γ

Thus, although the antecedent in the previous clause is in the plural, it controls a singular pronominal expression that is the subject of the embedded clause. Such a phenomenon is not unique to Hebrew. Haas (2010: 18–22) notes that, in English, subjects of embedded clauses can take either singular or plural agreement, with no difference in meaning. Note the following two examples found on the web:

(24)   a.    We want to know what each other are thinking.γ
      b.    We want to know what each other is thinking.γ

The native speakers whom I consulted and who judged the use of an anaphor in this context to be grammatical (i.e., those who allow "each other" in the subject position of the embedded clauses), all concurred that, when a reflexive pronoun is added, only the third person singular variant could be acceptable. This is shown in the following example:

(25)    We want to know what each other <u>is</u> thinking about <u>himself</u>.

Yet Hicks (2009) and Haas (2010) insist that the number of the pronoun *each-other* in the NP-strategy construction is singular. The data presented here complicates Haas' rationale, since unless the pronoun is the subject of an embedded clause (as in (25)), it always demands plural agreement. Therefore, when *each other* appears in the same clause with its antecedent, it is plural.

This conclusion is corroborated by the above survey of NP-strategy constructions in the Semitic languages (§ 2.4.3.3), which display an overtly plural or dual agreement on the anaphor. Accordingly, a plausible conclusion would be that, when a morphologically singular expression (like *hašeni* in Hebrew or a noun

modified by "each" in English) is the subject of a clause, languages may differ: some allow only morphological agreement (as in Hebrew), while others also semantic agreement (as in English). In English, a similar phenomenon is encountered with collective nouns like "couple" (as shown in § 2.4.2), which trigger singular agreement in some dialects and plural in others (Levin 2006; Bock et al. 2006); moreover, considerations of locality have been shown of relevance as well (Smith 2017). A comprehensive discussion of this issue, however, is beyond the scope of the current investigation.

## 3.4    Interim summary

The discussion in this chapter has been based on the arguments presented in the previous one. The results of the cross-linguistic, historical analysis undertaken in Chapter 2 have proved relevant for the synchronic analysis of NP-strategy constructions in contemporary Hebrew and Italian. Specifically, they motivated new tests based on phi features to determine the status of the pronominal elements in these constructions as either a pair of pronouns or a one-unit anaphor. The findings suggest that, in Hebrew, the first element in the construction should be considered as a relic of an older lexical item. Such expressions are only present at PF and are devoid of interpretive properties.

In what follows, I document a development that has, of late, been underway in Hebrew, and that is directly related to the current discussion regarding NP-strategy constructions in this language.

## 3.5    In real time: A diachronic development in Modern Hebrew

In the previous section I have made a case that the first element *exad* in the Modern Hebrew anaphor is a relic of an earlier expression. As a possible sequel of this scenario, in some Modern Hebrew idiolects a further fusion appears to be taking place between *exad* and *hašeni*. As has been shown, in Standard Modern Hebrew, prepositions are regularly inserted between the two elements:

(26)  a.  *exad neged   ha-šeni*
         one   against DEF-second
         "against each other"
     b.  *exad im    ha-šeni*
         one   with  DEF-second
         "with each other"

      c.   *exad al  ha-šeni*
          one   on DEF-second
          "on top of each other"

Sentences (27a–e) from the internet indicate that, in certain idiolects, the two elements appear together after a preposition (sometimes with the accusative marker still in between). Based on the contexts in which these sentences appear online, there are no indications that they were produced by non-native speakers of Hebrew.

(27)   Modern Hebrew:
      a.   *tamid raṣiti        ladaat    ma ban-im os-im       še-yešen-im*
          always want.PST.1.SG know.INF what boy-PL do-PRS.PL REL-sleep.PRS-PL
          *eṣel exad   ha-šeni*
          at    one.M  DEF-second.M
          "I've always wanted to know what boys do when they sleep at each other's place."$_\gamma$
      b.   *lehilaxem neged   exad   ha-šeni*
          fight.INF   against one.M DEF-second.M
          "To fight against each other"$_\gamma$
      c.   *anaxnu hetxalnu       laasot  šabat    eṣel exad   ha-šeni*
          we       start.PST.1.PL do.INF Sabbath at    one.M DEF-second.M
          "We started to spend the Sabbath at each other's place…"$_\gamma$
      d.   *noṣar-im          be-qešer haduq im exad et   ha-šeni*
          being.formed.PRS-M.PL in-tie    close  with one ACC DEF-second
          "They are formed in close contact with each other."$_\gamma$
      e.   *ani ro-a        et  ha-anašim rav-im        im  exad ha-šeni*
          I    see.PRS.F.SG ACC DEF-people fight.PRS-M.PL with one  DEF-second
          "I see many people fighting with each other."$_\gamma$

In light of the observations regarding the anaphor in embedded clauses (17/22), the prediction is that, in these idiolects, the two forms would be fused in subject position in embedded clauses – and this is, indeed, the case in (28a–b):

(28)   a.   *axare kama      peam-im yod'-im      ma exad ha-šeni*
          after  how.many time-PL   know.PRS-M.PL what one.M DEF-second.M
          *ohev*
          like.PRS.M.SG
          "After a few times one knows what the other likes."$_\gamma$
      b.   *šne-nu   yod'-im       ex exad ha-šeni       nir'a*
          both-1.PL know.PRS-M.PL how one.M DEF-second.M look.M.SG
          "We each know how the other looks."$_\gamma$

Note that, as has been shown for English (23a–b), these Hebrew idiolects display a variation in the grammatical number of the newly-formed pronoun *exadhašeni*, which can take both singular (28) and plural (29):

(29) *aval anaxnu lo   yod'-im        ex   exad  ha-šeni      nir'-im*
     but   we    NEG know.PRS-M.PL how one.M DEF-second.M look-M.PL
     "But we each don't know how the other looks." γ

Crucially, the incidence of this phenomenon has grown significantly over the last five years, and now there are thousands of examples on the internet – indicating that these are not merely typos or mistakes. Furthermore, after I presented these data to an Israeli audience, two mothers of monolingual children under the age of six cited the following sentences:

(30) a.  *šne-kem      ma'aliv-im      et   xad-ha-šeni*
         both-2.M.PL insult.PRS-M.PL ACC one-DEF-second
         "The two of you are insulting each other."
                              (female 5.5, documented by Miri Bar-Ziv Levi 4/5 2014)
     b.  *anaxnu lo    nafria   l-exad-ha-šeni*
         we      NEG disturb to-one-DEF-second
         "We (=the speaker and her sister) will not disturb each other."
                              (female 2 11, documented by Avigail Tsirkin-Sadan)

Thus, it is very likely that we are witness to a further development in the history of the NP-strategy for expressing reciprocity in Hebrew, whereby the anaphor undergoes fusion, and thus displays an additional formal feature of Stage III.

## 3.6    Conclusions

In this chapter, I have implemented the results of the diachronic study performed in Chapter 2 in analyzing the syntactic structure of NP-strategy constructions in contemporary Hebrew and Italian. I have endeavored to demonstrate that an ostensibly two-unit construction, comprised of two separate elements, in actuality displays many features of what in other languages constitutes the final stage of a diachronic process. I proceeded to contend that the first element of this pronominal is a frozen expression, as had been demonstrated in § 2.4.3.2 based on a parallel phenomenon in other languages. Finally, I have pointed out a new development that has been attested in the idiolect of some speakers of Modern Hebrew and that could be predicted in light of the current analysis. Time will tell whether or not it will become a standard variant in spoken Hebrew.

# Heterogeneity

## Languages with more than one NP-Strategy construction

## 4.1 Introduction

Chapters 1 and 2 examined the variations of NP-strategy constructions in a number of Semitic languages, with reference to other linguistic families. While different languages have evolved different types of constructions, cross-linguistic analysis points to parallel diachronic developments. The current chapter centers on variations in NP-strategy constructions for expressing reciprocity within the same language in a given period, and accounts for synchronic linguistic heterogeneity. The term "heterogeneity" is used here in the Labovian sense, as the common property of "a language to have many alternate ways of saying 'the same' thing" (Labov 1972: 188). The spotlight on heterogeneity is propelled by Weinreich et al. (1968), who contend that linguistic analysis should aim at identifying structure in multiple variations.

When linguistic heterogeneity is investigated in oral language, speakers' choices between different constructions can, in part, be attributed to sociolinguistic factors. However, this line of inquiry is hardly possible in studying an ancient language. The thrust of the current discussion is therefore on historical developments that could have led to such a heterogeneity, notably, inter-lingual contacts. In regard of the NP-strategy, the criterion for positing an affinity between languages will be the use of similar lexical components in their respective constructions. Such resemblances are important in establishing a borrowing of a specific lexical item.

The differences between various constructions revealed through a rigorous scrutiny of their multiple formulae will, in turn, require explanations – which, it is hoped, will enhance our understanding of the syntax and semantics of these constructions. Moreover, the findings will endorse the conclusion of the previous chapters that the history of a construction may inform the choice of a synchronic approach, with focus on either sociolinguistics or syntax and semantics. Thus, the discussion in this chapter demonstrates, from a new angle, the mutual germaneness of diachronic and synchronic studies (see Introduction § 0.7).

The structure of the chapter serves the objectives outlined above. Section § 4.2 introduces instances of heterogeneity through a survey of NP-strategy constructions in Biblical Hebrew. Section § 4.3 proposes possible external origins[1] for constructions predominant in Early and Late Hebrew, then points out and explains functional differences between them. While the characteristics that set these constructions apart appear to be purely lexical, the Early/Biblical variants will be shown to fulfil more functions than their more recent counterparts. These differences will be accounted for through analyzing the components of the constructions in each period, that is, compositionally – in contrast to the approaches that conceive of such constructions as devoid of internal structure (this topic was introduced in Chapter 2 (§ 2.7)). The first part of this chapter will conclude (§ 4.3.5) by examining heterogeneity in Late Hebrew. Late/Mishnaic Hebrew displays a different distribution of the NP-strategy than Biblical Hebrew, and thus makes it possible to identify factors that affect the choice of a particular variant in every given case.

The second part of the chapter (§ 4.4) is devoted to heterogeneity in Modern Hebrew, differentiating between constructions based on their sociolinguistic distribution and then surveying differences in their syntactic manifestations. The discussion will bolster the case made in the previous chapters that NP-strategy constructions should be analyzed compositionally rather than *en bloc*. While continuing the exploration of the various diachronic phenomena in the evolution of these constructions, in this chapter I endeavor to shed light on some of their synchronic aspects germane to the semantic analysis to be carried out in Part 3 of this book.

## 4.2    Various approaches to account for heterogeneity

This section surveys the various NP-strategy constructions in Biblical Hebrew, thus setting the stage for the discussion of heterogeneity in the rest of the chapter.

Let us note at the outset that, as with reflexive pronouns and in contrast to other pronominal expressions, the linguistic means to designate NP-strategy cannot be reconstructed for the proto-language of any one linguistic family. Even within

---

1. Only a few studies investigated the borrowing of NP-strategy constructions from one language to another. Evans (2008: 46–47) speculates that the element "other" became widespread in many European languages under the influence of the Greek translation of the Bible. This proposal, however, rests on precarious grounds, since the one-unit anaphor in Sanskrit reiterates an element that otherwise means "other", and the Greek translation of the Bible could not be the source for this construction.

the history of one language, it is often impossible to establish a diachronic chain through which a particular construction evolved from its predecessors – especially as more than one such construction is usually attested within a single language in a given time period. Biblical Hebrew has the following types of constructions (the names of the constructions are based on the characterization in § 1.3):[2]

(1) a. Nominal Construction:

*wat-taʿărōk      yiśrāʾēl û-pĕlišt-īm      maʿărākâ liqraʾt   maʿărākâ*
and-lead.IPF.3.F.SG Israel   and-Philistine-PL battle      toward battle
"Israel and the Philistines drew up their lines facing each other (lit. line of battle against line of battle)."                    (1 Sam. 17:21)

b. Pronominal constructions:

i. Repetition of pronouns (demonstratives):

*wĕ-lōʾ   qārab            ze        ʾel ze*
and-NEG come.near.PRF.3.M.SG DEM.M.SG to DEM.M.SG
"Neither went near the other"                    (Exod. 14:20)

ii. Repetition of (existential) quantifiers (ordinal number "one")

*wĕ-qārab            ōtām       ʾeḥād  ʾel ʾeḥād*
and-come.near.IMP.M.SG ACC.3.M.PL one.M to one.M
"Bring them near each other."                    (Ezek. 37:17)

iii. Expansion of a construction with an existential quantifier

a. *wĕ-ʾīš    ʾāḥ-īw        lōʾ  yidḥāqû*
and-man brother-POSS.3.M.SG NEG prod.IPF.3.M.PL
"They do not jostle each other."                    (Joel 2:8)

b. *way-yaḥăziqû      ʾīš  bĕ-rōʾš   rēʿ-ēhû*
and- hold.IPF.3.M.PL man in-head.of fellow-POSS.3.M.SG
"Then each man grabbed his opponent by the head."    (2 Sam. 2:16)

In (1a, 1bi–ii), the unspecified relation is marked by a repetition of the same element, which occurs in a different position in each of these sentences. Thus, (1a) involves noun reiteration while (1bi–ii), pronominal reiteration. In (1biii), as well, reciprocity is encoded through pronominal expressions, albeit comprising two different components: the first is a regular indefinite pronoun functioning as existential quantifier, while the second is added as a correlative element.[3] Another salient difference has to do with verbal agreement, reflecting the progression from

---

**2.** For a partial survey of the Biblical Hebrew constructions for encoding reciprocity, see Gesenius (§ 139e, n.2); Joüon & Muraoka (1991: 512–513).

**3.** The distribution of these two variants in the Bible is not clear-cut, either textually or historically. The books that employ only one particular formula are rare, the exceptions being *Judges*, which uses exclusively *ʾīš-rēʿēhû* "man – his fellow", and *Ezekiel*, which uses exclusively *ʾīš-ʾāḥīw* "man – his brother" (some short books such as *Joel* are not included in the discussion as they

a two- to a one-unit construction, detailed in (§ 2.4). In (1a, 1bi–ii) the verb is singular, as is typical of Stage I; in (1biii) it is plural, which may indicate either Stage II or III (§ 2.4.2–3).

The above survey of the NP-strategy in Biblical Hebrew, however brief or preliminary, points to two possible avenues for differentiating between such constructions: in terms of either their types or their components. Sentence (1a) is of a different type than the others, in that it expresses a reciprocal relation via a particular syntactic configuration of its constituent lexical nouns (see § 1.3.2.1). The constructions illustrated in (1biii,a–b) belong to the same type (an expanded pronominal expression) but differ in respect of one of their components: while in both the first element is *ʾīš* "man", the second is *ʾāḥiw* "his brother" in (1biiia) and *rēʿēhû* "his fellow" in (1biiib). The above distinction between the various types and components is also relevant when comparing different languages. The focus in the previous chapters (1 and 2) is on cross-linguistic *typological* comparison. This chapter establishes similarities between languages also based on their use of identical *components* within the NP-strategy, taking this feature as a possible indication of diachronic changes involving linguistic borrowing.

In highlighting the issue of heterogeneity, the sentences in (1) also give rise to the question why, in one language, there should be so many ways to express the same semantic content. One could approach this dilemma from a historical angle and track diachronic processes – either internal, within the history of Hebrew, or external, occurring under the influence of other languages – any of which could contribute to linguistic heterogeneity in any given period. Alternatively, this question can be probed at the synchronic level through the analysis of

---

have only one occurrence of the NP-strategy). *Isaiah* and *Jeremiah* seem to be aware of this alternation as they employ both variations for the purposes of poetic parallelism:

i.   *ʾīš    ʾet   rēʿ-ēhû         yaʿzōrû      u-lě-ʾāḥ-īw*
     man ACC fellow-POSS.3.M.SG help.IPF.M.PL and-to-brother-POSS.3.M.SG
     *yōʾmar        ḥăzāq*
     say.IPF.3.M.SG stron.IMP.M.SG
     "They help each other and say one to another 'Be strong!'"                (Isa 41:6)

ii.  *kōh  tōʾměrû        ʾīš    ʿal   rēʿ-ēhû        wě-ʾīš    ʾel  ʾāḥ-īw*
     thus say.IPF.2.M.PL man concerning fellow-POSS.3.M.SG and-man to brother-POSS.3.M.SG
     "Thus will each of you say concerning each other to each other."          (Jer 23:35)

Note the difference in agreement. While the first verb is in the plural form, as is standard in Biblical Hebrew, the second is singular, thus interfacing between Stage I, on the one hand, and Stages II and III, on the other.

the functional distribution of multiple equifinal constructions.[4] In the following sections, I implement a historical approach to investigate Early and Late Hebrew, while in discussing Modern Hebrew in the second part of the chapter, I will rely on the synchronic sociolinguistic distribution of the NP-strategy variants.

## 4.3   Part 1: The range of NP-strategy constructions in Early and Late Hebrew

### 4.3.1   The relation between Early and Late Hebrew

This section encompasses the NP-strategy in Ancient Hebrew, with focus on the constructions documented in Early and Late Hebrew. I will discuss a range of variants attested in each period, elaborate on possible historical sources for some of them, and trace the diachronic links across the periods investigated. For each period, the analysis will reveal differences in the functional distribution of its various NP-strategy constructions, and point to possible reasons thereto.

At this point, a brief digression into the history of the Hebrew language is in order. Hebrew is a Canaanite dialect belonging to the Northwest Semitic language family. It was spoken by the population of ancient Israel in the region of Palestine until the early centuries of the Common Era, and used in written form during the ensuing centuries. As a result, most of the texts canonized in the Hebrew Bible, and large parts of the Jewish literature that followed it, were composed in Hebrew.

In studying any aspect of the classical period of the Hebrew language, one must heuristically distinguish between its history as a linguistic system and the history of its written forms.[5] The former is based on an idealized bipartite periodization of Hebrew into Early and Late Hebrew. In the latter type of inquiry, periodization is based on corpora, yielding the traditional classification: Biblical Hebrew (roughly, the Hebrew of the first millennium BCE), Qumranic Hebrew (200BCE–200CE), and Mishnaic Hebrew (200–700CE). Any further sub-characterizations are irrelevant for the purposes of the current analysis. The heuristic distinction drawn above does not negate the reciprocal relation between these two fields of knowledge:

---

4.  For discussions on prescriptive rules, see, for example, Partridge (1957: 101) for English (and compare with Visser (1963: 447–448), who probes the issue of whether these rules represent reality), and Sivan (1979: 17, 83) for Hebrew. Similarly, Erades (1950), Potter (1953), Stuurman (1987) and Bolinger (1987) argue for semantic distinctions between various constructions in English. Compare with Hurst and Nordlinger (2011: 77), who contend that their data refute all of the semantic distinctions proposed by these previous studies (see also Jespersen 1949 [1913] part 1: 201).

5.  For a more comprehensive introduction, see Bar-Asher Siegal (2015).

On the one hand, a historical study of Hebrew grammar(s) is based on data derived from corpora and information about the historical setting(s) of the texts; on the other hand, the analysis of the linguistic information contained in each of such corpora yields a *de facto* description of its uses of the two synchronic linguistic systems. Hereinafter, I will refer to the two periods of Hebrew under investigation as Mishnaic and Biblical Hebrew, terms that are more common in the literature.

While the linguistic features of the texts from the Biblical and the Mishnaic era are clearly divergent, it is not always accurate to assume that a particular characteristic is representative of either Early or Late Hebrew. In other words, when a certain grammatical function is expressed as X in Biblical Hebrew and as Y in Mishnaic Hebrew, one's methodological choices must not be based on the premise that X evolved into Y. Indeed, evidence suggests that Mishnaic Hebrew developed from an early dialect that was probably used concomitantly with Biblical Hebrew, and the speakers of the two did not necessarily belong to the same socio-economic stratum.[6] NP-strategy constructions likewise fall under this generalization, as will be demonstrated further on. Instances of these constructions that follow the standard formula of Mishnaic Hebrew are documented in the Biblical corpus, suggesting that this variant already existed in earlier dialects. However, the purpose in this chapter is to compare the different structures in terms of their function rather than form. The attestation of several equifinal variants within a given period may indicate that some speakers used both, so the task at hand is to point out the motivation for choosing a particular construction on any one occasion, or at least to gain a better understanding of the differences between the constructions.

Below I survey the NP-strategy in the Biblical corpus, commenting about the possible origins of some of these constructions in an endeavor to provide a historical account for the heterogeneity characterizing Biblical Hebrew. Next I address the same issues regarding the rabbinic corpus, which is written in Mishnaic Hebrew. Finally, I characterize the divergences between the constructions found in these two periods in the history of Hebrew.

### 4.3.2    NP-strategy in Biblical Hebrew

As noted earlier, in addition to the standard Biblical construction which expands a pronominal construction (§ 1.3.2.2.2) and consists of *ʾîš* (lit. "a man") and either *ʾāḥîw* (lit. "his brother") or *rēʿēhû* (lit. "his fellow") (1biii), the corpus contains some other, less common, pronominal constructions (cf. Gesenius § 139e). One

---

6. See *inter alia* Rendsburg (1990) and Bar-Asher (2006: 573). See Rabin (1958) for a possible sociological account of the origin of Mishnaic Hebrew.

of these reiterates the masculine or the feminine forms of the cardinal number *ʾaḥad/ʾaḥat* "one" (see above [1bii]):

(2) *way-yĕḥabbēr    ʾet   ha-yĕrī'-ōt      ʾaḥat  ʾel  ʾaḥat  b-aq-qĕrās-īm*
and-join.IPF.3.M.SG ACC DEF-curtain-F.PL one.F to one.F in-DEF-clasp-M.PL
"And he joined the curtains to one another with the clasps."    (Exod. 36:13)

As noted in Chapter 1 (§ 1.3.2), the element "one" is common cross-linguistically in the NP-strategy in general. As we shall see in Chapter 6, the construction reiterating this element is widespread in all dialects of Aramaic, beginning in the Late Western and Late Eastern dialects. A similar construction is, on rare occasions, found in other Semitic languages as well. Thus, Nöldeke (2001: 354) provides evidence for such a formula in Arabic. In (§ 5.2.2), I will discuss an Akkadian example from the Neo-Assyrian period of a parallel two-unit construction with a repetition of *ištēn* "one" – which is rare, and its occurrence in each particular case can be plausibly attributed to Aramaic influences.[7] It can therefore be assumed with a fair degree of certainty that the few examples in Biblical Hebrew are also cases of lexical borrowing from Aramaic. One such example, from the book of Ezekiel, may even constitute an expression in Aramaic rather than Hebrew, as its first pronominal element is the Aramaic form *ḥad* "one" rather than the Hebrew *ʾĕḥad*, and the verse proceeds with the Hebrew gloss *ʾīš ʾet ʾāḥīw*:[8]

(3) *wĕ-dibber    **ḥad**  ʾet  ʾaḥad  ʾīš   ʾet   ʾāḥ-īw*
and-talk.PRF.3.M.SG one.M ACC one.M man ACC brother-POSS.3.M.SG
*l-ēmōr*
to-say.INF
"One spoke to the other, saying to each other."    (Ezek. 33:30)

Even less common in Biblical Hebrew is the construction involving the repetition of demonstratives (1bii), illustrated in Examples (4)–(5). In spite of its scarcity, however, this construction is critical to the history of the NP-strategy in Hebrew:

(4) *śĕrāp-īm  'ōmĕd-īm       mim-ma'al l-ô      wĕ-qārā'*
Seraph-PL stand.PTCP-M.PL from-up  to-3.M.SG and-call.out.PRF.3.M.SG
*ze       ʾel ze     wĕ-ʾāmar*
DEM.M.SG to DEM.M.SG and-say.PRF.3.M.SG
"Seraphim stood above Him… and they called one to the other and said…"
(Isa. 6:2–3)

---

**7.** Driver (1925: 44) attests a formula in the colloquial Arabic of Syria and Palestine that comprises a repetition of *wâḥad* "one". This phenomenon can also be attributed to the influence of an Aramaic substrate.

**8.** Moshkovitz (1985: 264) made a similar observation regarding the use of Aramaic in this verse. Interestingly, the Septuagint translates only the Hebrew sentence.

(5)  *way-yaḥănû        ʾēlle    nōkaḥ    ʾēlle    šibʿat    yām-īm*
     and-camp.IPF.3.M.PL DEM.PL opposite DEM.PL seven.M.PL day-M.PL
     "For seven days they camped opposite each other."        (1 Kgs 20:29)[9]

From a typological perspective, both (3) and (4) illustrate Stage I in the development of the NP-strategy, as the verb is still singular.[10] In contrast to (3) and (4), in the verse in (5) the pronouns agree in number with their antecedents (*ze* "this" vs. *ʾēlle* "these"). I elaborate on this distinctive semantic agreement feature later on, in Section (§ 4.4.5).

While, typologically, the sentence in (4) belongs to Stage I, which is rare in the Biblical corpus, historically, the sentences with the repetition of demonstratives in (4)–(5) are the earliest Hebrew attestations of what became the standard construction in the Mishnaic period (Segal 1927: 208, § 433). Thus, it stands to reason that the few examples of this construction in the Biblical corpus indicate the existence, in the Biblical period, of a dialect in which this construction was common and which later became the language of the Mishna. As already mentioned, not a negligible number of linguistic phenomena typical of Mishnaic Hebrew are found in the Bible, even in the books that are dated to the earlier periods. Studies in linguistic heterogeneity have shown that new forms in languages first appear as variations on a standard form possibly used in a less dominant dialect – in the case in point, the Mishnaic Hebrew.[11]

### 4.3.3    NP-strategy in Mishnaic Hebrew

#### 4.3.3.1    *The constructions*
The following passages illustrate the standard NP-strategy construction in Mishnaic Hebrew that also appears in Biblical Hebrew, as in (4)–(5) above:

---

9.  Comparing the ancient translations of this sentence could prove instructive. While the Septuagint relies strictly on the Hebrew text and uses a singular form, the Aramaic Targum employs a plural form for both verbs, as is the standard in the Hebrew Bible.

10.  Importantly, the various examples in Biblical Hebrew which exhibit the characteristics of Stage I are all in a non-standard formula, i.e., those without *ʾīš* and *ʾāḥīw/rēʿēhû*.

11.  This argument was central to the line of reasoning adopted by Weinreich et al. (1968), who were pioneers in recognizing the significance of synchronic linguistic heterogeneity for the understanding of diachronic changes.

(6) a. haś-śôkēr ʾet hā-ʾûmmān-īn wĕ-hīṭˤû
DEF-hire.PTCP.M.SG ACC DEF-craftsman-M.PL and-deceive.PST.3.M.PL
ze ʾet ze we-ʾĕn l-ô ze ˤal ze
DEM.M.SG ACC DEM.M.SG and-NEG to-3.M.SG DEM.M.SG on DEM.M.SG
ʾellāʾ tarˤōmet
but resentment
"If one engaged craftsmen and they deceived one another, they have
only resentment against each other." (*m. B. Meṣiˤa* 6:1)

b. ʾen dān-īn lōʾ ze ʾēt ze wĕ-lōʾ ze
NEG judge.PTCP-M.PL NEG DEM.M.SG ACC DEM.M.SG and-NEG DEM.M.SG
ˤim ze wĕ-lōʾ ze ˤal ze wĕ-lōʾ
with DEM.M.SG and-NEG DEM.M.SG concerning DEM.M.SG and-NEG
ze bifnêy ze wĕ-ˤêyn mĕˤîyd-īn lōʾ
DEM.M.SG in.presence.of DEM.M.SG and-NEG testify.PTCP-M.PL NEG
ze ʾēt ze wĕ-lōʾ ze ˤim ze wĕ-lōʾ
DEM.M.SG ACC DEM.M.SG and-NEG DEM.M.SG with DEM.M.SG and-NEG
ze ˤal ze wĕ-lōʾ ze bifnêy
DEM.M.SG concerning DEM.M.SG and-NEG DEM.M.SG in.presence.of
ze
DEM.M.SG
"They do not judge each other, with each other, concerning each other,
or in the presence of each other; and they do not give a testimony
against each other, with each other, or in the presence of each
other." (*t. Sanh.* 5:4)

c. šĕttê ḥăbûr-ôt še-hāyû ʾôkĕl-ôt bĕ-bayit ʾeḥād
two.F.PL group-PL REL-be.PST.3.F.PL eat.PTCP-F.PL in-house one.M
bi-zman šem-mi-qṣāt-ān rôʾ-īm ʾēllû ʾet ʾēllû
in-time REL-from-few-POSS.3.F.PL see.PTCP-M.PL DEM.PL ACC DEM.PL
hărê ʾēllû miṣṭārp-īm l-a-zīmmûn
indeed DEM.PL join.PTCP-M.PL to-DEF-grace.of.the.meal
"If two separate parties have dined in the same house, if some of each
party are able to see some of the other company, they may join to say the
grace of the meals together." (*m. Ber.* 7:5)

In (6c), each noun phrase denoting a set participating in the relation agrees in
number with the respective demonstrative that refers to it. Notably, however, while
in both (6a) and (6c) the antecedents of the pronouns designate plural entities
("craftsmen" and "two parties"), the demonstrative takes the plural form only in
(6c). This difference in morphological agreement is anchored in the semantics
of the two sentences. Both (6a) and (6c) describe an unspecified relation, but in
(6a) it obtains between individuals in the set of craftsmen (one craftsman deceives

another craftsman), whereas in (6c) between sets of individuals within a larger set (one party sees the other party). The criterion for the agreement is, therefore, not morphological but semantic. The target of the agreement is controlled by the number of members in the two sets that participate in the relation. If each set has only one member, then the number of the demonstrative is singular; if each set has more than one member then the agreement is plural. This phenomenon is unique cross-linguistically and is unattested within other NP-strategy constructions for expressing reciprocity.[12]

On several occasions, the singular demonstrative *ze* "this" appears where the semantics warrants the plural form *ʾĕllû* "these", indicating a more advanced stage in the "grammaticalization" of demonstratives as components of the NP-strategy. Put differently, they function as an integral part of the construction as a whole rather than expressing unspecified relations compositionally. Sentence (7) illustrates this development:

(7)  *haq-qĕmāḥ-īn wĕ-has-sĕlāt-ôt       ma'ăl-īn       ze       ʾĕt   ze*
      DEF-flour-PL   and-DEF-fine.meal-PL raise.PCP-M.PL DEM.M.SG ACC DEM.M.SG
      "The flours and fine meals may neutralize each other."          (*t. Ter.* 6:6)

The shift from the Biblical to the Mishnaic formula introduced above is well illustrated by the following example taken from a legal Midrash, a Mishnaic Hebrew text written around the 2nd–3rd centuries CE as a commentary on the Biblical text. The paragraph in the Midrash first cites a Biblical verse with the construction introduced in (1biiia), and then paraphrases it using the Mishnaic formula as in (6):

(8)  "*wĕ-kāšlû              ʾīš   bĕ-ʾāḥ-īw*"              *ʾĕn-ô*
      and-stumble.PRF.3.M.PL man in-brother-POSS.3.M.SG  NEG-3.M.SG
      *ʾôm[ēr]       ʾīš   bĕ-ʾāḥ-īw               ʾellā' ʾīš   ba-ʿăwôn-ôt*
      say.PTCP.M.SG man in-brother-POSS.3.M.SG  but   man in-sin.of-PL
      *ʾāḥ-īw               mĕllamē[d]       šek-kol yiś[rā'ēl] ʿărēb-în*
      brother-POSS.3.M.SG teach.PTCP.M.SG REL.all Israel    guarantee.PTC-M.PL
      *ze        lā-ze*
      DEM.M.SG to-DEM.M.SG
      "'They shall stumble over one another' (Lev. 26:37) – the verse does not say 'over one another' [lit. a man over his brother] but 'one over the sins of the other'. This teaches us that all the Israelites are responsible for each other [lit. this to this]."                    (*Sipra, Beḥuqotay* 7:5)

---

12.  Glinert (1989: 69) identified this semantic distinction in the context of Modern Hebrew, where this construction appears mostly in high registers, preserving the variation in Mishnaic Hebrew. See Heine & Miyashita (2008: 169–170), who corroborate the cross-linguistic uniqueness of such a distinction.

Formulae do not vanish into thin air. Indeed, the Biblical formula occurs in Mishnaic Hebrew in several instances. The following example is from tractate Abot, a text known for its archaic style and linguistic affinity with the Bible:

> (9)  *rabbī ḥănanyâ sĕgan    hak-kōhăn-īm   ˀōmēr       hĕwê*
>      Rabi  PN    prefect.of DEF-priest-M.PL say.PTCP.M.SG be.IMP.2.M.SG
>      *mitpallēl      bi-šlôm-āh            šell-am-malĕkût      še-ˀillûlê*
>      pray.PTCP.M.SG in-wellbeing-POSS.3.F.SG of-DEF-ruling.power REL-if.not
>      *môrāˀ-āh      īš   ˀet   rēˁē-hû            ḥayīm bālaˁnû*
>      fear-POSS.3.F.SG man ACC fellow-POSS.3.M.SG alive   engulf.PST.1.PL
>      "R. Ḥanina, the chief of the priests, said: 'Pray for the welfare of the ruling power, since but for the fear thereof we would engulf each other alive."
>
> (m. ˀAbot 3:2)

This tractate is known as an attempt to use a Biblical register,[13] and there are some other indications that the writers were aware of the stylistic difference between Biblical and Mishnaic Hebrew and used the construction from the former rather than the latter to adorn the text with Biblical flourishes.[14] This shows that, even when exploring linguistic heterogeneity in ancient languages, one may sometimes plausibly appeal to sociolinguistic distribution.

### 4.3.3.2  *The origin of the Mishnaic construction*
As we saw in § 3.4.2, several instantiations of the Mishnaic formula are found already in the Biblical corpus – possibly, as a dialectal or lower-register variant that became the standard in the later period (§ 4.1). The source for the heterogeneity in both these periods may be Aramaic influences, through which the later construction infiltrated and proliferated in Hebrew as a calque. Indeed, the equivalent NP-strategy Biblical Aramaic construction (see the discussion in Chapter 6) employs similar vocabulary, and one of its variants comprises a repetition of the demonstrative pronoun *dāˀ*:

---

**13.** For a comparison between the language of Abot and Biblical Hebrew, see Sharvit (2006: 32–59), who discusses the NP-strategy constructions (p. 48).

**14.** For example, in Qumran Hebrew (200 BCE–200CE), the Biblical components *īš -ˀāḥīw/ rēˁēhû*, occur on a regular basis, while demonstrative reiteration *ze-ze*, common in Mishnaic Hebrew, only occasionally. Compare, for example, 1QS II:20–21 with 1QS V:23 (cf. Mor 2015: 309). Such a distribution is as expected, as the language of the Qumran corpus can be viewed as Middle Hebrew, an intermediate stage between Biblical and Mishnaic Hebrew; texts from this region and period generally known for their attempts to imitate the Biblical style (*inter alia* Bar-Asher 2004).

(10)  a.  *wě-ʾarkubb-āt-ēh*          *dāʾ*      *lě-dāʾ*        *nāqš-ān*
           and-knees-PL-POSS.3.M.SG DEM.F.SG to-DEM.F.SG strike.PTCP-F.PL
           "And his knees were striking one another"               (Dan. 5:6)

      b.  *wě-lāʾ*      *lehěwōn*      *dāběq-īn*          *děnâ*     *ʿim děnâ*
           and-NEG   be.FUT.3.M.PL adhere.PTCP-M.PL DEM.M.SG with DEM.M.SG
           "But they will not adhere to one another"              (Dan. 2:43)

This influence is not surprising, since most speakers of Mishnaic Hebrew also spoke Aramaic, and the latter language heavily influenced the former (*inter alia* Segal 1908).

Recall that, in discussing linguistic heterogeneity in the Biblical Hebrew NP-strategy formulae, this chapter has addressed the question: Why, in one language, should there be so many ways to express a single semantic function? Thus far, a solution has been suggested based on a historical perspective: The various components of the pronominal constructions, especially those with a repetition of the cardinal number "one" (1bii) and of proximal demonstratives ((1bii), may be viewed as calques, that is, literal translations of the constituent elements of a counterpart Aramaic pronominal construction. As will be shown in Chapter 6, such equivalents in Aramaic come from a variety of dialects, suggesting that these structures were adopted through multiple channels and at various times and/or locations.[15] However, I have also proposed an additional perspective to approach the above question.

---

15. If, indeed, Mishnaic Hebrew was influenced by Aramaic, one would need to know where and when this impact could have been effected. The examples in (10) are from Biblical Aramaic, specifically, from the book of Daniel, whose provenance is debatable. Paradoxically enough, a repetition of demonstratives is not the standard NP-strategy construction in Galilean Aramaic, a dialect which is close to the Aramaic dialect to which the speakers of Mishnaic Hebrew were exposed. Rather, in this dialect, as in the Late Western dialects, the common way to express an unspecified relation is by repeating *ḥad* "one". Examples of NP-strategy constructions with demonstratives to express unspecified relations are rare (*y. Yebam* 10:6; *y. B. Meṣiʿa* 2:5). However, the scarcity of such sentences, in and of itself, suggests that they either exemplify the use of an archaic formula, or constitute a variation retained in certain dialects.

However, the construction with a reiteration of demonstratives appears in Qumran, a Middle Aramaic dialect (Muraoka 2011: 51) and in Samaritan, a Late Western Aramaic dialect (Stadel 2013: 39–40). That said, it cannot be ascertained at this point if these instances indicate a higher register used to imitate the Biblical style, or whether they represent a common phenomenon in these dialects. Similarly, in the late Palestinian translation, Targum Yerushalmi (Pseudo-Jonathan), sentences that are not translations of Biblical verses also use demonstrative reiteration (inter alia *Tg. Ps.-J* Num. 21:14). These exemplars are likely archaisms, although they may also stem from a variation in Palestinian Aramaic. The same alternative interpretations can be suggested for the Aramaic of the Zohar. Thus, in default of a comprehensive historical survey of Aramaic NP-strategy constructions, it is impossible to establish with any degree of certainty where and when a Mishnaic form was borrowed from Aramaic. This could have occurred in the older period, when Official or Middle Aramaic held sway; it is equally possible that the

Indeed, the preservation of old NP-strategy formulae in Mishnaic Hebrew, such as in (9), indicates that the heterogeneity observed also depends on sociolinguistic factors.

After reviewing the NP-strategy constructions in each period and exploring the possible external origins for most of them, I will now proceed to study some significant synchronic grammatical differences. Comparing and contrasting the grammar and the semantics of the different NP-strategy constructions will provide important insights into our understanding of their various aspects.

### 4.3.4    The functions of the Biblical and Mishnaic constructions

In line with the typological framework established in Chapters 1 and 2, the Mishnaic and Biblical formulae appear to belong to the same historical stage, as both comprise two separate elements as well as verbs in the plural form. The nature of the change from the older to the more recent variant is not immediately obvious. If the NP-strategy is conceived of as a syntactic phenomenon, the change must needs pertain to syntax. Yet, typologically, no syntactic difference is observable, and therefore no syntactic shift can be posited as an analytical target. Neither can the transition be characterized as a morphological shift, in default of any morphological changes from the earlier to the later period. Modification appears to obtain only at the lexical level: from *ʾîš-ʾāḥîw/rēʿēhû* "man-his brother/fellow" to the repetition of demonstratives. However, a more rigorous scrutiny of the constructions from each period with a focus on their respective functions reveals the complexity of the diachronic transition. Recall the preliminary formulation of the semantics of these constructions in the Introduction (§ 0.6):

> **Unspecified constructions**: expressions denoting that, within a given binary relation R between at least two (defined) ordered sets, it is not specified which set occupies which position.

This formulation covers both reciprocal and asymmetric relations, and as noted earlier for Biblical Hebrew, also the use of pronouns in the legal corpora comprising lists of casuistic laws, as in the following verses:

(11)  *wě-kî      yāzid                          ʾîš   ʿal rēʿ-ēhû*
and-when act.presumptuously.IPF.3.M.SG man on fellow-POSS.3.M.SG
*lě-horg-ô          bě-ʿormâ*
to-kill.INF-ACC.3.M.SG in-cunning
"If a man acts presumptuously toward his neighbor, so as to kill him with cunning…"                                                                    (Exod. 21:14)

---

translations, written relatively late, could have adopted an expression from a local Palestinian dialect – which would then indicate that this construction was still available in later periods.

In the usage exemplified above, the words *īš* "man" – *rēʿēhû* "his fellow" still function as existential quantifiers. Moreover, only one is acting on the other, so the verb is singular (see § 2.4.2 above regarding a semantic agreement contingent on the number of agentive participants).

The differences between the constructions of each period become apparent on comparing similar contexts in Mishnaic Hebrew. A relation between multiple sets is designated through the reiteration of demonstratives, without specifying the position of each set within this relation. As expected, this pattern is observed also in non-reciprocal/asymmetric set-ups, as illustrated in (12):

(12)    *wě-ʾāpâ          bi-šlōšâ  tannûr-īn ze       ʾaḥar ze*
        and-bake.PST.3.SG in-three oven-PL   DEM.M.SG after  DEM.M.SG
        "He baked in three ovens one after the other."          (*t. Pesaḥ.* 2:1, MH)

However, this construction is never used in casuistic laws. In Mishnaic Hebrew, in casusistic laws, the Biblical pair, *ʾīš* "man" – *rēʿēhû* "his fellow" is replaced, for animate entities, by the semantically equivalent *ʾădām* "man" – *ḥăbērô* "his fellow", both functioning as indefinite pronouns (occasionally only *ḥăbērô* is used), and for inanimate entities, by a repeated nominal expression (the nominal construction, see (§ 1.3.1)):

(13)    a.    *hitqīnû           še-yěhēʾ         ʾădām šôʾēl        et*
              regulate.PST.3.M.PL REL-be.SBJV.3.MS.SG man   ask.PTCP.M.SG ACC
              *šělôm      ḥăbēr-ô         b-aš-šēm*
              wellbeing.of fellow-POSS.3.M.SG in-DEF-name
              "It was directed that every man should greet his fellow by the name [of
              the Lord]."                                          (*m. Ber.* 9:5)
        b.    *maṭbīl-īn        mig-gab    lě-gab  wû-mē-ḥăbûrâ  la-ḥăbûrâ*
              immerse.PTCP-M.PL from-back to-back and-from-group to-group
              "One may immerse from one purpose to another, and from one
              company to another."                                (*m. Beṣah.* 2:3)

Thus, even though they fall under the definition of unspecified relations, casuistic laws do not resort to the standard NP-strategy construction (a repetition of demonstratives). Rather, the components of the unspecified construction in such Mishnaic Hebrew contexts are lexical equivalents of the Biblical variants. This brings us back to the issue of heterogeneity, but now with respect to Mishnaic Hebrew. This time, however, the question posed above, Why would a language have different ways to express a single semantic function? needs further elaboration, as the contexts in which the two constructions are used are in complementary distribution: *ʾădām* "man" – *ḥăbērô* "his fellow" in casuistic law, and repetition of

demonstratives elsewhere. The issue of distribution thus becomes part of the above query, which must accordingly be reformulated as two inversely related questions: (1) Why are the same expressions in Biblical Hebrew used in all contexts involving unspecified relations (including casuistic laws)? and (2) Why, in Mishnaic Hebrew, are all unspecified relations expressed via reiteration of demonstratives, except in casuistic laws, which employ indefinite pronouns?

I propose that the difference between the NP-strategy in Biblical and Mishnaic Hebrew has to do with the components of the constructions in each. As is schematically represented in (14), while Biblical Hebrew (I) employs a construction with a repetition of existential quantifiers, Mishnaic Hebrew (II) uses a repetition of items functioning elsewhere as full-fledged pronouns. The two different mechanisms through which these two types of constructions express unspecified relations were elucidated in Chapter 1:

(14)  I.  Someone Verb Someone
      II. $NP_A$ – $Pronoun_{i \in A}$ Verb $Pronoun_{j \in A}$

These two formulae differ in that (I) requires an antecedent whereas (II) does not. Consequently, the expectation is that, in contexts without an antecedent only (I) will be available. This difference is crucial to the putative use of the NP-strategy in casuistic laws.

By their very nature, laws are impersonal, since they state possible relations between two unspecified members of a community that abides by the same set of regulations; therefore, constructions that express such relations do not normally require an antecedent. The type of construction that meets this requirement is (I). This hypothesis is supported by the data, and also accounts for the difference between the distribution of these two types of constructions in Biblical and Mishnaic Hebrew. In Biblical Hebrew, where only type (I) is available, the repetition of existential quantifiers therein can be used to express all kinds of unspecified relations, including those germane to casuistic laws. The across-the-board use of the same construction in Biblical Hebrew is possible because its constituent pronouns compositionally designate existential quantification, effectively stipulating what happens "(if) someone did something to someone (else)". Crucially, the verb in the construction used for casuistic laws is singular, and therefore the construction is not an example of the NP-strategy in the strict sense of this term.

In contrast, the regular construction for expressing unspecified relations in Mishnaic Hebrew – involving a repetition of the demonstrative *ze* (type II) – is not used in casuistic laws, because demonstratives cannot function as existential quantifiers. They are deictic expressions, which, by their very nature, refer to other

NPs.[16] As such, they are linked to an antecedent, and their reference is determined by the context. The requirement for a clear referent is fulfilled only if such an antecedent is overtly present, as is the case in most instances of unspecified relations – but not in generic contexts such as casuistic laws. Indefinite pronouns/existential quantifiers are different in this respect, as they are not necessarily anaphoric, and can therefore be used in contexts that do not specify their referent(s).

One can, however, anticipate that, once the parties in a legal relation have been introduced into the discourse, demonstratives can be subsequently used to refer to NPs that designate them. This prediction is borne out, as the following example illustrates:

(15)  *lō' yō'mar* **'ādān la-ḥăbēr-ô** *ha'al* *'et*
NEG say.3.M.SG.FUT man to-fellow-POSS.3.M.SG take.up.IMP.2.M.SG ACC
*hap-pēr-ōt … 'ăbāl nōtĕn-īn* **ze** **laz-ze** *mattĕnat ḥinnām*
DEF-fruit-PL but give.PRS-M.PL DEM.M.SG to-DEM.M.SG gift.of free
"A man may not say to his fellow: 'Take up this produce…' but they may give it to each other as a free gift" (*m. Ma'aś. Š. 3:1*)

Notably, the example in (15) demonstrates that the Mishnaic construction with a repetition of demonstratives expresses an unspecified rather than reciprocal relation: In the case in point, the giving is not reciprocal, but the instruction is directed to both parties, such that the sentence can be appropriately translated as "each one of them can give to the other".

It follows that, in contexts requiring an NP-strategy construction without an explicit antecedent, only the Biblical Hebrew variant can serve the purpose. This is the case, for instance, when the subject of the superordinate clause is an infinitive clause, as in "to be patient with each other is a good thing". Rather ironically, however, in classical Hebrew, I was able to find an example of such a case, not in the Biblical corpus, but in a late Mishnaic source that uses the Biblical construction:

(16)  *qāšâ* *śin'at 'īš 'et rē'ē-hû* *lipnêy* *ham-māqom*
unfavorable hate.of man ACC fellow-POSS.3.M.SG in.front.of DEF-place
"A mutual hate is unfavorable in the eyes of God." (*t. Menaḥ. 13:22*)

Most likely, it was impossible to construct such a sentence within the Mishnaic formula devoid of an explicit antecedent. Although negative data is usually

---

**16.** For heuristic purposes, the term "anaphor" is used in this chapter more broadly than in the Government and Binding framework, which distinguishes between anaphors and pronouns. Anaphors in G&B must have antecedents in their governing category (i.e., both must appear in the same clause), while the antecedents of pronouns need not be local. In the sense these terms are used here, and in the typological literature in general, a pronoun does not require an antecedent, and an anaphor is a pronoun that must have one, but not necessarily locally.

insufficient to support an assertion, still, the requirement of binding helps to explain why the construction with demonstrative pronouns cannot be found in Mishnaic casuistic laws.

In summary, the functions of the Biblical and Mishnaic Hebrew constructions and the possible reasons for the differences between them can be accounted for based on the provenance of their constituent elements. In this case, then, the lexical origin of these elements affects their syntactic features, and also, albeit indirectly, the range of possible uses of each construction. In the preceding discussion, the two-unit constructions were assigned to two clearly distinguishable classes: those that express an unspecified relation using indefinite pronouns, as in (14-I), and those comprising anaphoric expressions, as in (14-II).

This synchronic distribution of the two-unit NP-strategy construction likewise derives, in part, from the origin of their constituent elements. As noted throughout Chapters 1 and 2, the lexical source of these components is often transparent, unlike that of their one-unit counterparts. The analysis here capitalizes on this transparency to establish the synchronic distribution of these constructions. Furthermore, the discussion in this chapter has revealed the synchronic implications of the difference in terms of transparency between the two- versus one-unit constructions: Insofar as the constitutive elements of the former still operate as common-core lexemes in other syntactic environments, it follows that, within the NP-strategy, demonstrative pronouns must be linked to antecedents, while existential quantifiers need not be so.

This conclusion has a significant ramification. Thus, it can no longer be credibly posited that certain constructions grammaticalize for the NP-strategy. A more refined, and hence more accurate, approach would contend that their components still express an unspecified relation compositionally, albeit in different ways (as indicated in 14) – and this divergence affects their syntax (e.g., in terms of fronting or being licensed in infinitive clauses). Thus, the origin of the NP-strategy constructions, which is discussed in Chapter 1, is relevant not only at the historical level, but synchronically as well, as it influences their syntactic and semantic properties. The upshot is that the syntactic similarity between the Biblical and Mishnaic Hebrew constructions (such as the plural form of the verb and two separate elements) emanates from other, more general, cross-linguistic principles that govern the encoding of unspecified relations.

At this junction, another phenomenon salient to the NP-strategy in Biblical and Mishnaic Hebrew needs to be pointed out. In Biblical Hebrew *ʾîš* can have a specific extension, as is in the following verse:

(17) *way-yēlek* *ʾīš* *mib-bêt* *lēwī* *way-yiqqaḥ* *ʾet*
and-go.IPF.3.M.SG man from-house.of Levi and-take.IPF.3.M.SG ACC
*bat* *lēwī*
daughter.of Levi
"A man from the house of Levi went and married a daughter of Levi."

(Exod. 2:1)

The use of *ʿīš* with specific reference occurs in Mishnaic Hebrew as well, while the synonymous *ʾādām* is used only non-specifically. In the Mishnah, when *ʿīš* is used non-specifically, it is almost always followed by *pĕlônī* "so-and-so":

(18) *hāyā* *ʿōbēr* *b-aš-šûq* *wĕ-šāmaʿ* *qôl*
be.PST.3.M.SG pass.PTCP.M.S in-DEF-market and-hear.PST.3.M.SG voice.of
*has-sôfĕr-īm* *maqr-īm* *ʾīš* *pĕlônī* *mĕgārēš* *ʾet*
DEF-public.notary-M.PL say.PTCP-M.PL man so.and.so divorce.PTCP.M.SG ACC
*pĕlônī-t* *mim-mqôm* *pĕlônī*
so.and.so-F.SG from-location so.and.so
"If a person passing through a street hears the voice of public notaries [dictating to their clerks or pupils], saying 'so-and-so divorces so-and-so living at such and such a place." (*m. Giṭ.* 3:1)[17]

**Table 1.** The pronominal forms in Biblical and Mishnaic Hebrew and their functions

Biblical Hebrew:

*ʿīš-ʾāḥīw/rēʿēhû*

specific/non-specific
(also for inanimate)

Mishnaic Hebrew:

| *ʿīš* | *ʾādām-ḥăbērô* | *ze-ze* |
|---|---|---|
| Specific (quantifier) (occasionally also non-specific) mostly accompanied by *pĕlônī* | Non-specific (quantifier) (mostly only for animate) | Anaphoric |

Thus, not only did Aramaic influence the forms of the components in the NP-strategy constructions, but it also affected their functions, and probably restructured the semantic boundaries that set them apart.

---

**17.** For the typological question of whether indefinite pronouns are used referentially, see *inter alia* Haspelmath (1997).

#### 4.3.5 Another type of heterogeneity in Mishnaic Hebrew

In addition to the above-discussed origins of the NP-strategy heterogeneity in Mishnaic Hebrew, this phenomenon emanates from another, distributional, factor.

As indicated in the previous section, to express unspecified relations, Mishnaic Hebrew employs a standard NP-strategy construction with a repetition of the demonstrative *ze* – with the exception of casuistic law, where alternative constructions, known from other Semitic languages, come into play. One such construction, especially prevalent in casuistic laws in both Mishnaic and Biblical Hebrew, employs existential quantification. It consists of a pair of indefinite pronouns, *ʾādām-ḥăbērô*, in place of the Biblical formula *ʾîš-rēʿēhû*, both expressions denoting "man-his fellow [man]":[18]

(19) a. *hitqīnû       še-yĕhēʾ          ʾādām šôʾēl           ʾet*
regulate.PST.3.M.PL REL-be.SBJV.3.M.SG man   ask.PTCP.M.SG ACC
*šĕlôm       ḥăbēr-ô         b-aš-šēm*
well.being.of fellow-POSS.3.M.SG in-DEF-name
"It was regulated that every man should greet his fellow by the name [=of the Lord]."                                    (*m. Ber.* 9:5)

b. *ʾādām mûʿād          lĕ-ʿôlām    bên    šôgēg       bên*
man   attest.PTCP.PASS.M.SG for-eternity whether err.PTCP.M.SG whether
*mēzīd             bên    ʿēr    bên    yāšēn*
sin.knowingly.PTCP.M.SG whether awake.M.SG whether asleep.M.SG
*simmâ        ʾet ʿēn ḥăbēr-ô         wĕ-šibar*
blind.PST.3.M.SG ACC eye.of fellow-POSS.3.M.SG and-brake.PST.3.M.SG
*ʾet hak-kēl-īm    mĕšallēm    nezeq šāllēm*
ACC DEF-vessel-PL pay.PTCP.M.SG damage full
"A man is always accounted as noxious, regardless of whether he causes damage intentionally or unintentionally, when awake or asleep. If one blinded the eyes of his fellow, or broke his vessels, he must pay full damage."                                    (*m. B. Qam..* 2:6)

One could contend that, in the hypothetical scenario of blinding described in (19b) as *simmâ ʾet ʾēn ḥăbērô* " if one blinded the eyes of his fellow", the agent is

---

18. While *ʾādām* as a grammaticalized indefinite pronoun is found already in Biblical Hebrew (see for example Lev. 13:2, Segal 1936: 64–65, § 101), it became very common in Second Temple literature, such as *Ben-Sira*. The use of *ḥăbēr* rather than the Biblical lexeme *rēʿa* (both meaning "fellow") is attributable to Aramaic influence. The construction *ʾādām-ḥăbērô* is present already in Biblical Aramaic (in Dan. 7:20 and the word *ḥăbēr* is used in the meaning "other"), as well as in Qumran Aramaic (Muraoka 2011: 51). Similarly, *ḥăbēr* is used in this function in all Late Aramaic dialects.

implied. In fact, in Mishnaic Hebrew, the first element of sentences describing such unspecified relations is often implied by a participial form:

(20)   a.   *ham-mĕsakkēk*                              *ʾet gapn-ô*            *ʿal gabb-ê*
          DEF-make.overshadow.PTCP.M.SG ACC vine-POSS.3.M.SG on back-of
          *tĕbûʾ-āt-ô*            *šel-a-ḥăbēr-ô*
          crops-PL-POSS.3.M.SG of-DEF-fellow-POSS.3.M.SG
          "If one allows his vine to overtop the grain crop of his fellow…"
                                                                                     (*m. Kil.* 7:4)

       b.   *hag-gôzēl*            *ʾet ḥăbēr-ô*            *ô šel-lāwâ*
          DEF-steal.PTCP.M.SG ACC fellow-POSS.3.M.SG or REL-borrow.PST.3.M.SG
          *hêmmenn-û*
          from-3.M.SG
          "If one robbed aught from his fellow or borrowed from him…"
                                                                                  (*m. B. Qam.* 10:6)

Importantly, in Biblical Hebrew, these pronominal expressions are used for both animate and inanimate objects, as is evidenced in (21). Mishnaic Hebrew is different in this respect, as illustrated in (22):

(21)   *ḥămēš ha-yĕrīʿ-ōt*            *tihĕyenā ḥōbĕr-ōt*            *ʾiššâ ʾel*
       five.F.PL DEF-curtain-F.PL be.IPF.3.F.PL join.PTCP-F.PL woman to
       *ăḥōt-āh*
       sister-POSS.3.F.SG
       "The five curtains should join each other."               (Exod. 26:3)

(22)   *maṭbīl-īn*            *mig-gab lĕ-gab û-mē-ḥăbûrâ l-a-ḥăbûrâ*
       immerse.PTCP-M.PL from-back to-back and-from-group to-DEF-group
       "One may immerse vessels whose original appropriation has been altered,
       and men may bathe when they have changed from one company to another
       [to eat the Paschal lamb.]"                               (*m. Beṣah.* 2:3)

While for animate entities Mishnaic Hebrew employs the indefinite pronouns *ʾādām* "man" and *ḥăbērô* "his fellow", inanimate objects are designated through a repetition of the respective noun phrase. The latter is the nominal construction that was introduced and discussed in (§ 1.3.1). The contrast in denoting animate and inanimate entities is evident in the following example, where the word *ḥaṭṭāʾt* "a sin-offering" (inanimate) is repeated, while when the scenario involves *tīnôq* "a child" (animate), the second element in the construction is the pronoun *ḥăbēr-ô*:

(23) *lōʾ  hāyû       ʾōś-īn           lōʾ  ḥaṭṭāʾt  ʿal gabê   ḥaṭṭāʾt*
NEG be.PST.3.M.PL prepare.PTCP-M.PL NEG sin.offering on back.of sin.offering
*wě-lōʾ   tīnôq ʿal gab-ê  ḥăbēr-ô*
and-NEG child on back.of fellow-POSS.3.M.SG
"It was prohibited to prepare a sin-offering by virtue of [the purification
made for] another sin-offering, or [to make use of] a child by virtue of [the
purification made for] his fellow."               (*m. Parah.* 3:4)

On rare occasions, however, the pronoun *ḥăbēr* is used for inanimate objects as
well:

(24) *ʾēn  mašḥīz-īn       ʾet  has-sakīn ʾăbāl maśśīʾ-āh                ʿal*
NEG whet.PTCP-M.PL ACC DEF-knife but   sharpen.PTCP.M.SG-ACC.3.F.SG on
*gabbê ḥăber-t-āh*
back.of fellow-F.SG-POSS.3.F.SG
"One may not whet a knife, but one may sharpen one against the other."
                                                   (*m. Beṣah.* 3:7)

To denote different sets in the context of casuistic laws, Semitic languages had long
used noun reiteration. This is, for example, the standard formula in the Code of
Hammurabi written in Akkadian and dated to the 18th century BCE:

(25) *šumma awil-um  kišp-ī    eli awil-im  iddi=ma*
COND   man-NOM spell.PL.OBL to man-GEN give.PST.3.SG =and
"If a man has accused another of laying a kispu [spell] upon him…"    (CH 2)

The distribution of the various constructions in Mishnaic Hebrew is instructive,
as it reveals the nature of a diachronic development. Specifically, in a gradual
process, the construction with indefinite pronouns grammaticalized for animate
entities. At the same time, already early on, noun reiteration was reserved as the
standard for inanimate objects – for an obvious reason that the original lexical
meanings of the elements "man/woman" "his/her fellow" were, at first, too seman-
tically transparent to refer to inanimate objects. The first signs that the bleaching
process had been completed emerged when these elements came to designate also
inanimate objects.

The use of different forms for animate and inanimate entities is known from
other languages as well. In Kannada, for instance, one form is used for persons (*ob-
baru*) and another for objects (*ondu*) (Bhat 1978: 44).[19] In the Semitic languages,
Onkelos, a translator of Pentateuch to Aramaic, regularly rendered Biblical verses
containing *ʾīš* "man" and *ʾāḥīw* "his brother" as *gəbar* and *ʾăʾḥohī*, respectively.
However, in the cases where participants in the relation described in the Bible

---

**19.** See also Nedjalkov (2007: 194).

are inanimate, his translation deviates from the Hebrew original, and employs the cardinal number "one" – as, for example, in the Aramaic text for the verses quoted in (21). Such a gradual grammaticalization occurs when a lexical word that has the features of [+animate] and [+human] is divested of these features through bleaching.

In Hebrew, both the Biblical and the Mishnaic corpora include NP-strategy constructions consisting of the pair "man-his fellow", in which "man" functions as an indefinite pronoun. However, although Mishnaic Hebrew is dated subsequently to Biblical Hebrew, from the typological perspective, Mishnaic Hebrew presents an earlier stage in the grammaticalization, because only in Mishnaic Hebrew must the referent of this pronoun be animate.

This section concludes the discussion on linguistic heterogeneity that is based on historical data. The account of the distribution of the various NP-strategy constructions has been anchored in the syntactic analysis of their constituent elements. The investigation also addressed variations stemming from the distinctive semantic features of these constituents and the distributional aspects associated with sociolinguistic registers. The second part of this chapter is concerned with the heterogeneity of the NP-strategy in Modern Hebrew.

## 4.4    Part 2: Heterogeneity in Modern Hebrew

### 4.4.1    Introduction

This part continues the analysis of linguistic heterogeneity in the NP-strategy, with focus on two such constructions in Modern Hebrew, both expressing reciprocity. As is the case in the Biblical and Mishnaic Hebrew exemplars discussed above, the existence of these two variants in Modern Hebrew is a consequence of an external influence, such that a new construction evolved while the older one was in use. As a result, the two variants co-exist – but each belongs to a different register, and their distribution is thus contingent on sociolinguistic factors. In what follows, I compare the two constructions in terms of their respective distinctive linguistic features and point to some broader implications of that analysis for probing the NP-strategy phenomenon cross-linguistically. The two Modern Hebrew constructions and their distribution are described in what follows:

The **numeral construction** (26) comprises the cardinal number *exad* "one" and a definite form of the ordinal number *šeni* "second". *Prima facie*, such a combination of a cardinal and an ordinal number is linguistically odd.

The **demonstrative construction** (27) comprises a repetition of demonstrative pronouns.

(26)   Numeral construction:
    *ha-yelad-im sixku     exad  im  ha-šeni*
    DEF-child-PL play.PST.3.PL one.M with DEF-second
    "The children played with each other."γ

(27)   Demonstrative construction:
    *ha-yelad-im sixku     ze     im  ze*
    DEF-child-PL play.PST.3.PL DEM.MSG with DEM.MSG
    "The children played with each other."γ

The registers of these two types are different: the numeral-construction is restricted to informal, mostly spoken, language. Occasionally, it appears in written texts, but mostly in informal media such as the internet. In contrast, the demonstrative construction is used predominantly in written language and other contexts that require a higher register.[20] This distribution could be the work of normativists, who endorse only the demonstrative construction, which, as shown in the first part of this chapter, is attested in Mishnaic Hebrew and occasionally also in the Bible. The numeral construction is considered as a Modern Hebrew innovation,[21] a conjecture that is put to critical scrutiny in the next section. After exploring the origin of the numeral construction, I proceed to elaborate and account for the various grammatical distinctions between the two types.

### 4.4.2   The origin of the Modern Hebrew constructions

A short historical overview of Modern Hebrew is essential. Since the 3rd century BCE, Hebrew ceased to be used as a spoken language by native speakers. In the diaspora, Jews in different parts of the world spoke a variant of the language of their respective surrounding communities, but still used Hebrew in scholarship, liturgy, and more broadly as a *Jewish Lingua Franca*. The period during which no native Hebrew speakers lived around the world is dubbed Middle Hebrew. At the end of the 19th century, owing to the nationalist movement, Hebrew once again became the native language of the Jewish community in Palestine and later in Israel. One of the main issues debated in respect of Modern Hebrew is its linguistic status. Traditional scholars, as well as most Hebrew speakers, regard Modern Hebrew as a stage in the development of the Hebrew language. Some researchers, however, contend

---

**20.**  The phenomenon whereby variants of a reciprocal construction in the same language operate in different sociolinguistic environments is known from other languages as well. Thus, Kjellmer (1982) and Biber et al. (1999) propose a sociolinguistic distinction in terms of register between the different constructions in English.

**21.**  Bahat & Ron (1980: 177–178); <https://www.safa-ivrit.org/style/zeetze.php>.

that Modern Hebrew is a creole consisting of a substrate of contact languages (particularly Yiddish, the native language of many Jewish immigrants to Palestine at the beginning of the 20th century) and a Hebrew superstrate, operating solely as a lexifier (see Doron (2016) for an introduction to this debate and the relevant bibliography). This question is revisited in the conclusions of the current chapter.

The high-register, demonstrative Modern Hebrew NP-strategy variant (27) has inherited the components of the Mishnaic Hebrew construction, exemplified in (6). In other words, as is often the case with Modern Hebrew syntactic formulae, this NP-strategy construction originates from a Mishnaic rather than Biblical Hebrew counterpart, insofar as the demonstrative construction was the standard NP-strategy to express reciprocity in all the literature written in Middle Hebrew.[22]

The numeral construction (26) appears to have entered Modern Hebrew as a calque of a formula, common in many of Indo-European languages, with a pronominal use of the numeral "one" and the correlative element "another" (including *einander* in German, *l'un l'altro* in Italian, and *yek – din* in Kurdish.) These components are also present in the NP-strategy of the various Jewish languages (from *xa* "one" and *xit* "another" in the Neo-Aramaic of Zakho (see § 6.4.4), to the Yiddish *an'ander*, a variant of the Standard German form *einander*). Yet the question remains: How did the European "another" transform into the ordinal number "second" in Hebrew? One possible answer could be related to the common Hebrew usage of "second" to denote "another/other". Thus, the sentence "I met two people, <u>one</u> was tall and the <u>other</u> short" would be rendered in Hebrew, from all periods, using "one" and "second". The following sentences documented at different periods of Hebrew illustrate this formula:

(28)  Biblical Hebrew:
    *šem*    **ha-ʾeḥād**  *baʾăna*  *we-* *šem*   **ha-šēni**    *rēḵāb*
    name.of DEF-one.M Baanah and-name DEF-second.M Rekab
    "One was named Baanah and the other Rekab."        (2 Samuel 4:2)

(29)  Middle Hebrew (from around the 8th century CE):
    *u-miše-ʾāmar*     **ha-ʾeḥād**  *daʿt-o*        *īm*  *ʾāmar*
    and-as-say.3.PST.M.SG DEF-one.N opinion-POSS.3.M.SG COND say.3.PST.M.SG
    **ha-šēni**     *kmot-o*
    DEF-second.M like-3.M.SG
    "As one of them expressed his opinion, if the other one expressed a similar opinion…"        (Geonic Responas, Šaʿarey Ṣedeq, 4:36)

---

**22.** Under the influence of Arabic, a construction with partitives was also in use (Rabin 2000: 104–105).

(30)    Middle Hebrew (from around the 15th century):
      *məkī māšak*          **ha-ʾeḥād**  *dīnār-ē*    *zāhāb qānā*
      as    pull.PST.3.M.SG  DEF-one.M dinar-PL.of gold   purchase.PST.3.M.SG
      **ha-šēni**     *dīnār-ē*    *kesep̄*
      DRF.second.M dinar-PL.of silver
      'As soon as the one pulled golden dinars, the other purchased silver dinars.'
                          (Obadiah ben Abraham of Bertinoro 1440–1510, B. Meṣiʿa 4, 1)

An alternative assumption – which, however, does not preclude the one above – is that this construction developed as a result of the influence of Lithuanian, in which one of the NP-strategy options includes *vienas-antrą*.[23] With time, the Lithuanian word for "other", *antrą*, came to be used as the ordinal number "second". Thus, a literal translation of *vienas-antrą* is either *vienas*=one (cardinal number), *antrą*=another or *vienas*=one (cardinal number), *antrą*=second (ordinal number), and the Modern Hebrew numeral construction could be a calque of the latter. This hypothesis aligns with a finding derived from the database of the *Responsa Project*, which includes texts of all the rabbinic literature from the 2nd century CE to modern times. Namely, the numeral NP-strategy construction first appears in this corpus in rabbinic citations from the eastern part of what today is Belarus, the area which historically belongs to Lithuania. Here are two examples:

(31)    Late Middle Hebrew (19th century)
      *bittēl*        *eḥād et*   *ha-šēni*
      cancel.PST.3.M.SG one.M ACC DEF-second.M
      "They cancelled each other."
       (Responsa Divrey Malkiel 1:84, Malkiel Tenenbaum, lived in Gardinas at the
      end of the 19th century)

(32)    Late Middle Hebrew (19th century):
      *kəše-ššney nəbī'-īm*    *makḥīš-īm*        *b-nəbu'at-ām*          *eḥād*
      when-two prophet-PL contradict.PTCP-M.PL in-prophecy-POSS.3.PL one.m
      *et*    *ha-šēni*
      ACC DEF-second.M
      "When two prophets contradict each other in their prophecy…"
      (Hiddušey hagriz 103, Isaak Zeev Soloveitchic, who grew up in Valozhyn at
      the end of the 19th century)

As noted, although the numeral construction has been in use for more than a century, it is still restricted to informal registers.

---

**23.**  The historical connection between the numeral construction and the Indo-European correlate comprising "one-another" has been proposed previously (Baraḵ & Gadish 2008: 192). As far as I know, the connection to the Lithuanian elements has not been mentioned in previous studies.

Having shed some light on the origin of the numeral and the demonstrative NP-strategy constructions in Modern Hebrew, I will now examine various aspects of their syntax and semantics. I will demonstrate that, in spite of their similar syntactic structure, the two constructions present divergent features, which stem from the disparities between their respective components.

### 4.4.3 The availability of the two-unit construction in Modern Hebrew

As shown in the typological examination in Chapter 3, the numeral and the demonstrative constructions in Modern Hebrew, as in (26)–(27), are variants of the same type, and although each appears to be a hybrid, it is grammatically a one-unit formula (§ 3.2–4).[24] The two constructions, however, differ in the degree of separability of their components. In the numeral, but not demonstrative, construction, the components can be separated as two-units, as in (33):[25]

(33) *yosi    ve-dani      ha-exad   sixek        im   ha-šeni*
Yosi(M) and-Danny(M) DEF-one.M play.PST.3.M.SG with DEF-second.M
"Yosi and Danny played with each other."

The demonstrative construction, in contrast, never occurs as a two-unit formula. I could not locate the use of the demonstrative construction as a two-unit type anywhere in the history of Hebrew, apart from a few instances with singular verbs in Biblical Hebrew that were mentioned earlier ((1bi) and (4)). Also in Modern Hebrew such examples are extremely rare and only marginally – if at all – acceptable. Their use, context and semantics will be examined below.

Whenever the one- and the two-unit numeral constructions with the same components coexist in the same language, only the latter is attested at its earlier stages. As shown in Chapters 1 and 2, this is the case, for example, in Italian, Akkadian and Arabic. In the history of Hebrew, the elements *eḥād-šēni* "one-second" never played a part in the NP-strategy prior to Modern Hebrew, and hence a plausible assumption would be that the two-unit construction appeared later. And indeed, in the classical texts of the Biblical and Mishnaic corpora, occurrences of two-unit constructions with different components are scarce.

---

**24.** All the evidence adduced in § 3.2–4 regarding the behavior of the numeral construction holds true for the demonstrative construction as well. Some of this parallelism was demonstrated already by Glinert (1983).

**25.** While the numeral construction belongs to the lower register when its two components are adjacent, it is stylistically more elaborate when they are separated, and as such is found mostly in written texts.

Accordingly, this is a rare case in which a two-unit construction is historically secondary. It is possible that, once the numeral construction was introduced into Modern Hebrew, it was easily adopted by speakers as a counterpart of similar expressions in their native languages, and eventually grammaticlalized. Thus, as long as the two elements of the NP-strategy construction are phonologically discrete – as *eḥād* and *ha-šēni* obviously were in Modern Hebrew at the outset[26] – nothing precludes a co-existence of both the one- and the two-unit construction in the same language. Hebrew speakers were undoubtedly familiar with both these constructions from their native languages, for example, in the Judeo-Arabic dialect of Tafilalt:[27]

(34)  a.  *ya'kub  u-musi  si  wkkel  si*
Jacob  and-Moses someone feed.PST.M.SG someone
b.  *ya'kub u-musi  wkkelaw  si  l-si*
Jacob  and-Moses feed.PST.PL someone DEF-someone
"Jacob and Moses fed each other."

Thus, by way of analogy speakers probably developed a full-fledged two-unit construction in Modern Hebrew as well. This is another possible course through which a two-unit construction may develop indirectly from a one-unit correlate – an alternative to a shift, discussed in (§ 2.6), in which a one-unit construction was reanalyzed and became a two-unit formula.

Unlike the sentences with the components *exad-hašeni* "one-the second", the ostensibly two-unit Modern Hebrew construction **with a repetition of demonstratives** cannot be used to encode all the meanings denoted by unspecified pronouns, such as reciprocals, but only a single interaction between two entities.

*Prima facie* some examples in Modern Hebrew involving two-unit constructions with demonstratives lend themselves to a reciprocal interpretation (35)–(36). A more nuanced analysis, however, reveals that these cases fall into two types, each expressing a reciprocal relation through a different means. That is, when a demonstrative construction comprises two units, it does not, in and of itself, yield a reciprocal reading.[28] The two groups are the following:

---

26. As opposed, e.g., to a scenario in the Bavarian dialect of German, where the bipartiteness of *a(rà)nand(à)*, which originated from *ein* 'one' and *ander* 'another,' is not transparent (Plank 2008).

27. I wish to thank my consultant, Moshe Bar-Asher, for these data.

28. I wish to thank Edit Doron for discussing this topic with me, and for providing me with many attested examples.

I.   Sentences with inherently symmetric or reciprocal predicates, such as "to be similar" or "to complement":

(35)  a.   *ex   ze       dome   le-ze*
           how DEM.M.SG similar to- DEM.M.SG
           "How are they similar?"~γ~

      b.   *ze       hešlim                et   ze       be-tafkid-ey*
           DEM.M.SG complemente.PST.3.M.SG ACC DEM.M.SG in-role-PL
           *ha-ṣayad   ve-ṣeid-o*
           DEF-hunter and-hunted-POSS.3.M.SG
           "They complemented each other in playing the roles of a hunter and his prey."~γ~

II.  Sentences with a repetition of a clause (36a) or with an elided verb in the second clause (36b):

(36)  a.   *ze       ro'e       et   ze       ve-ze       ro'e       et*
           DEM.M.SG see.PRS.M.SG ACC DEM.M.SG and-DEM.M.SG see.PRS.M.SG ACC
           *ze*
           DEM.M.SG
           "They see each other."~γ~

      b.   *kol-ot    milxama… ze       me'ayem       al ze*
           voice.PL.of war…    DEM.M.SG threaten.PRS.M.SG on DEM.M.SG
           *ve-ze       al ze*
           and-DEM.M.SG on DEM.M.SG
           "Voices of war… they are threatening each other."~γ~

In the case of inherently symmetric or reciprocal predicates, the reciprocal interpretation derives from the meaning of the predicate itself. With other predicates, a repetition of the entire clause is required – and reciprocity is expressed through a separate reference to each side in the relation. The need for such a repetition indicates that, otherwise, this construction is read as non-reciprocal, or in other words, that it denotes a unidirectional relation.

A similar state of affairs is documented also in Jewish Babylonian Aramaic, a Late Eastern Aramaic Dialect (Bar-Asher Siegal 2016a: 95–96) in which the regular NP-strategy employs the anaphor *hdāde*. A repetition of the demonstrative in this dialect does not denote reciprocity, with rare exceptions. Such cases, however, occur in exactly the same environments as were described for Modern Hebrew: with either symmetric predicates (37a) or a repetition of the clause (37b–c):

(37)  a.   *ha       b-ha       taly-a*
           DEM.F.SG in.DEM.F.SG depend.PTC-F.SG
           "They depend on each other."                          (*Naz.* 18b)

b. *pagʻu*      *hane*   *be-hane*   *w-hane*    *be-hane*,
attack.PST.3.M.PL DEM.PL in-DEM.PL and-DEM.PL in-DEM.PL
*w-miqtel*        *ḥad*   *me-hane*   *w-ḥad*    *me-hane*
and-kill.PASS.PST.3.M.SG one.M from-DEM.PL and-one.M from-DEM.PL
"These attacked each other and one of these and one of those got killed."

<div align="right">(<em>Meg.</em> 6b)</div>

c. *w-lā*    *ydaʻu*        *hane*   *be-hane*   *w-hane*    *be-hane*
and-NEG know.PST.3.M.PL DEM.PL in-DEM.PL and-DEM.PL in-DEM.PL
"These did not know about those, and those did not know about these."

<div align="right">(Giṭ. 57a)</div>

The upshot is that, in Modern Hebrew, a sentence with two separated demonstratives and a singular verb, as in (35), which for all intents and purposes looks like a two-unit construction, cannot have a reciprocal reading unless the verb is inherently symmetric. This conclusion may give one pause. Recall that the numeral construction of the same type evolved a two-unit variant via analogy with other languages. Why, then, did this mechanism not operate for the demonstrative construction as well? Or, put differently, why did this innovation take place only within the informal register?

Consider, however, that the components of the demonstrative construction are used in other Modern Hebrew syntactic environments in their original function. As separate elements, such demonstratives operate as deictic expressions, and each must be decoded as referring to a specific individual. As such, they cannot be interpreted as jointly expressing an unspecified relation. This restriction emanates from the so-called discrimination effect, identified in Modern Hebrew and other languages as a feature of demonstratives (Ariel 1990; Reinhart 1995; Sichel 2001, 2009; Bosch & Umbach 2007; Hinterwimmer 2015; Sichel & Wiltschko 2018). I will now elaborate on this effect, in view of its salience to the above question regarding the different development of the numeral versus demonstrative two-unit construction.

The discrimination effect is clearly observable in a comparison of demonstratives with personal pronouns. While in a sentence like (38) (20 in Sichel & Wiltschko 2018), the referent of the personal pronoun in the second clause is ambiguous, as it can be decoded as either NP in the first clause, the demonstrative can be co-indexed only with the antecedent that is not maximally salient in the preceding sentence:

(38) *buš$_1$ diber*        *etmol*   *im*   *šaron$_2$ ve-hu$_{1/2}$/ze$_2$*      *lo*
Bush$_1$ speak.pst.3.M.SG yesterday with sharon and-he/DEM.M.SG NEG
*zaz*      *milimetre*
move.3.M.SG millimetre
"Bush spoke yesterday with Sharon but the former/latter wouldn't budge an inch."

Sichel (2008) argues that this restriction is not syntactic but derives from a pragmatic principle whereby demonstratives cannot be ambiguous and must have a single interpretation in a given context. It might prove expedient to apply this generalization to the NP-strategy as well: A two-unit construction is interpreted as denoting an unspecified relation, and therefore cannot employ demonstratives.

In the analysis proposed here, however, the above formulation needs to be refined. As shown in (36), reciprocity can be expressed through a repetition of demonstratives when each direction in the relation is explicitly designated in a separate clause. In such a case, even though each demonstrative is not decoded discriminatively, neither does it lend itself to multiple interpretations, but rather must refer to a single entity in the context, thus meeting the interpretive requirement of the NP-strategy. Accordingly, in sentences of this type, the discrimination effect may obtain only partially. However, if this phenomenon is indeed anchored in pragmatics, rather than syntax, a partial effect may suffice in certain contexts. Hence, it is reasonable to assume that the constraint will be weaker in contexts where full discrimination is unavailable (or even not expected). Such contexts may require no more than for a demonstrative to have a single referent and not to operate as an existential quantifier.[29]

In other words, the discrimination requirement at the pragmatic level could be conceived of as more lenient, in the sense of avoiding ambiguity at the final stage of interpretation. Understood along these lines, the discriminative effect can explain why the monoclausal demonstrative construction is blocked from evolving a two-unit formula, which is feasible for its numeral counterpart.

The above restriction on demonstratives does not apply to the one-unit construction. This observation lends support to an analysis whereby the constitutive elements in the demonstrative construction are no longer interpreted as anaphoric expressions, and the two demonstratives jointly form one unit, in line with the investigation of the numeral construction in the previous chapter (§ 3.3). The next section examines the extent to which the two forms in the demonstrative construction have undergone univerbation.

### 4.4.4   A mixed-gender antecedent

In the one-unit version of both the numeral and the demonstrative constructions in Modern Hebrew, the pronominal expressions agree in gender with the subject of the clause (39a, 40a). When the participants of the unspecified relation are of different gender, then both constructions come in two variants (39b, 40b) – either the two pronominal expressions are masculine, or one is masculine and the other feminine:

---

**29.** See Chapter 7 (§ 7.7), for the semantics of existential quantifiers in unspecified relations.

(39) a. *yael   ve-rivka   sixku        axat im ha-šniya*
Yael(F) and-Rivka(F) play.PST.3.PL one.F with DEF-second.F
"Yael and Rivka played with each other."

   b. *yosi   ve-yael   sixku        exad im  ha-šeni/ha-šniya*
Yosi(M) and-Yael(F) play.PST.3.PL one.M with DEF-second.M/F
"Yosi and Yael played with each other."

(40) a. *yael   ve-rivka   sixku        zo    im zo*
Yael(F) and-Rivka(f) play.PST.3.PL DEM.SG.F with DEM.SG.F
"Yael and Rivka played with each other."

   b. *yosi   ve-yael   sixku        ze    im ze/zo*
Yosi(M) and-Yael(F) play.PST.3.PL DEM.M.SG with DEM.SG.M/F
"Yosi and Yael played with each other."

Since NP-strategy constructions encode unspecified relations, the scenario described in (39b) and (40b) cannot be viewed as unidirectional, namely, that "Yosi played with Yael", but not vice versa. In the situation requiring an interpretation of strong reciprocity between the participants (i.e., if each participant holds the relation described by the verb with each of the other participants), neither only the masculine nor only the feminine demonstrative can be restricted to one of the two positions available in the construction, as each should appear in both. Therefore, the variation of gender on the pronouns/demonstratives cannot be explained as semantic agreement; rather, it seems to be anchored in morphology, and derive from the need to match both members of the pair represented by the subject with the pronominal elements of the construction. Thus, the use of different genders essentially stems from the impetus to align the grammatical features of the pronominal elements with those of both members of the pair denoted by the subject. This seems to be a unique case in which a plural subject, denoting elements of different genders, displays a split grammatical agreement. Such an analysis of (39) and (40) has a bearing on the discussion of conjunct agreement (*inter alia* Aoun et al. 1999; Sobin 1997; Munn 1999; Benmamoun et al. 2010; Bošković 2009; Bhatt & Walkow 2013; Marušič et al. 2015; Willer-Gold et al. 2016). A split grammatical agreement is also found when the subject denotes a mixed-gender set, as in (41):

(41) *šnayim ha-krux-im       ve-axuz-im     ze     ba-zo,*
two   DEF-intertwined-PL and-hold.PASS-PL DEM.SG.M in- DEM.SG.F
*šo'av-im    koax    u-mašma'ut ze     mi-zo*
draw-PRS.PL strength and-meaning DEM.SG.M in-DEM.SG.F
"Two people who are close and hold onto each other, draw on each other for strength and meaning."γ

Furthermore, this phenomenon is not restricted to animate entities (42),[30] and the demonstratives of the different gender are not necessarily in the same order as the respective conjuncts in the subject (43):

(42)   *ha-xasifa        ve-hapirsum      ba-'im      zo      im   ze*
      DEF-exposure(f) and-publicity(m) come.PRS-PL DEM.SG.F with DEM.SG.M
      "Exposure and publicity [usually] come together (lit. one with the other)."γ

(43)   *ima    u-paot    mexayx-im   ze      el zo*
      mother and-baby smile.PRS-PL DEM.SG.M to DEM.SG.F
      "A mother and a baby are smiling at each other."γ

The phenomenon of split agreement relates to the discussion in the previous chapter (§ 3.3) concerning the syntactic status and separability of the elements in the NP-strategy constructions in Modern Hebrew. It was argued that the first element is completely devoid of interpretive properties and, as indicated by case-marking and the location of prepositions, is inserted as a relic only at PF. At the same time, the current chapter has shown that the grammatical gender on these elements may change due to a mechanism governing agreement. If valid, the above two conclusions bolster the already mentioned theory that agreement (sometimes) obtains post-syntactically (in line with Bobaljik 2008 and Bhatt & Walkow 2013, among others).

It goes without saying that the fluctuation of agreement within the NP strategy and the distribution of the various options in this regard need to be investigated further. It may, however, be tentatively suggested that, in the numeral construction, pronouns of different genders appear extremely odd if the first element is elided (*exad > xad/exat > xat*) (as described in § 3.2):

(44) ?? *yosi    ve-yael    sixku    xad   im   ha-šniya*
      Yosi(M) and-Yael(F) play.PST.3.PL one.M with DEF-second.F
      "Yosi and Yael played with each other."

Based on personal impression only, pronominal expressions appear to be marked with different genders either in written texts or in a slow and deliberate enunciation. Both these options allow for reflection, pointing to speaker awareness of the gender of the respective forms – which militates against a view of such configurations as natural language production. This claim, however, will have to be further examined using data from spoken corpora.

---

30.  A preliminary corpus study I have carried out suggests that uniform agreement with both demonstrative taking masculine is more common with inanimate subjects.

Interestingly, normativists consider the variation with different genders as hyper-correction, and insist that both demonstratives should be masculine,[31] on the grounds that this is the standard in Mishnaic Hebrew. The latter statement, however, is not entirely true, for throughout its history, Hebrew literature is interspersed with similar "mistakes". Consider the following examples:[32]

(45)  a.  Mishnaic Hebrew:[33]
     *mezawwəg-ān*        *ze*      *lā-zo*
     couple.PTCP.M.SG-ACC.PL DEM.M.SG to.DEF-DEM.F.SG
     "He couples them (a male and a female) with each other."
                                  (Leviticus Rabbah, Paraša 8, Piska 1)

    b.  Middle Hebrew:
     *ha-zug*     *yissā*         *ze*      *ʾet*  *zo*
     DEF-couple marry.FUT.M.SG DEM.M.SG ACC DEM.F.SG
     "The couple will get married."        (Responsa Harama, Poland 1525)

In some cases, centuries apart, authors repeat the construction twice, alternating the order of the genders – probably for the sake of symmetry:

(46)  *kātḇū*      *ze*      *lā-zo*        *ve-zo*       *lā-ze*
    write.PST.3.PL DEM.M.SG to.DEF-DEM.F.SG and-DEM.F.SG to.DEF-DEM.M.SG
    "They wrote to each other."         (Maharam Mintz, Germany 1415)

Naomi Shemer (1930–2004), a renowned Israeli songwriter, follows suit:

(47)  *bə-laylā še-kkā-ze*     *bə-laylā še-kkā-ze*     *ʾāhavnū*
    in-night REL-like-DEM.M.SG in-night rel-like-DEM.M.SG love.PST.1.PL
    *ze*       *ʾet-zo*      *ve-zo*       *ʾet-ze*
    DEM.M.SG ACC-DEM.F.SG and-DEM.F.SG ACC-DEM.M.SG
    "On such a night, on such a night, we loved each other."    (*Be-laya še-kaze*)

It appears, therefore, that the evolution of the NP-strategy in Hebrew involves a unique grammatical phenomenon, which, for that matter, has a bearing on the question of syntactic discreteness of the components of such constructions.

---

**31.** Avinery (1964: 161); see also Avshalom Kor, *Beofen Miluli* (23/6/2010): http://yitzhaka-vinery.wordpress.com/2011/01/14/%E2%80%9D%D7%96%D7%94-%D7%90%D7%AA-%D7%96%D7%94%E2%80%9D-%D7%90%D7%95-%E2%80%9D%D7%96%D7%94-%D7%90%D7%AA-%D7%96%D7%95%E2%80%9D/

**32.** Admittedly, it is impossible to ascertain whether these are instances of original language production or textual corruption in transmission, but this is of no consequence for the argument advanced here, which stresses first and foremost the existence of such a variation.

**33.** This is the form in MS London (British Museum 340). In MSS Oxford 147 and 2335, however, both demonstratives are masculine.

Moreover, it surfaces time and again in the history of the Hebrew language, even though any connection between its different instantiations is highly improbable. It could therefore be conjectured that, in each period, it must have been propelled by the same linguistic processes or mechanisms. Another such grammatical event is explored in the next section.

### 4.4.5   Semantic agreement with plural subjects

Another phenomenon related to the Modern Hebrew NP-strategy demonstrative construction that warrants investigation is the semantic agreement in the case of plural subjects. This aspect of the Mishnaic Hebrew constructions (6a,c) was discussed in § 4.3.3. As shown in (48a and b), only in the demonstrative construction can the elements take plural:

(48)   a.   *ha-ylad-im sixku        exad  im   ha-šeni*
            DEF-boy-PL play.PST.3.PL one.M with DEF-second.M
            "The boys played with each other."
       b.   *ha-ylad-im sixku        ze      im  ze/      elu     im   elu*
            DEF-boy-PL play.PST.3.PL DEM.M.SG with DEM.M.SG DEM.PL with DEM.PL
            "The boys played with each other."

As shown earlier in § 4.3.3, the agreement in such cases is semantic rather than morphological. The target of the agreement is controlled by the number of members within each set that participate in the reciprocal relation. Example (48b) with singular demonstratives signifies that, among the children, various individuals played with each other, while the plural demonstratives in (48b) entails that the children were divided into groups, each comprising more than one child, and that these groups played with each other (Glinert 1989: 69; see Heine & Miyashita 2008: 169–170, who pointed out that this phenomenon is unattested in other languages.)

While this differentiation is a common feature of Modern Hebrew, as demonstrated in § 4.3.3, it is encountered already in Mishnaic Hebrew. Could this similarity between Mishnaic and Modern Hebrew formulae be attributed to a successful imitation of the Mishnaic style by contemporary Hebrew speakers? And if so, what propelled such a replication?

To the extent that the case in point is indeed mimicry, the following two channels can be suggested: (1) The exposure of Modern Hebrew speakers to Mishnaic Hebrew was sufficiently extensive for them to internalize its grammatical rules; (2) Modern Hebrew speakers learned the rules of Mishnaic Hebrew from grammar books and artificially implemented them in their own language. Option 1 is quite unlikely due to *de facto* "poverty of the stimulus": Rabbinic literature contains very few relevant

examples, and its usage of the various forms tends to be inconsistent, as demonstrated in the comparison of (6c) and (7). Option 2 is unrealistic, as adequate grammars of Mishnaic Hebrew were not compiled until the middle of the 20th century,[34] at which point the numeral construction had already been in use for several decades. Moreover, even the best of these grammars do not mention the distinction in the plural vs. singular marking on demonstratives in NP-strategy constructions (cf. Segal 1936: 63). It appears, then, that the reasons for the affinity between Mishnaic and Modern Hebrew formulae should be sought, not in history (as inheritance or imitation), but in mechanisms governing natural linguistic development.

When the subject of an NP-strategy construction denotes a plurality, it is uncommon for a language to draw a fine-grained distinction regarding the nature of the reciprocal relation described: whether it obtains between individuals or between sub-pluralities. The absence of morphological differentiation, in turn, stems from the lack, in a given language, of a nominal declension for the lexical items that constitute its NP-strategy (consider, for example, the English "one"-"another"). Moreover, cross-linguistically, demonstratives very rarely operate as part of NP-strategy constructions (see § 1.3.2.1). In Hebrew, demonstrative pronouns are declined for number, a morphological feature that enabled the differentiation between a relation involving individuals versus groups. This semantic distinction, then, could have been propelled, in Mishnaic and Modern Hebrew independently, by the common morphology of these varieties, and the former need not have directly influenced the latter. In my view, the same dynamic can be posited in respect of an unspecified relation in pairs of different gender. The tension between the two options in Modern Hebrew (illustrated in (39b) and (40b)) could very well have been felt by speakers of the previous periods as well. This is a plausible counter-assumption to the historical relation hypothesis and is sufficiently compelling to render alternative explanations unnecessary.

I opened the second part of this chapter by introducing a debate about the linguistic status of Modern Hebrew – whether it should be considered as a sequel to the previous historical stages of the Hebrew language, or as a creole based on a substrate of contact languages and a Hebrew superstrate as a lexifier. The discussion above shows that this question has no simple answer. As concerns the numeral construction, it was created based on Indo-European counterparts incorporating lexical components from Classical Hebrew. The Modern Hebrew demonstrative construction, on the other hand, aligns with a parallel old formula in Mishnaic Hebrew, in terms of both semantics (semantic agreement) and syntax (mixed agreement), but these commonalities are not necessarily a result of inheritance. Rather, in both cases, some semantic and syntactic features of demonstratives that

---

**34.** See Bar-Asher (2014: 264–272) for a historical review of scholarship on Mishnaic Hebrew.

are fundamental to Hebrew have led to an outcome that allows the same semantic distinction and syntactic variation.


## 4.5    Summary and concluding remarks

This chapter opened with an analysis of Biblical Hebrew heterogeneity within the NP-strategy, demonstrating that this phenomenon stems mostly from external influences that resulted in lexical borrowing. Such a dynamic is typical cross-linguistically, as languages accrue new constructions without necessarily giving up the older ones, and thereby evolve new distributions.

Thus, Biblical Hebrew has several attestations of the construction with a repetition of demonstratives that became the standard in Mishnaic Hebrew. This construction likely emerged as a calque of an equivalent Aramaic formula. Similarly, the Mishnaic Hebrew has two constructions for casuistic laws, one with indefinite pronouns, and the other with noun reiteration. As shown, the repetition of demonstratives is not appropriate for casuistic laws, which require structures with an explicit antecedent. Accordingly, the distribution of the NP-strategy constructions in the Mishnaic Hebrew appears to stem from the grammatical aspects of their constituent elements. The two constructions used in casuistic laws are also distributively distinct based on the lexical meaning of their elements: one is restricted to animate objects while the other is not. At the same time, already in Late Hebrew, the distribution of the NP-strategy appears to be sensitive to socio-linguistic factors, as the Biblical construction appears in a Mishnaic text with pretensions to a higher register through a stylistic imitation of the Biblical text.

The second part of the chapter is centered on heterogeneity in Modern Hebrew, which appropriated an NP-strategy variant – in case in point, the numeral construction – as a calque of an Indo-European counterpart. As is the case in the earlier periods, the new borrowing did not supplant the older, demonstrative, construction inherited from Mishnaic and Middle Hebrew. The synchronic distribution of these two variants has been shown to depend on register. Despite the semantic and syntactic resemblances between the new and the old construction, they operate as two independent types, each with its own grammatical properties and semantic nuances:

1) Only the components of the numeral construction appear regularly as two separate units. Two demonstratives in an ostensibly two-unit construction do not lend themselves to interpretation in terms of an unspecified relation; instead, they must be interpreted as designating a single relation between the participants.

2)  The demonstrative construction allows differentiation between an unspecified relation involving individuals versus groups, depending on the denotation of the subject in the sentence. However, this semantic distinction is impossible in the numeral construction, which in this respect aligns with most other NP-strategy formulae.

The phenomenon of linguistic heterogeneity has also been explored in this chapter from a diachronic perspective, in light of external influences on the Hebrew language throughout its history. Furthermore, notwithstanding the semantic affinity between the various NP-strategy constructions demonstrated in Chapters 1 and 2, the analysis of the differences in their use and grammar undertaken in this chapter has shown these to stem from the properties of their constituent elements. Thus, in Mishnaic Hebrew, not all constructions are feasible for casuistic laws. Furthermore, in various languages, certain constructions are suitable only for animate entities insofar as their components are bleached nouns that either used to denote only humans, or still do so in other contexts; additionally, only components with certain grammatical features allow differentiation between individuals and groups participating in the unspecified relation expressed by the sentence. These data militate against an oversimplified conclusion that various elements have grammaticalized under an overarching rubric of "unspecified construction". Indeed, these elements often preserve some of their grammatical and semantic properties, and therefore such constructions effectively lend themselves to a compositional analysis, as proposed in Chapter 1 (§ 1.4).

As argued in the introduction to this book (0.7), historical data can be relevant for synchronic analysis of language. This point has been further elucidated and corroborated through the discussion in this chapter. Within the Hebrew NP-strategy constructions, I have examined the syntactic and semantic features of their constituent elements in their respective original functions. I have also gauged the extent to which these elements have "grammaticalized" to denote unspecified relations. The results and insights yielded by these explorations have enabled a more nuanced synchronic analysis of the nature and make-up of the NP strategy in Hebrew.

# Changing meaning of the NP-strategy constructions

## 5.1 Introduction

This chapter continues the investigation of NP-strategy constructions in the Semitic languages focusing on language-internal diachronic processes and analogical developments in other linguistic families. In the previous chapters, I traced the origins and the evolutionary paths of these constructions. As the processes that have given rise to the modern formulae I identified and elaborated the grammaticalization of free lexemes, the shift within the construction from two pronominal elements to a one-unit anaphor, and external borrowing. The current chapter traces internal diachronic interactions, within a number of Semitic languages, between the NP-strategy and the adverbial-strategy for expressing reciprocity. The chapter also explores changes that took place within the NP-strategy due to the conceptual affinity between the encoding of reciprocity and collective, sociative and comitative meanings. This analysis brings the discussion back to the issue of multifunctionality typical of the various strategies for expressing reciprocity (see § 0.3), and its relevance for historical linguistic studies.

In this chapter, I first define the adverbial strategy for expressing reciprocity and delineate syntactic and semantic boundaries between adverbial and NP-strategy constructions (§ 5.2). Next, I analyze a case of a shift from the latter to the former (§ 5.3). The focus of the second part of this chapter is on the relationship between strategies for expressing reciprocity, on the one hand, and collective, sociative and comitative expressions, on the other. I will argue that the semantic similarity between these two categories underpins a bi-directional reanalysis observed in various Semitic languages. (§ 5.4–5). In an appendix to this chapter (§ 5.7), I highlight the relationship between reciprocal and sociative expressions based on a Babylonian medical commentary from the 4th century BCE, and show the relevance of this exegesis to the issues discussed in this chapter.

## 5.2    One-unit anaphors and adverbs

### 5.2.1    The adverbial strategy for expressing reciprocity

In addition to the NP-strategy, elucidated in Chapters 1–4 of this book, reciprocity can be expressed using a dedicated adverb. The inclusion of this rubric in the book is warranted by the affinity between the adverbial strategy and the NP-strategy construction with a one-unit pronoun. This kinship is evident from a comparison of two sentences with the same predicate, (1)–(2), both dating back to the 18th–19th century, when the form "reciprocally" was commonly used as adverb.[1] Furthermore, the data allow to track diachronic shifts from one strategy to the other.

(1)  "Brothers, who disavow each other."
(*A Philosophical and Political History of the Settlements and Trade of the Europeans in the East and West Indies*, Volume 8, 1783: 18)

(2)  "They reciprocally disavow all intentions of matrimony."
(John Nichols, *The Gentleman's Magazine*, Volume 18, 1748: 502)

On the one hand, the similarity between the sentences is obvious: both have a plural subject and neither has an explicit noun in the object position. On the other hand, there is a clear distinction between the reciprocal anaphor ("each other") and the adverb ("reciprocally"). Pronouns saturate argument positions, while adverbs do not, and hence the slot for one of the arguments in (2) remains empty. In semantic terms, in (1) the goal of the verb "disavow" is designated by an anaphor, while in (2) the goal is absent. The adverb used in (2) fills this gap and indicates the identity of the goal.[2] In English, this distinction is revealed syntactically, in that the anaphor is licensed in an argument position as the object or in a prepositional

---

1.  Below is the Google Books Ngram demonstrating that the form "reciprocally" was widely used only during the 19th century.
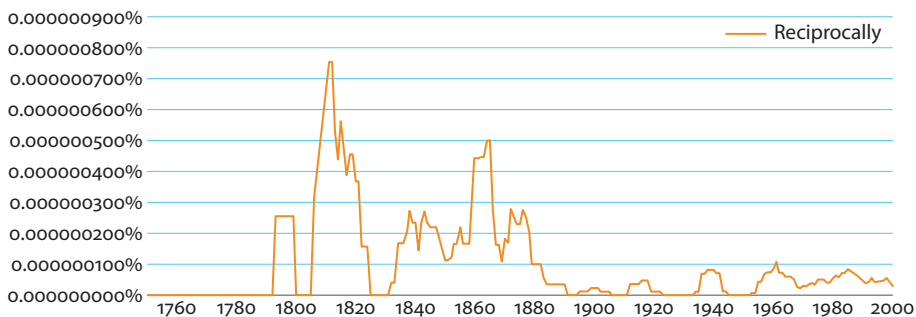


2.  See Nedjalkov (2007b: 161–163).

phrase, and it may demonstrate other features of arguments such as morphological cases (cf. Nedjalkov 2007a: 11). On the other hand, the reciprocal adverb is not part of a prepositional phrase and may appear in any slot available for adverbs. Since these are two different strategies for expressing reciprocity, and they operate differently in the syntax, they are not mutually exclusive and hence may, and often do, appear simultaneously in one sentence:[3]

(3)   a.   The colours which thus reciprocally excite each other in the retina are those placed at opposite points of the circle.

   (William Senhouse Kirkes, *Hand-book of Physiology*, 1872: 661.)

   b.   They were reciprocally weakening and destroying one another.

   (William Tooke, *The History of Russia*, 1800: 230)

Reciprocal adverbial expressions are also found in Semitic languages. For example, in Modern Hebrew, two forms are used as adverbs: *behadadiyut* (4a–b) and *ah-dade* (4c). The former, unattested prior to the 20th century, is more common, and is derived from the Jewish Babylonian Aramaic NP-strategy anaphoric expression *hədāde*[4] (§ 6.3).[5] The latter, used only in literature, is a frozen form originating as a lexical borrowing of the Aramaic form *hədāde* with the preposition *a-* "on". As in the case of English "reciprocally", this adverb may appear together with NP-strategy constructions of various kinds (4b):

(4)   a.   *ha-exad     mašpia              behadadiyut al  ha-šeni*
         DEF-one.M influence.PRS.M.SG RECP        on DEF-second.M
         "They mutually influence each other."γ

   b.   *ha-šmita          ve-ha-šabat       meir-im          ze        et*
         DEF-sabbatical.year and-DEF-Sabbath shed.light.PRS-PL DEM.M.SG ACC
         *ze        behadadiyut*
         DEM.M.SG RECP
         "The sabbatical year and the Sabbath [day] reciprocally shed light on each other."γ

---

**3.** Compare with Dixon (2012: 181): "Many languages have one or more adverbs with reciprocal meaning. In most, a reciprocal adverb can occur with a reciprocal pronoun but cannot replace it. In English, for instance, one can say *John and Mary hate <u>each other</u> mutually*, but not *\*John and Mary hate mutually*."

**4.** More specifically, the Hebrew noun *hadadiyut* "reciprocity" is a neologism stemming from the Aramaic anaphor *hədāde*. The adverb is derived from the noun through affixing the preposition *b-* "in", a productive pattern for forming adverbs from nouns in Modern Hebrew. Hereinafter the form *behadadiyut* will be glossed as RECP irrespective of its components.

**5.** For the role of Aramaic in Modern Hebrew neologism, see Bar-Asher (2012: 3–55).

c.   *šte   tʃis-ot        sotr-ot            ahdade*
two approach-F.PL contradict.PRS.F.PL RECP
"Two mutually contradictory approaches"<sup>γ</sup>

The above examples notwithstanding, the distinction between a pronoun and an adverb is not always clear-cut. Thus, Nedjalkov observes that, cross-linguistically, it is hard to draw a line between adverbs and pronouns that express reciprocity, and that in some languages unspecified pronouns can also function as adverbs (Nedjalkov 2007b: 162–163 including an example from Korean). The distinction is even less perspicuous in ancient languages, for which linguistic data are scarce.

The link between the pronominal and the adverbial strategies has a bearing on diachronic studies. In particular, an ambiguity between a pronominal and an adverbial expression, and the consequent possibility of erroneous decoding, can motivate diachronic reanalysis. Among the Semitic languages, this phenomenon is found in Akkadian and to some extent also in Northeastern Neo Aramaic dialects. However, before embarking on this daunting project, it is first necessary to establish whether the adverbial strategy to express reciprocity constitutes an independent mechanism, above and beyond the syntactic differences shown above. To this end, I will apply the methodology proposed in the introduction to this book (§ 0.5–6) for defining such strategies.

### 5.2.2    Defining the adverbial strategy for expressing reciprocity

In the Introduction (§ 0.4), I posited the following definition for a strategy for expressing reciprocity:

> A TYPE OF RECIPROCAL CONSTRUCTIONS, A STRATEGY FOR EXPRESSING RECIPROCITY includes all constructions that are composed of grammatically similar components, share the same range of interpretations and exhibit a similar relationship between the grammatical components and their semantic properties (including the contexts in which they express symmetric relations).

In following the methodology proposed in the introduction, I will recapitulate the stages for identifying and categorizing each strategy and apply them to examples of the adverbial strategy:

> **Stage one**: identify linguistic expressions that, at least in certain contexts, entail symmetric relations.

The sentence underlined in (5a), which contains the adverb "reciprocally", entails a similar assertion of reciprocity the two clauses in (5b). The task at hand is to understand what licenses such an inference.

(5)  a.  <u>Here we reciprocally gave an account of ourselves</u>, since we had seen each other…
(James Parry, The true Anti-Pamela: or, Memoirs of Mr. J. Parry, 1770, p. 49) =>

 b.  "<u>I gave her an account of myself and she gave me an account of herself</u>, since we had seen each other…"

> **Stage two**: identify the grammatical components that drive the entailment demonstrated in the first stage through a comparison with a minimally paired construction that does not license such an entailment.

A comparison between (6a) and (6b) points to the component(s) that license the entailment of symmetry:

(6)  a.  We [reciprocally]$_{ADV}$ gave an account of ourselves
 b.  We gave an account of ourselves

The above comparison shows that the linguistic form that licenses a symmetric interpretation is the adverb "reciprocally". This conclusion can be extrapolated to counterpart adverbs in other languages.

> **Stage three**: explore the multifunctionality of the given strategy, namely, all possible semantic relations encompassed by the structure identified in Stage two, and determine the nature of this multifunctionality (polysemy, syncretism etc.).

As indicated in the OED (accessed on-line 16/10/2017), the adverb "reciprocally" can also mean "in turn; in response or exchange; by way of (esp. equivalent or appropriate) return," as in the following example:

(7)  The captain was pleased with him, and he was reciprocally pleased with the captain and his prospects.                    (1829 T. Flint George Mason vi. 118)

In the use exemplified by (7), the adverb "reciprocally" is a disjunct and therefore does not affect the semantics of the clause. Rather, it discursively signals that the two clauses are causally related. Accordingly, (7) can be paraphrased by (8):[6]

(8)  The fact that "he was pleased with the captain and his prospects " is causally related to the fact that "the captain was pleased with him".

The case in point, then, lends itself to an analysis in terms of polysemy, i.e., ascribing to the adverb "reciprocally" two separate semantic functions, which account

---

**6.** The OED provides a periphrastic gloss: "In turn; in response or exchange". Other meanings in the OED are either archaic or pertain to the function of "reciprocally" as modifier of adjectives.

for the two usages above: indicating symmetry and denoting "in exchange, respectively".

Extrapolating this conclusion to other reciprocal adverbs, it may be asserted that these elements encode symmetric relations. Accordingly, the bolded sentence in (9a) is semantically equivalent to (9b):

(9) a. Many States chose to enter into bilateral or multilateral agreements with which **they reciprocally gave up their right to resort to war**.

b. Each state gave up its right to resort to war with all other states.

The adverb "reciprocally" indicates that the relation of "X give up its right to resort to war with Y" symmetrically holds between all members of the set denoted by the subject ("the many states", to which the pronoun "they" refers.)

The final, fourth, stage is defined below:

---

**Stage four**: account for the relationship between the components of the construction, on the one hand, and the symmetric relations, on the other, with reference to the following questions:

1.  Is the symmetric reading optional or obligatory?
2.  Is the symmetric reading derived compositionally from the components of the reciprocal construction?
3.  If not, can the semantic property of symmetry be analyzed as a subcategory of some other semantic property encoded by the construction? And if so, what is that superordinate property?

---

As established above, the reciprocal adverb encodes a symmetric relation. Such encoding can be formalized as a function that takes a set and a relation as an input, and yields a set of symmetric relations between all members of the set as the output.

(10)   $[[REC_{adverb} R\{A\}]] = \forall_{xy \in A}(x \neq y \rightarrow Rxy)$

According to this analysis, symmetry is part of the semantics of the adverbial strategy for expressing reciprocity. In this respect, it is different than the NP-strategy, which is the core subject of this book. As is elucidated throughout this book (and will be discussed at length in Chapters 7 and 8), from the semantic standpoint, the NP-strategy is an unspecified construction, in the sense that it encodes a relation between at least two (defined) sets without specifying which set occupies which position in that relation. Only under certain conditions do these constructions lend themselves to a reciprocal interpretation. Consider the following minimal pair:

(11) a. The two children stood on top of each other
b. The two children reciprocally stood on top of each other

While (11a) can describe a specific situation in which only one child stood atop of the other, the only plausible interpretation of (11b) is in terms of recurring symmetric situations: in one the relation is aRb, while in the other – bRa.

Having clarified the syntactic and semantic differences between the NP- and the adverbial strategies for expressing reciprocity, I will now examine linguistic expressions that can be assigned to both these categories.

## 5.3    The Akkadian expression *aḫāmiš*

### 5.3.1    *aḫāmiš* as an anaphor

In previous chapters (esp. § 2.3), the Akkadian forms *aḫāmiš/aḫāmeš/aḫāiš* were assumed to function as anaphors. Yet, these forms contain the suffix *-iš*, which elsewhere in Akkadian is an adverbial morpheme. Moreover, this same expression is used in Akkadian adverbially to denote "together, jointly". The following example illustrates the two uses of this form:

> (12)  *aḫāmeš  šunu=ma aḫāmeš ugalladu*
> together they=and RECP    cause.trouble.DUR.3.M.PL
> "They are together and (still) cause trouble for each other."
>
> (ABL 528 r. 5f. Neo Assyrian)

It is probably on account of the suffix *-iš* that scholars have invariably analyzed the forms *aḫāmiš/aḫāiš* as adverbs, even when they clearly operate as anaphors.[7] I will demonstrate that, as an anaphor, *aḫāmiš* aligns with other anaphoric expressions both syntactically and semantically, and hence is part of the NP-strategy for expressing reciprocity.

Syntactically, *aḫāmiš* functions as an anaphor when it occupies the position of direct object of a transitive verb:

> (13)  *aḫāmeš ippalū*
> RECP    pay.DUR.3.M.PL
> "They will compensate each other."        (Dar 321:29, Late Babylonian)

In such cases, *aḫāmiš* does not decline for case, and therefore is not clearly distinguishable from adverbs. However, when *aḫāmiš* follows prepositions, its pronominal status is indubitable, since adverbs cannot be objects of prepositions:

---

**7.** See, for example, Delitzsch (1889: 221), who examines this form in discussing the adverbial ending *-iš*. The CAD characterizes it as adverb, and so does Buccellati (1996: 381).

(14)  a.  *ana aḫāmeš ul    ikellē*
      to   RECP   NEG refuse.DUR.3.M.PL
      "They will not refuse each other…"                    (TuM 2–3 2:21)

      b.  *ūm-ī      mādūt-i    ana libb-i   aḫāmeš kakk-ī-šunu*
      day-PL.OBL many-OBL into heart-of RECP    weapon-PL.OBL-POSS.3M.PL
      *išelli             aḫāmeš urassabū*
      sharpen.DUR.3.M.PL RECP    cut.down.DUR.3.M.PL
      "For many days, they would sharpen their weapons at each other; they
      would cut each other down."          (*JAOS* 88:126, Neo Babylonian)

Similarly, *aḫāmiš* is an anaphor in genitive constructions:

(15)  a.  *ṣāb-ē          ša aḫā-IA-ši idukkū*
      people-PL.OBL of RECP      kill.DUR.3.M.PL
      "They are killing each other's men."        (ABL 645:10f, Neo Babylonyan)

      b.  *ana reṣut   aḫāmeš ittaklū=ma*
      to   help.of RECP    trust.PST.3.M.PL=and
      "They trusted in one another's help." 3R 7 i 43 (Shalm. III, Neo Assyrian)

A perspicuous example of the pronominal use of *aḫāmiš* is below:

(16)  *nišē      māt     Aššur māt      Karduniaš itti  aḫāmeš*
      people.of country.of Assyria country-of Babylonia with RECP
      *ibballū*
      mingle.DUR.3.M.PL
      "The people of Assyria and Babylonia mingle with each other."
                                (CT 34 39 ii 37, Neo Assyrian [Standard Babylonian])

In this sentence, *aḫāmiš* is used with a predicate that denotes a reciprocal event,
as the verb *balālum* "to mix" in the N-stem has a symmetric meaning.[8] Among
similar examples are the pair of sentences in (17). The verb *nakāpu* "to butt" in the
T-stem has a reciprocal meaning, in and of itself (17a), but it is also used with a
pronominal reciprocal expression following the associative preposition *itti* (17b):

(17)  a.  *lu ša ana     maḫar marṣ-i   kīma alp-[ī     ta]takkipa*
      or REL toward before sick-GEN like   ox-PL.GEN butt.RECP.DUR.2.PL
      "Or be you who butt each other like oxen before a sick man."
                                (AfO 19, 116: 30 Standard Babylonian)

---

**8.** It likely is ingressive, and therefore a better translation might be "they begin to mingle". I wish
to thank Benjamin Foster for pointing this nuance out to me.

b. *ana epēš    šarrūt-i      itti  aḫāmeš ittakipū          lalā'iš*
   to   do.INF kingship-GEN with RECP    butt.RECP.PST.3.M.PL childlike
   "Like kids they butted each other in order to exercise kingship."
                (Borger Esarh. 42 i 44 Neo Assyrian [Standard Babylonian])

In Akkadian and other languages, symmetric predicates can occur with plural subjects ("they disagree"), as part of a discontinuous construction ("she disagrees with him"), or as a combination of the two ("they disagree with each other"). The latter option is similar to the verbal-strategy for expressing reciprocity in the discontinuous construction (Bar-Asher Siegal 2009, 2016b). Moreover, *aḫāmiš* is co-indexed with the subject, and it can occur as an anaphor with an associative preposition.

Thus, transitive verbs with designated reciprocal detransitivized forms can express reciprocity through the following options:

i. Transitive verb with an NP-strategy construction:
   a. a plural subject followed by a one-unit anaphor (13)–(15)
   b. a singular verb followed by a two-unit construction with two pronouns (as in Chapter 2 (§ 2.3)).

ii. Detransitivized verb:
   a. a plural verb (17a)
   b. a plural verb followed by a reciprocal pronoun after the associative preposition (17b)
   c. The discontinuous construction: One set participating in the reciprocal relation is denoted by the subject, while the other – by an object following the associative preposition

To illustrate: The Akkadian verb *dâkum* "to defeat, to kill" (see Tadmor 1958) can also mean "to fight" (in the G form). In the meaning "to fight", this verb can occur either with an anaphor (18) or in the Gt template, which in Akkadian is often the detransitivized form *tidūkum* (19):

(18) a. *māt-āt-i        ša  aḫāmeš idūkū*
     country-PL-OBL REL RECP    fight.PST.3.M.PL
     "Countries which fought one another."          (Herzfeld API p.20, § 4.3)
  b. *aḫāmeš idūkū*
     RECP    fight.PST.3.M.PL
     "Killed each other."          (ABL 349:13, Neo Babylonian)

(19) *ina qabl-i        tidūkū=ma*
   in   battle-GEN f ight.PST.3.M.PL=and
   "They fought in a battle and…"
            (CT 34 42 ii 5, Neo Assyrian [Standard Babylonian])

The verb *dâkum* "to fight" also conveys a reciprocal meaning in the absence of *aḫāmeš*, when it occurs in the G-form and takes a complement following the preposition *itti* "with":

(20)  *ittī-šu    idūk*
      with-him fight.PST.3.SG
      "He fought with him."  (CT 34 38 I 20, Neo Assyrian [Standard Babylonian])

The above survey demonstrates that *aḫāmiš* functions as an NP-strategy anaphor. Of further relevance to the status of *aḫāmiš* as either an adverb or a pronoun is the observation that, with a detransitivized verbal form denoting reciprocity, *aḫāmiš* can function only as indirect object governed by the associative preposition *itti*. Detransitivized forms are expected to display this characteristic due to the valency reduction (for a cross-linguistic typology see Siloni (2001) and Bar-Asher (2009)). Without a preposition, *aḫāmiš* would be characterized as an adverb.

Furthermore, *aḫāmiš* aligns with unspecified pronouns in environments such as (21), which preclude symmetric reading:

(21)  *aḫāmeš imattaḫu=ma      u-šaṣabaru*
      RECP   lift.up.DUR.3.PL=and swing.DUR.3PL
      "(actors) who lift up each other and swing."           (CT 15 44: 30)

As noted earlier, non-symmetric reading is typical of the NP- rather than adverbial strategy. All the evidence adduced above supports the analysis of *aḫāmiš* as a one-unit anaphor within the NP-strategy for expressing reciprocity, the adverbial ending notwithstanding. Accordingly, this case indicates that the analysis of the NP-strategy as an adverb prevalent in the literature is erroneous.[9]

Last but not least, as a (one-unit) pronominal expression, *aḫāmiš* lacks the case declension of a noun, such that the form for accusative and genitive is the same. A plausible assumption in this regard would be that, on account of the blending of these two cases, *aḫāmiš* had come to be perceived as the form for both. Such syncretism is known from other pronominal forms in Akkadian, and in particular those bearing the pronominal suffixes of the 2 M-F SG and 3 M SG.[10]

---

9. An example of such an error in the Semitic languages is the Jewish Babylonian Aramaic pronoun *həḏāḏe* (Bar-Asher Siegal 2016a: 201–203; § 8.2.2), which some scholars misanalyzed as an adverb (for example, Halevy 2011b: 404 n.12).

10. I wish to thank Kevin Grasso for raising this issue. Compare with the forms documented in the Old Babylonian texts from Susa, *aḫmaḫam/im* or *aḫmāmam/im* (§ 2.4.3.2), which are declined for case.

## 5.3.2 A putative shift: *One-unit anaphor > adverb*

The analysis of *aḫāmiš* as an anaphor is valid for most dialects of Akkadian. However, I suggest that, at some point in the long history of that language, the form *aḫāmiš* underwent reanalysis and came to be perceived and used as the adverbial strategy for expressing reciprocity. Evidence for such a process can be deduced from a 7th century BCE text of an Assurbanipal royal inscription.

In two occurrences below, *aḫāmeš* is not preceded by a preposition, which makes it impossible to establish if it is a pronominal or an adverbial form:

(22)  *aḫāmeš urassabū*
      RECP    cut.down.DUR.3.M.PL
      "They cut each other down."
                              (Streck Asb. 130 B vii 49, Neo Assyrian [Standard Babylonian])

However, as previously observed, when occurring with reciprocal verbs, especially in the T-stem, the pronominal *aḫāmiš* must be preceded by the associative preposition *itti*. The following example, however, lacks a preposition, indicating that *aḫāmiš* functions here as adverb:[11]

(23)  *nindaggara        aḫāmeš*
      agree.DUR1.PL RECP
      "Let us mutually agree."
                              (Streck Asb. 12 i 125, Neo Assyrian [Standard Bablonian])

This analysis is corroborated by the example below. As demonstrated earlier, a reciprocal adverb can co-occur with a reciprocal pronominal expression (see sentences (3)–(4)) – and this is the case in (24), where *ištēn-ištēn* "one-one" is the pronominal construction and therefore *aḫāmeš*, should be analyzed as an adverb:

---

**11.** Another possible example is with the verb *šemû*, whose Gt form, according to CAD, has the reciprocal meaning "to accept each other" and connotes "making an agreement". With this verb, *aḫāmeš* occurs as a free form without a preposition: PN *u* PN₂ *aḫāmeš iltemû* "PN and PN₂ made an agreement with each other" (UET 4 33: 14, NB) and *arkāniš aḫāmeš iltamû* "Afterwards they came into agreement" (TCL 12 14: 9, NB [but dated to the reign of Sîn-šar-iškun, one of the last Neo-Assyrian kings]). It is possible, however, that *iltemû* and *iltamӄ* are perfect forms of the G-stem (see, for example, *altemu* "I have heard" [ABL 901: 5, either NB or NA]), since a similar construction is found also with the G-stem: PN *u* PN₂ *aḫāmeš iš-mu-'-ma* "PN and PN₂ came to an agreement with each other" (VAS 6 331: 7, NB). According to this reading of (23), it is not the T-form that provides the reciprocal meaning, but rather the combination of the reciprocal anaphor and the plural verb. It should be noted that all these examples are from a late period.

(24)   *nišě    mat    aribi    ištēn ana ištēn ištana"alū*[12]    *aḫāmeš*
       people.of land.of Arabia one  to  one  ask.DUR.3.M.PL RECP
       "The people of Arabia mutually keep asking/ask each other."
                              (Streck Asb. 78 ix 68, Neo Assyrian [Standard Babylonian])

It is worth noting that the sequence *ištēn ana ištēn* [lit. "one to one"] in this sentence is unique in Akkadian as a reciprocal pronominal expression.[13] It likely entered the language as a calque of Aramaic, insofar as an equivalent construction in Eastern Aramaic reiterates the word "one" (see (§ 4.3)), and Neo Assyrian was influenced by Aramaic.[14]

    In all probability, in the Neo Assyrian period, the pronominal form *aḫāmiš* was reanalyzed as an adverb. This shift could have been motivated, in part, by morphology: the ending *-eš/-iš*. It may also have occurred because, as shown in (25), in sentences such as (22), *aḫāmiš* can be categorized syntactically both as an anaphor and as an adverb, with no perceptible effect on meaning. The mechanism of this reanalysis is demonstrated below:

(25)   *aḫāmeš          urassabū* ==>     *aḫāmeš          urassabū*
       RECP (pronoun) cut.down.DUR.3.M.PL RECP (adverb) cut.down.DUR.3.M.PL
       "They cut each other down."
                              (Streck Asb. 130 B vii 49, Neo Assyrian [Standard Babylonian])

It is very probable, then, that the Neo-Assyrian sentences in (22)–(24) exemplify a functional shift from one strategy to express reciprocity to another – namely, following a reanalysis of the syntactic function of the form *aḫāmeš* in the clause, from being the main component of an NP-strategy construction it became an adverbial form.[15]

---

**12.**  *var. išta"alū*

**13.**  An additional example appears in a text from El Amarna, another dialect heavily influenced by a Northwest Semitic substrate: *ištēn ana idi ištēn* [lit. one to hand one] "one besides the other" (EA 29:178).

**14.**  It should be noted that a repetition of *ištēn*, which can be translated into English as "one… another", is found already in Old Babylonian: *ištiat uššurimma ištiat kalia* "to release one [of the bondwomen] to hold the other" (TCL 18 101: 14f.) However, unlike NP-strategy constructions, there is no obvious relation between the two instantiations of the pronoun *ištiat*.

**15.**  For a different type of shift from a pronominal to an adverbial reciprocal expression, see Belletti (1982: 127–128). However, Belletti does not provide a definition for what she considers to be the difference between the pronominal and the adverbial strategies. In fact, her examples may be an indication of a shift in the pronominal strategies similar to the case of Icelandic (§ 2.4.3.4) discussed in (§ 3.2–3).

If this recategorization did indeed take place, it must have been attended by a significant semantic shift: from denoting unspecified relations, as is typical for NP-strategy constructions, and as attested in Example (21), *aḫāmeš* came to encode only symmetric relations, since, as already shown, the adverbial strategy is semantically considerably stronger than the NP-strategy. With the corpora available, we can rely only on negative data – the lack of adverbial-strategy cases with a non-symmetric reading. This is insufficient to establish definitively whether the semantic shift described above did indeed take place during the older period of Akkadian. In Modern Hebrew, however, such a transition can be ascertained with regard to the adverbs *be-hadadiyut/ahdade* (4). As noted, these adverbs are derived from the Babylonian Aramaic anaphor *həɖāde*. While *həɖāde* is regularly used in the NP-strategy (§ 6.3) involving non-symmetric scenarios, *be-hadadiyut* and *ahdade* belong to the adverbial strategy and denote only symmetric relations (as shown in (4)).

The trajectory for reanalysis proposed above is schematically represented in Figure 1. Syntactically, the expression that undergoes such a reanalysis could be interpreted either as a component of an NP-strategy construction or as an adverbial-strategy form. In many cases, the semantics of an expression that denotes an unspecified relation is strengthened to express reciprocity proper. The logical relation between unspecified and reciprocal readings, schematized in Figure 1, will be extensively discussed in Chapter 7.

Thus, it is conceivable that, as a consequence of a semantic reanalysis, the stronger reading of this construction came to be perceived as its basic meaning rather than contextual strengthening.
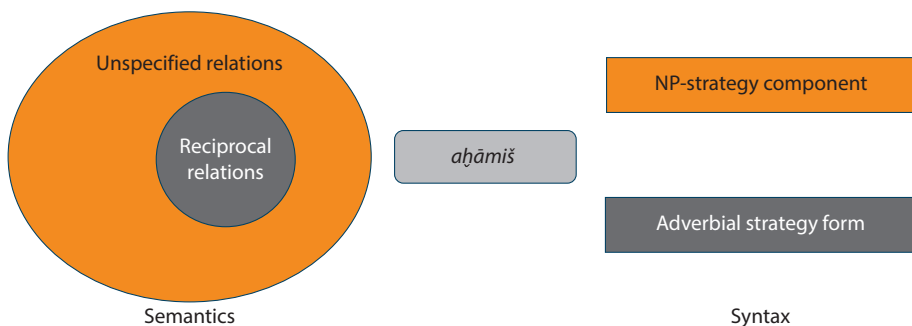


**Figure 1.** Reanalysis of an NP-strategy construction as an adverbial form

## 5.4    Strategies for encoding reciprocity versus collective, sociative and comitative expressions

### 5.4.1    Collective, sociative and comitative expressions

So far, I have investigated whether the Akkadian form *aḫāmiš* pertains to the NP- or adverbial strategy and established that, throughout most of the history of Akkadian, it functioned mostly as the anaphoric component of the former. Of especial interest in this regard are the additional use of this form as a sociative adverb "together" and its adverbial suffix *-iš*. In connection to the pronominal origin of *aḫāmiš*, the following questions need to be addressed: Why does this anaphor incorporate an adverbial ending? What is the provenance of the polysemy of this form, which means both "each other" and "together"? Would it be plausible to assume that one of these meanings developed from the other, and if so, which of the two is the more basic? In order to trace the etymology of *aḫāmiš*, it is necessary to further explore the relation between reciprocal constructions, on the one hand, and collective, sociative and comitative terms, on the other.

The literature terms an expression as "collective", "sociative" or "comitative" if it marks a joint involvement of various participants in one eventuality (action or state). Some studies make a terminological distinction, positing that a comitative, but not sociative, expression can be used with a singular subject (Nejalkov & Nedjalkov 2007b: 1135). Others emphasize that, while a sociative expression implies that all participants are equally involved in an action, a comitative element denotes that the subject's referent takes part in an action initiated by another party (Kuular 2007). None of these distinctions is salient for the current discussion regarding the semantic links between such entities and NP-strategy constructions, and therefore I will use "sociative" as an umbrella term to refer to all the three types.

While sociativity and reciprocity are semantically distinct notions (as highlighted by Wierzbicka (2009)), a cross-linguistic connection has been observed between sociative and reciprocal expressions. Various studies have characterized this phenomenon as multifunctionality, a feature typical of forms used to denote reciprocity, as is mentioned in the introduction to this book (§ 0.3). Thus, the literature demonstrates that similar expressions are often used for both functions (Lichtenberk 1985: 28–29). In Latin, the prefix *com-* has a sociative meaning and is also added to verbs denoting reciprocal actions (see Zaliznjak & Shmelev 2007). In Lao, the post-verbal particle *kan3* fulfills both functions as well (Enfield 2011).[16]

---

16.  Volume Three of Nedjalkov (2007) is dedicated to languages with the reciprocal-sociative polysemy. For a discussion related to the historical relationship between these two categories, see Kemmer (1993) and Heine & Miyashita (2008).

Based on such evidence, Evans et al. (2007) and Evans et al. (2011b), among others, argue that "act jointly" is part of the meaning of "prototypical reciprocal clauses."[17]

### 5.4.2   Shifts in meaning between the conceptual categories of reciprocity and sociativity

Many languages display semantic equivalence between NP-strategy constructions that incorporate sociative markers (case or pre/post position) and those that comprise collective adverbs. Thus, in English, the expressions "with each other" and "together" are often semantically equivalent (see also Nedjalkov & Nedjalkov 2007a: 983–986 and Wierzbicka 2009: 154). As mentioned earlier, the sociative element in sentences like "James ate with Paul" (26a) is an adjunct and as a non-argument of the verb it can be added to any verb, as it is not selected by the main verb. When both participants are denoted by the subject (26b), an anaphor must ensue that is semantically equivalent to the collective adverb "together", as in (26c):[18]

(26)  a.  James ate with Paul.
     b.  James and Paul ate with each other.
     c.  James and Paul ate together.

A sociative expression and an NP-strategy construction are used in Akkadian in similar contexts (27a–b):

(27)  a.  *ul   akkal        mê        ittī-šunu*
       NEG eat.DUR.1.SG water.ACC with-3.M.PL
       "I will not eat food with them."     (ABL 1240 r.5 [Standard Babylonian])
     b.  *šumma surd-û      ū    ārib-u      itti   aḫāmeš mimma*
       COND  falcon-NOM and raven-NOM with RECP    something
       *ikkalū*
       eat.DUR.3.M.PL
       "If a falcon and a raven eat anything with each other."
                    (CT 39 30: 32 [Standard Babylonian])

It is the semantic affinity between associative prepositions and sociative adverbs that might drive a reinforcement process, observed in many languages, whereby sociative adverbs become part of associative prepositions (see Lehmann (1995: 22), e.g., "together with" in English or its Modern Hebrew counterpart *yaxad im* (lit.

---

**17.**  See also Frajzyngier (1999). Recently, Winter (2017) has argued that the notion of comitative is important for the semantics of symmetric predicates.

**18.**  Cf. Lakoff & Peters (1966) concerning the syntactic and semantic relationship between (26a) and (26c).

"together with"). In Jewish Babylonian Aramaic, collective actions are regularly expressed through a sociative element in conjunction with an unspecified anaphor, e.g., *bəhade*[19] *hədāde* "with each other" as an equivalent for the English "together".

The use of pronominal expressions in the same context and with the same meaning as sociative forms can motivate reanalysis along the following lines:

NP-strategy construction ("each other") => Sociative adverbial ("together")

In this connection, a Biblical Hebrew phenomenon warrants mention, as it may represent the shift described above:

(28) Biblical Hebrew:

*wa-yĕhī*          *kĕ-šomʿ-ām*                    *ʾet   kol had-dĕbār-īm*
and-be.IPF.3.M.SG as-hear.INF-POSS.3.M.PL ACC all DEF-thing-M.PL
*pāḥădû*      *ʾīš   ʾel rēʿ-ēhû*
fear.PRF.3.M.PL man to fellow-POSS.3.M.SG
"Now it came to pass, when they had heard all the words they were in fear…"

(Jer. 36:16)

The expressions *ʾīš* – *rēʿ-ēhû/ʾāḥ-īw* "man-his fellow/brother" serve as components of the standard NP-strategy construction in Biblical Hebrew (§ 4.3.2) – a circumstance which poses a challenge in translating the ending of this verse: *pāḥădû ʾīš ʾel rēʿ-ēhû*. The verb *paḥad* "to fear" does not take a goal as its object, and therefore the preposition *ʾel* "to" appears out of place. The translation of this passage is usually premised on the assumption that a verb denoting "to see" is elided: "when they had heard all the words, they looked in fear from one to another". However, an alternative rendering, "they were frightened together", would be more faithful to the original. A similar approach would be feasible in the following verse, which is standardly translated as below:

(29) Biblical Hebrew:

*wĕ-nipaṣtī-m*                    *ʾīš   ʾel ʾāḥ-īw*
and-smash.PRF.1.SG-ACC.3.M.PL man to brother-POSS.3.M.SG
*wĕ-hā-ʾāb-ôt*            *wĕ-hab-bān-īm      yaḥdāw*
and-DEF-father-M.PL and-DEF-son-M.PL together
"I will smash them one against the other, parents and children together."

(Jer. 13:14)

Yet, in each clause, the sequence *ʾīš ʾel ʾāḥ-īw* can be rendered by the word "together": "I will smash them (together), parents and children together". The same

---

**19.** *bəhade* is a preposition that developed in JBA alongside the historical *ʿim*. It is etymologically related to the cardinal number *ḥad*, which in JBA is also the source of the reciprocal pronoun *hədāde*.

pattern is observed in several other verses of the Hebrew Bible.[20] In all these contexts, an NP-strategy construction is used to express sociativity. To the extent that, in certain contexts, the NP-strategy and the sociative construction are equivalent in meaning (as was observed in (26)), the former could have been reanalyzed as an alternative means to convey the latter's semantic function. This hypothesis presupposes that the preposition *el* does not necessarily denote directionality – and indeed, on several occasions, it is used associatively (see Lev. 18:18).[21]

The above-described phenomenon is distinct from the semantic strengthening established in the previous section. The shift in meaning that takes place in sentences like (29) is attributable to the compositional meaning of the NP-strategy in certain environments (e.g., "with each other"), which is equivalent to the sociative expression ("together"). In such cases, as a result of a syntactic reanalysis, the NP-strategy construction was interpreted as sociative.



**Figure 2.**  The denotations of the unspecified versus sociative relation

Sociative expressions are also used in unambiguously reciprocal contexts. In Biblical Hebrew, the adverb *yaḥdāw* "together" appears several times in reciprocal scenarios in conjunction with the verbal strategy for expressing reciprocity:

(30)   Biblical Hebrew:
        *kī yinnāṣû          ʾănāšīm yaḥdāw ʾīš   wĕ-ʾāḥ-īw*
        as fight.RECP.IPF.3.M.PL men     together man and-brother-POSS.3.M.SG
        "If (two) men are fighting…"                              (Deut. 25:11)[22]

Although *yaḥdāw* "together" does not contribute to the reciprocal meaning, it is still present in the sentence. Halevy (2011b: 406) argues that this adverb is inserted because the reciprocal meaning is not lexicalized. However, she does not elaborate whether or how a sociative adverb could yield a reciprocal meaning

---

**20.**  See also Gen. 43:33; Jer. 36:16; Ez. 24:23; Is. 13:8. While in each of these verses, the use of the preposition can be explained independently, the recurrence of this phenomenon in Biblical Hebrew bolsters the current analysis.

**21.**  See Lee (2016) for an exhaustive study of this preposition in Biblical Hebrew.

**22.**  See, *inter alia*, 2 Sam. 2:16; Isa. 45:20, 21; Amos 3:3; Ps. 71:10.

when cooccurring with a verb devoid of it. A more plausible explanation would be that this Biblical Hebrew sociative adverb serves to disambiguate between the distributive and the collective readings of the reciprocal verbal form (discussed at length in Bar-Asher Siegal (2016b)). Consider the following sentence:

(31)   Biblical Hebrew:
       *nōʿăṣū*            *yaḥdāw*
       consult.PST.3.M.PL together
       "They [those who watch for my life] consult with each other."

                                          (Ps. 71:10 and see also Isa. 45:21)

Without *yaḥdāw,* it would be unclear whether the set denoted by the subject ("those who watch for my life") are consulting among themselves or with others. The adverb *yaḥdāw* indicates that the intended reading is the former. An anaphor followed by an associative preposition likewise serves to disambiguate these two readings, as is demonstrated in a parallel sentence in Akkadian:

(32)   Akkadian, Standard Babylonian:
       *mušend-û*      *ša ᵈBelt-i ša Uruk itti   aḥāmeš imtalkū=ma*
       fowler-PL.NOM of Lady  of Uruk with RECP    consult.RECP.PST.3.M.PL=and
       "The fowlers of the Lady of Uruk consulted with each other."  (CT 39 30: 32])

The above examples clearly show that, notwithstanding their different semantics, the concepts of reciprocity and associativity are functionally and contextually akin. In light of the connections observed between NP-strategy constructions for expressing reciprocity and sociative forms, it is hardly surprising that, in Akkadian, *aḥāmiš* appears now as an anaphor, translated as "each other", now as a sociative adverb denoting "together". A reexamination of the historical connection between these two functions in Akkadian may shed light on a similar phenomenon in the history of Aramaic.


## 5.5   The origin of the Akkadian one-unit anaphor *aḥāmiš*

The discussion in Section § 5.2.1–2 traced the historical development of the Akkadian form *aḥāmiš* from a one-unit anaphor to an adverb encoding reciprocity. In Section § 2.3–4 I explored the historical connections between one-unit NP-strategy constructions to express reciprocity and their two-unit precursors, and proposed two models in this regard. The ensuing investigation of the origin of the form *aḥāmiš* as an anaphor seeks to establish whether Akkadian fits one of these models or follows a developmental path of its own.

The form *aḫāmiš* appears as three dialectal variants: *aḫāmiš/aḫāiš/ʾaḫājiš*.[23] By and large, the variant with the /m/ pertains to the Babylonian dialects, starting from the Middle Babylonian period, while the other forms are Assyrian. In all probability, the three forms are etymologically related to the morpheme *aḫ* ("brother"), which is a component of the Akkadian two-unit construction (see § 2.3), but the origin of their endings is obscure. The analysis of these forms presents the following two problems:

i.   The origin of the /m/ and the /j/ in a given dialect
ii.  The nature of the suffix *-iš*, which is typical of adverbs but not of pronouns

Gelb (1957: 104b) suggests that *aḫāmiš* originates from *aḫāw+iš*, where the first component is the plural form of *aḫum* "brother", and accounts for the addition of the /w/ based on analogy with Old Assyrian *aḫuwātum* "sisters," Syriac *ʾaḫwātā* "sisters," Geʿez *aḫaw* "brothers" and Arabic *ʾixwān* "brothers".[24] However, as noted by John Huehnergard (p.c.), Gelb's hypothesis is questionable as the suffix *-iš* does not otherwise occur with plural forms.

One could, nonetheless, argue that, historically, the /w/ in this word did not serve as a plural marker, but rather as a way to expand the root.[25] This phenomenon is known among the Semitic languages, insofar as only two consonants appear in all phonological realization of a lexical root. A similar expansion is observed in the Hebrew and Arabic abstract nouns designating "friendship", *ʾaḫwâ*[26] and *ʾuxuwwa(t)* respectively. Be it as it may, the *w > m* sound shift in †*aḫāwiš > aḫāmiš* is common in later Akkadian dialects. Thus, it is plausible that the one-unit pronoun originated from a fusion of an expanded form of *aḫ* and the ending *-iš*, but the nature of this ending is still enigmatic. If the form *aḫāmiš* etymologically derives from the word designating "friendship", it should be analyzed as an adverb meaning "brother-like." As previously noted, *aḫāmiš* and its dialectal variants also carry the adverbial meaning of "together", suggesting an etymology along the following lines:

> (adverb=) brothers-like > together > mutually > each other (=anaphor)

---

**23.**  I wish to thank John Huehnergard for discussing this paragraph with me and for providing most of the bibliography associated with it.

**24.**  For a recent account of /*w*/ as an external plural marker and a summary of the literature on this topic, see Hasselbach (2007: 125–126).

**25.**  Voigt (2001: 210–212) argues that the /*w*/ is part of the proto-Semitic root. That may be so, but for the purposes of the current discussion it is of no consequence whether this consonant was part of the proto-Semitic root or whether it served to expand a bi-radical noun.

**26.**  This word appears in the Bible only once, in Zechariah (11:14), and is more common in Mishnaic Hebrew. A relationship between *aḫwâ* "friendship" and *aḫ* "brother" is corroborated by an early rabbinic interpretation (see *Sifra, Behar* 5: (2).

Crucially, if indeed the Akkadian anaphor originated from an adverbial, then two different processes can be posited for the evolution of one-unit anaphors across the Semitic languages: either through a reanalysis of the grammatical relations in another type of NP-strategy construction (i.e., a two-unit construction, as elaborated and illustrated throughout Chapter 2) or through the syntactic reanalysis of a sociative adverb as a pronoun.

This framework is *conceptually* feasible in light of the cross-linguistic connection between sociative and reciprocal expressions, as demonstrated above. At the same time, it rests on precarious ground, in assuming that an adverb diachronically grammaticalized as a pronoun. Such a process is unknown in the literature on the NP-strategy (see Nedjalkov 2007b: 154–163), and what is more important, it lacks an obvious semantic motivation. The analysis of the reciprocal-sociative polysemy in the previous sections revealed that this phenomenon usually occurs when reciprocity is encoded by a verb. Therefore, I propose an alternative model.

Several languages, such as the Chadic language Mupun (Frajzyngier 1999: 190–191), contain an adverb that encompasses both "reciprocally" and "together". At the same time, as noted earlier, the NP-strategy anaphor readily lends itself to a reanalysis as a sociative adverb, since in several contexts the larger unit carries sociative meaning. An adverb-to-anaphor shift, on the other hand, involves a broadening of meaning, and a motivation for such a transition is not obvious. Moreover, as discussed earlier, the equivalence between the sociative and the reciprocal meaning is attained only in contexts where "together" and "with each other" are interchangeable. Hence, a reanalysis of an adverb ("reciprocally") as a pronoun in default of the sociative preposition "with" would require a separate account. That said, as shown in the scheme in Figure 2, shifts between these two meanings rely on the interface between the two denotations of the form *aḫāmiš*, or its equivalent in a given language. One must therefore concede that changes in both directions should be conceivable.[27]

However, in light of the above data, and due to the phonological similarity of the Akkadian form *aḫāmiš* to the older two-unit construction reiterating *aḫ* "brother", I would like to propose that etymologically this form derives through an already established process whereby a one-unit anaphor develops from a two-unit pronominal structure. Accordingly, in what follows I elaborate how this change can be related to other diachronic processes associated with NP-strategy constructions for encoding reciprocity that were documented in Chapters 1–3.

---

27.  In a different phenomenon, a one-unit pronoun lexicalizes in conjunction with a preposition and becomes an adverb. In the Jewish Neo-Aramaic dialect of Koy Sanjaq (Iraqi Kurdistan), for example, the pronoun *dáxle* conjoined with the preposition *b* "in" yields the forms *bdáxle*, meaning "together" (Mutzafi 2004: 64). For a similar pattern in German dialects, see Plank (2008).

When considering the various spellings of the Assyrian variants, *aḫājiš* and *aḫēiš*,[28] one might suggest that the original glide before the ending *iš* was /y/[29] and not /w/ as in the Assyrian dialects.[30] It is also feasible that this pronoun was constituted of three components: *aḫ+ay+iš*. The middle component *-ay* was the oblique ending of the dual (as commonly reconstructed for Proto-Semitic).

This suggestion rests on two major premises:

i. According to Nedjalkov (2007b: 176–177), dual forms often occur in natural languages with reciprocal constructions. This stands to reason, since a reciprocal relation usually obtains between two participants.[31] Among the Semitic languages, Arabic frequently encodes reciprocal meaning through the dual form of the VI template.[32] Akkadian likewise occasionally encodes reciprocity through the dual form. Thus, in Old Akkadian, one can find examples of dual agreement on the verb *maḫāṣum* "to fight" when it describes a reciprocal event.[33] Old Babylonian, in which nominal dual morphemes were still to some extent productive, provides examples of reciprocity encoded through these endings as well:

(33) *šarr-ān*      *ittakkirā*
   king-DU.NOM become.hostile.RECP.DUR.3.M.PL
   "Two kings will become mutual enemies."  (YOS 10 26 iii 20, Old Babylonian)

ii. The dual Semitic suffix *-ay* is used to mark the oblique case. As mentioned in (§ 2.3), one-unit anaphors are not expected to take nominative, as they do not occupy the subject position.

---

28. For the periodic/dialectical distribution, see CAD, A1 p. 164a.

29. This assumes that the vowel /e/ is a contracted diphthong /*ay*/.

30. Hypothetically, it is possible that all forms are cognate realizations of the same original form. On this rationale, the forms with /y/ originate from those with /w/, insofar as intervocalic /w/ in Middle Assyrian was usually graphically represented as <b>, and in rare cases the spelling is similar to the way /y/ is represented, as the cuneiforms signs are similar. This is, for example, the case in spelling *a-i-lu* for *awīlu(m)* "man", and the sign for -i- is similar to the one used for /y/. Thus, theoretically, in Assyrian *a-ḫa-(i-)iš* could represent \**aḫāwiš*. [In fact, Hecker (1968 § 26a, e; 62a) adduces evidence for this phenomenon even in Old Assyrian.] However, the fact that in Middle Assyrian the norm is *aḫēiš* while forms such as *aḫabiš* are never found suggests an alternative etymology whereby the /y/ is the original phoneme, as proposed here.

31. As noted in (§ 1.3.1), a historically plausible assumption would be that many of the two-unit constructions grammaticalized from sentences with only two participants.

32. Of relevance to this assumption is Sapir's observation that "the idea of reciprocity leads naturally to that of duality of terms involving mutual relationship" (Sapir 1931: 110).

33. Hirsch (1963: 39–40).

The hypothesis that this form derived in the regular process whereby a one-unit anaphor develops from a two-unit pronominal structure is fraught with several problems, the most difficult of which is to account for the ending *-iš*. First, as already mentioned, *-iš* is irregular after a dual ending; second, what would be the nature of this morpheme in a context that does not call for an adverbial ending?

I suggest a tentative – and at this point, speculative – solution for these dilemmas that also accounts for the co-existence of the forms with a /w/ and with a /j/. The assumption is that the two functions of these forms developed via different etymological trajectories. Specifically, the anaphor ("each-other") evolved from the form †*aḫayiš*, which contains a dual morpheme, while the adverb "together" originated from the form(s) †*aḫāwiš* (> *aḫāmiš*). On this approach, *aḫāmiš* derives from *aḫāwiš*, denoting "friendship", a form that conceivably gave rise to the adverbial meaning of "together". As demonstrated above, similar abstract nouns with the consonant /w/ are found in other Semitic languages.

In the course of Akkadian history, the two forms, the anaphor *aḫāyis* and the adverb *aḫāmiš*, likely merged into one. Additionally, even in the absence of positive evidence, one could speculate that initially the pronominal forms did not contain the "adverbial" ending *-iš*, as in the forms *aḫmaḫam/im* from Susa (discussed in § 3.3.1).

My suggestion regarding the etymology for each of the uses of these forms is formulated below. The putative merge was common to all dialects, but each dialect eventually "picked" only one form:

| | | |
|---|---|---|
| †*aḫay* | †*aḫ+ay* | Unspecified pronoun: "each other" |
| †*aḫawiš* (> *aḫāmiš*) | †*aḫaw+iš* | Adverb: "together" |

This syncretism is in all probability a result of the phonological resemblance of the forms *aḫay* and *aḫawiš* as well as their semantic equivalence in certain contexts, demonstrated earlier and further illustrated in (34). In this sentence the sociative preposition *itti* should be optional, considering that sociative expressions and reciprocal pronouns appear in similar contexts:

(34)  *mār-ē*        *ša* PN *u*   PN$_2$ *itti*  *aḫāmeš ušabšu*
       child-PL.GEN of PN and PN$_2$ with RECP   make.be.DUR.3.M.PL
       "The children whom PN and PN$_2$ will have together."
                                                   (VAS 6 61: 17 [Neo Babylonian])

In an earlier, yet undocumented, period the meaning of sentence (34) could have been expressed in one of the following two ways:

–   *mār-ē ša* PN *u* PN$_2$ *itti* **aḫay** *ušabšu*
–   *mār-ē ša* PN *u* PN$_2$ **aḫāmeš** *ušabšu*

Assuming that the variants *aḫāmiš/aḫāiš/aḫājiš* all originated from a dual ending, they also may have evolved via the process described in (§ 2.4.3), wherein the one-unit anaphor constitutes Stage III, represented below:

| {NP$_1$, NP$_2$…NP$_n$.NOM} | VERB.PL | RECP.ACC.DU |
|---|---|---|
| Subject | | Object |

As demonstrated in Chapter 2, the syntactic transition from a two- to a one-unit construction may be manifested through several phonological changes. In Standard Arabic, for example, following a repetition of a pronoun, one may be elided (*baʿḍuhum baʿḍin > baʿḍuhum ba̶ʿ̶ḍ̶i̶n̶*). A similar change may have taken place in Akkadian after the syntactic reanalysis:

i.   Elision of one element (as in Standard Arabic):
    PN$_1$ *u*    PN$_2$ *a̶ḫ̶u̶m̶-̶a̶ḫ̶ā̶m̶ idūkū*
    PN$_1$ and PN$_2$ RECP-ACC    fight.PST.3.M.PL
    "PN$_1$ and PN$_2$ Killed each other"

In a subsequent development, already encountered in the case of Mehri (§ 2.4.3), an agreement marker may have been inserted – which, given the predominance in such scenarios of subjects denoting sets with two members, could very well have been the dual ending:

ii.  Insertion of an agreement marker:
    PN$_1$ *u*    PN$_2$ †*aḫ-ay*           *idūkū*
    PN$_1$ and PN$_2$   brother-DU.OBL fight.PST.3.M.PL
    "PN$_1$ and PN$_2$ Killed each other"

The table below summarizes the stages in the development of the Akkadian one-unit anaphor set forth here based on the typological comparison with other Semitic languages.

The above proposal, however speculative, demonstrates how the comparative typological analysis elaborated in Chapters 1–2 can be put to use in reconstructing early, undocumented, stages in the history of a language.

A short clarification is in order at this point. Earlier in this section I argued against the likelihood of a shift from an associative adverb to an NP-strategy construction, specifically "together" (=adverb) > "each other" (=anaphor). At issue, however, was **a semantic shift** in which a form develops a new meaning. Crucially, the stages in the development of the Akkadian one-unit anaphor posited

| | Diachronic development | Cross-linguistic corroboration |
|---|---|---|
| i. | Two (declined) pronouns [attested]: *aḫum aḫam* | Earlier dialects of Akkadian |
| ii. | Syntactic reanalysis of two units as one [attested in the Akkadian dialect from Susa]: *aḫum-aḫam* | The various languages in which the two-unit pronominal constructions evolved from the one-unit counterpart (Late Eastern Aramaic and Mehri (§ 2.4.3)) |
| iii. | Elision of one element: *aḫum-aḫam* | Standard Arabic (§ 2.4.3.2) |
| iv. | Insertion of an agreement marker: *aḫay* | Mehri, Late Eastern Aramaic (§ 2.4.3.3) |
| v. | Attraction to the collective adverb *aḫay > aḫāyiš (aḫājiš)* | Two NENA dialects: Koy Sanjak and Sulemaniyya (see below) |

here constitute an altogether different case, namely, **a phonological shift** ([†]*aḫay >aḫāmiš*) that took place in various dialects without an attendant change in meaning. The assumption is that this phonological shift is not a regular sound shift, but is motivated by similarities between the forms, which, moreover, denote similar relations in certain environments.



Stage 1

Stage 2
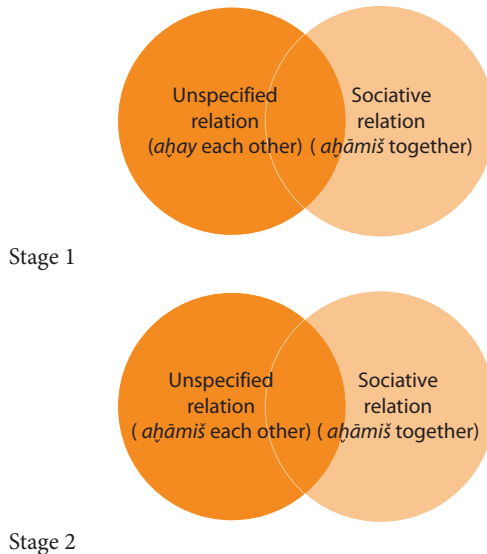
**Figure 3.** The merging of *aḫāy* and *aḫāmiš*: A semantic perspective

It must be conceded that the differences between the two scenarios describing the opposite direction of development (anaphor => sociative adverb/anaphor <= sociative adverb) may not seem significant enough to consider one more likely

than the other. A similar transition, however, can be traced in two North Eastern Neo Aramaic dialects as well. In the Jewish Neo-Aramaic dialect of Koy Sanjaq (described by Mutzafi 2004), the anaphoric form of the one-unit construction *dáxle*, in the contexts when it is equivalent in meaning with the adverb "together", comes in two variants, *bdáxle* or *báxle*. Similarly, in the Jewish Neo-Aramaic dialect of Sulemaniyya (described by Khan 2004), the regular anaphor is *líxle*, but the adverbial use allows two variants, *blíxle* and, more frequently, *bíxle*. According to Khan (2004: 259), the variants stem from the process whereby /l/ at the beginning of *líxle* was reanalyzed as a preposition, and eventually elided.

Khan's account raises two questions. First, it is unclear why, of all the prepositions licensed with *líxle*, the elision occurs only with the putative preposition /l/. Second, while reanalysis and subsequent elision may account for the Sulemaniyya form, it cannot explain the Koy Sanjaq form, since *d-* is not a preposition. Moreover, a reciprocal expression usually attains sociative meaning in conjunction with a sociative preposition. In Sulemaniyya, such a preposition is *min-* (Khan 2004: 346–347) and in Koy Sanjaq, it is *gal-* (Mutzafi 2004: 175).[34]

A promising approach to account for these Neo-Aramaic forms would rely on the above hypothesis regarding the etymology of the Akkadian anaphor and on the broader connection between strategies to express reciprocity and collective, sociative and comitative expressions. I will argue against Khan's account, to the effect that neither *báxle* nor *bíxle* originated from the Eastern Aramaic anaphor *ḥĕdādē*. Instead, I will contend, they derive from the adverb [†]*bəḥadi(t)* "in one", meaning "together", via the *ḥ* > *x*; *ḏ* > *l* sound shifts documented in these dialects:

[†]*bəḥadî*[35] > *báxle*

This transition is plausible phonologically and, as noted earlier, also semantically, insofar as adverbs denoting "togetherness" have been shown to derive from the cardinal number "one" – as, for example, the Akkadian adverb *ištēniš* (*ištēn+iš* "one+ adverbial ending"). Support for this hypothesis comes from an older Eastern

---

**34.** However, the use of the preposition *b-* might be due to a Kurdish influence. If so, it is possible that these expressions evolved as a Kurdish claque. For example, in the Kurdish Kurmanji dialect, the comitative adverb is expressed as *bi hev re* "together", where the component *hev* functions as a reciprocal element (see Thackston 2006: 216). This morpheme, however, requires further semantic and syntactic study. The explanation in terms of Kurdish influence cannot account for the distinctive forms in the Neo-Aramaic dialects which appear only as part of sociative expressions. I wish to thank Geoffrey Khan for raising this issue.

**35.** In earlier stages of Aramaic, the ultimate syllable must have been stressed, since, as mentioned earlier, in other adverbs (such as *akatti* "still" in JBA), the ultima was not apocopated. Similarly, while in JBA /t/ in final position apocopates, this does not occur in adverbial forms.

Aramaic dialect of Jewish Babylonian Aramaic, in which the sociative preposition †*bəḥadi > bəhadi* originated as an adverb (see Bar-Asher Siegal 2016a: 70–71).

It follows, then, that *báxle* and *bíxle* are the original adverbs, while *bdə́xle* and *blíxle* secondary, resulting from an attraction to the unspecified/reciprocal pronouns in the respective dialects. This hypothesis finds support in Mandaic, where a similar development took place. As Macuch (1965: 415–416) notes, in the Neo-Mandaic dialect, the form *behdādi* operates as the sociative adverb "together", although neither the reciprocal expression *hdādi* nor the preposition *b-* is any longer in active use. Similarly, in classical Mandaic, the form *b-hdadya* "together" was derived from the merging of the preposition *b-* "with" and the anaphor *hdadya* "each other."[36] Such forms must have originated as a result of attraction, akin to that suggested here for the Neo-Eastern Aramaic dialects and for Akkadian.[37]

Hence, I reiterate that, since in certain environments NP-Strategy constructions for expressing reciprocity and sociative adverbs describe similar states-of-affairs, and since the forms *b-dáxle* and *báxle* happen to be phonologically very close, the latter was in all likelihood attracted to the former. The speculative nature of this hypothesis is offset by the following considerations:

–  In dialects under discussion, the bi-forms appear only in conjunction with the elements that function as sociative adverbs. Had the emergence of the new NP-strategy form stemmed from a phonological process, the same phonological changes should have occurred across the board, and we would expect bi-forms with all prepositions. Thus, the diachronic shift from one form to the other that gave rise to the coexistence in one language of two alternative forms could have been motivated by their phonological affinity and by their common semantic function in certain contexts.
–  A parallel development is observed in another language (Akkadian).

## 5.6    Summary and discussion of formal analyses of changes in meaning

This chapter has focused on developments observed with respect to one-unit anaphors within the various Semitic languages that are fundamental to all linguistic strategies for expressing reciprocity. More specifically, it has examined cases in which the denotations of these constructions intersect with those of other expressions and possible semantic reanalyses resulting therefrom.

---

**36.**  I wish to thank Ohad Abudraham for sharing this information with me.

**37.**  As noted in n. 34, this was probably an areal phenomenon, as it is also attested in Kurdish dialects.

Nedjalkov (2007b: 162–163) observes that a boundary between adverbs and pronouns is often not clear-cut, and neither is the lexical category of a reciprocal expression, as the analysis in this chapter has demonstrated. Still, the NP- and adverbial strategies for expressing reciprocity can be distinguished based on certain syntactic features. At the same time, the semantics of these two strategies diverge widely, as has been shown based on counterpart constructions in contemporary languages. Yet, despite these differences, it has been established that a diachronic shift from one strategy to another is historically feasible, due to the syntactic similarity of the two strategies in certain contexts, as well as the overlap in their meanings. To the extent that such a diachronic transition did indeed take place, the question remains if it was accompanied by a semantic shift. So far, the data available in ancient languages have been insufficient to either confirm or reject this hypothesis, but some evidence for this shift has been found in a spoken language (Hebrew).

Another multifunctionality issue examined in this chapter has to do with connections between strategies for expressing reciprocity and collective, sociative and comitative expressions. Clearly, in certain environments, such as the one illustrated in Figures 2–3, these two categories can describe a similar state-of-affairs. The issue examined in this regard is whether this semantic affinity could have motivated a diachronic transition from one domain to the other. It was demonstrated that, in Biblical Hebrew, NP-strategy constructions expressing reciprocity shifted to encode sociative situations, while in Akkadian and NENA dialects, these two semantic categories merged in form. This discussion has demonstrated the relevance of a typological-historical investigation of NP-strategy constructions for a comparative linguistic study, in terms of reconstructing an unattested form. The next chapter examines other avenues in which the results of the previous chapters can be applied to comparative studies. Chapter 5 has focused on Akkadian data, while Chapter 6 will analyze examples from Aramaic.

Finally, as was mentioned in the introduction to this book, the literature tends to consider the multifunctionality of strategies to express reciprocity as a trigger for grammaticalization processes through which reciprocal constructions are assumed to evolve. Approaches that follow this rationale have often presupposed that the various functions that triggered such grammaticalization processes have a shared core meaning (inter alia Lichtenberk 1985, 1999; Kemmer 1993; Maslova 1999, 2007, 2008). The investigation here has likewise established a number of links between multifunctionality and diachronic changes, but the mechanism proposed as motivating semantic change differs from the common approach. In both the literature and the current investigation, the semantic shift is assumed to have resulted from reanalysis. As explained in detail below, I isolated instances in which the denotations of two different expressions intersect and explored the possibility

of a syntactic reanalysis as a result. Thus, this discussion should contribute to our understanding of the process leading to semantic shifts (see, § 0.7). I would like to elaborate on this issue in the rest of this summary.

$$
\begin{array}{lll}
& & \text{F} \\
\text{Scenarios of reanalysis:} & & \\
\text{Scenario 1:} & \{G_1, M_1\}t_1 & \{G_2, M_2\}t_2 \\
\text{Scenario 2:} & \{G_1, M_1\}t_1 & \{G_1, M_2\}t_2 \\
\text{Scenario 3:} & \{G_1, M_1\}t_1 & \{G_2, M_1\}t_2 \\
\end{array}
$$
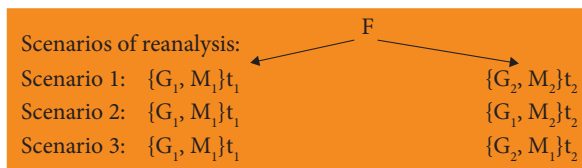
**Figure 4.** Modeling Reanalysis

Chapter 2 focused on shifts from two- to one-unit constructions, and the claim was that most cases belong to Scenario 3 in Figure 4, where changes are only at the syntactic level. This chapter concentrated on cases of Scenario 1. As observed in § 0.7 (Figure 4), formal accounts of semantic reanalysis in the literature have for the most part centered either on synchronic interpretations ($M_1$ and $M_2$) for the linguistic expressions discussed (F) or on the logical relations between these interpretations. In this chapter, I provide a new perspective and illustrate how shifts from $M_1$ to $M_2$ can be explained using a formal semantic approach.

A common assumption in the literature is that changes take place in the realm of *parole*: in actual speech. Consequently, it is often claimed that semantic shifts must be motivated by novel meanings attached to linguistic expressions in personal interactions. It stands to reason, then, that formal semantic analyses cannot represent such meanings, since they capture the truth conditions of expressions which, by definition, precede and are independent of any specific contexts. In order to target such contextual meanings, studies have tended to adopt usage-based, functionalist frameworks (Deo 2015).

If meaning is indeed compositional – and currently comprehensive compositional theories of meaning are based on truth-conditional approaches – it seems expedient to search for mechanisms through which a truth-conditional semantic framework could account for some (if not all) changes in meaning. A promising direction for applying a truth-conditional approach while bypassing the problem that truth conditions are independent of contexts would be to put the spotlight, not on the literal truth-conditional meaning of individual expressions, but on the range of possible states-of-affairs described by larger linguistic expressions – notably, sentences.

While sentences have truth conditions which, in model-theoretical approaches to semantics, are constructed compositionally, the "truth-makers" of declarative sentences are the states-of-affairs that obtain in the world. Thus, the sentence "Mary sees John" is true of a domain in which there are two people, Mary and John, and the former sees the latter. Let us assume that, in the scenario described, Mary

sees John as she is standing next to him at the party. This set-up can be truthfully described by a number of sentences, including "John is standing next to Mary", "Mary is standing next to John", "Mary and John are at the party", etc. We can thus say that the truth-makers of these sentences are the same. Accordingly, when we take the set of all the truth-makers of "X sees Y" and the set of all the truth-makers of "X is standing next to Y", we can identify the intersection of these two sets.

Furthermore, we may identify different kinds of intersections between sets of truth-makers:

> Given two linguistic expressions $C_1$ and $C_2$ with truth-conditions (=type <s, t>), which are similar at the surface level except for the expressions $F_1$ and $F_2$; $S_1$ and $S_2$ are the respective truth values of $C_2$ and $C_2$ for a given state-of-affairs:
>
> i. $S_1$ and $S_2$ may be different, but there are states-of-affairs which are the truth-makers of both $C_1$ and $C_2$. In such cases, $S_1$ and $S_2$ are the same.
> ii. $S_1$ and $S_2$ are always the same, such that the state-of-affairs which are the truth-makers of both $C_1$ and $C_2$ must be the same.

The above examples of sentences that are true descriptions of the scenario in which Mary and John are in close proximity to each other at the party fit the first type of intersection between the sets of states-of-affairs, as the truth conditions of "John is standing next to Mary", "Mary is standing next to John", and "Mary and John are at the party" are not the same.

More significant for our discussion are cases of the second type as they can motivate diachronic changes in meaning. This type can be demonstrated by the relationship, discussed throughout this chapter, between the NP-strategy anaphor "each other" and the sociative adverb "together". While their meanings are different, as is evident from the pair of sentences in (35), the minimally different sentences in (36) always have the same truth conditions when the anaphor "each-other" follows the sociative preposition "with":

(35)  a.   John and Mary taught together.
      b.   John and Mary taught each other.

(36)  a.   John and Mary ate together.
      b.   John and Mary ate with each other.

While "together" indicates that all members of the set denoted by the subject are engaged in the same activity as part of the same eventuality (37), the NP-strategy construction, as shown in (0.6) as well as in Chapters 7 and 8, denotes that all members of the set participate in a certain relation with another member of the set (38):

(37)   $[[\text{together A}]] = |A| \geq 2\ \lambda P \lambda e\ \forall x \in A\ (Px \wedge Pe)$

(38)   $[[\text{each other A}]] = |A| \geq 2\ \lambda P\ \forall x \in A\ \exists y \in A\ (x \neq y \wedge (Pxy \vee Pyx))$

When such a set has only two members and the relation is "sociative", as indicated by the preposition "with" (which also entails all participants are acting in the same event), "each other" and "together" have identical denotations, so (36) can be generalized as (39):

(39)   X and Y R together ↔ X and Y R with each other

Note that this is not the case, that all participants have to act in the same events, in sets of more than two members (40):

(40)   John, Mary and Ruth ate with each other ↛
       John, Mary and Ruth ate together

The former sentence can describe different events (John ate with Mary, Mary ate with Ruth, John ate with Ruth) while the latter cannot.

Returning to historical shifts, it is possible that, since the truth values of both sentences in (36) are always the same, (a) and (b) were compositionally analyzed along the same lines, and the prepositional phrase "with each other" was interpreted, in a speech event, as "together". As noted earlier, this occurred, e.g., in Jewish Babylonian Aramaic: *bəhade hədāde*, which literally means "with each other" came to be used in place of "together". The change in Biblical Hebrew described in § 5.4.2, whereby a construction denoting "with each other" was reinterpreted as the sociative form "together", may also have followed the same dynamic.
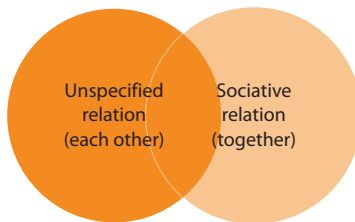


**Figure 2.**  The denotations of the unspecified versus sociative relation

All three cases of historical changes in semantic meaning illustrated by in Figures 1–3 were explained in this chapter in line with the mechanism proffered above. The truth-makers of the expression investigated in each of these three cases are systematically shared with another linguistic form: either the set of truth makers of the input is a superset of those of the output (Figure 1), or the truth makers of both systematically overlap (Figures 2–3).[38] Thus, the discussions in this chapter have broader ramifications for formal diachronic semantics (see § 0.7).

---

**38.**  These two possibilities are in line with Beck and Gergel's (2015) suggestion that a facilitating circumstance for language change in semantics may be what they term the constant entailments principle (i):

## 5.7 Appendix: An observation found in an ancient text on the grammatical relationship between the reciprocal and the sociative domains

Of salience to the investigation of the relationship between reciprocity and sociativity at the center of this chapter is a passage found in a Babylonian medical commentary from Uruk, dating to the 4th century BCE. The object of analyzing this passage here is to demonstrate the bearing of this chapter's comparative linguistic study on a philological exploration.

The text at issue is a commentary to an earlier medical text. The main hermeneutic technique employed in the commentary is to provide synonyms for terms in the base text (see Frazer (2017) for an analysis of this document and the literature devoted to it). Germane to our discussion is the following line:

(41)  *ištēniš:  kīma: ištēn itti  aḫāmiš* ḪI.ḪI[39]
      together like   one  with RECP   mix.IMPV.2.M.SG
      "'Together': like: one, mix them with each other."

<div align="right">(BRM 4 32: 8, [Standard Babylonian])</div>

The commentary itself contains instructions to a priest how to mix some ingredients together, and according to the translation provided in the example, the author of the commentary renders the meaning of the sociative adverb *ištēniš* "together" as "with each other".

However, this interpretation of the passage is not the only possible option, as this particular line involves a philological difficulty, namely, a disjunction symbol (:) after *kīma*, which indicates that *kīma* is part of the interpretation. As Uri Gabbay has informed me (p.c.), the term *kīma* is not found elsewhere in this interpretive corpus. Maul (2009: 72) translates it into German as a marker of interpretation "wie", and Geller (2010: 171) as "when". Yet another, more serious, problem has not been identified previously: it has to do with the meaning of *ištēn* in this context. Maul proposes that this line should be translated as "*išten itti aḫāmēš* ḪI.ḪI (= '*das eine vermischst du zusammen mit dem uebrigen [Ingredienzien]*", and Geller

---

(i)  Constant entailments:
    Variability in the meaning of an expression α between interpretations α′ and α″ is promoted by the existence of contexts ϕ in which an occurrence of α under both interpretations α′ and α″ leads to the same proposition ϕ′

It is beyond the scope of the current discussion to delve into the relationship between my analysis and theirs. (In Bar-Asher Siegal 2019, I elaborated on this)

**39.**  In the next entry in the interpretation it is written: ḪI.ḪI: *balālu*, which indicates that the Sumerogram ḪI.ḪI means *balālu* "to mix".

"'when' one is mixed with each-other". Neither of these translations, however, takes into account that the original is a combination of two different constructions. Akkadian uses either the two-unit pronoun construction *ištēn itti ištēn* (lit. "one with one", see sentence (24) in this chapter), or the one-unit pronoun construction *itti aḫāmēš* ("with each other") cooccurring with a plural subject (see above § 5.3.1). The blend of these two variants (*ištēn itti aḫāmiš*) as a two-unit construction is unprecedented and ostensibly ungrammatical, based on what we know about the syntax of the NP-strategy from other languages. However, it is possible that this text contains an innovation on the two-unit NP-strategy construction, consisting of the cardinal number "one" *ištēn* and the standard one-unit anaphoric pronoun *aḫāmiš*. Such a construction is unattested in the history of Akkadian, but it may have developed as a variant in one of the Jewish Neo-Aramaic dialects, as demonstrated in (§ 2.6).

Therefore, I propose an alternative, bipartite reading for this entry. The first part can be regarded as an etymological note, and the second as a rendering of the meaning of the original in the given context. These two parts are represented in the table below as option (a), which is compared with the previous option (b):

| *ištēniš:* | Together |
|---|---|
| *kīma: ištēn itti aḫāmiš* ḪI.ḪI | Two alternative readings are possible:<br>(a)  (a) *ištēniš* = *kīma ištēn* (i.e. "together" = "like one"), [it means –] mix (the ingredients) with each other<br>(b)  like: [i.e. *ištēniš* [together] derived from (lit. is similar to) *ištēn* [one] mix with the other |

According to John Wee (p.c.), the interpretation in (b) is preferable since Old Babylonian uses the relative pronoun *ša*, and not *kīma*, to indicate lexical derivation. This account, however, does not explain the disjunction symbol (:) after *kīma*, which could be either an error or an indication of some unknown function.[40] According to both readings of this text, we may be witness to an ancient linguistic comment on the relationship between reciprocity and collectivity.

---

40.  I wish to thank Uri Gabbay, Eckart Frahm, and John Wee for discussing the meaning of this text with me.

# A comparative linguistics study of NP-strategy constructions

## 6.1    Introduction

This chapter focuses on the history of the NP-strategy in Aramaic in general and North Eastern Neo Aramaic (NENA) in particular. First, I will apply the observations derived in Part 1 of this book to Aramaic – a language that makes a fruitful case study, by virtue of its attested data spanning close to three millennia. Next, I will demonstrate how the phenomena analyzed hitherto in relation to the NP-strategy elucidate the historical links between various Aramaic dialects. In pursuing these two objectives, the present chapter, like the previous one, charts the paths through which the study of the NP-strategy can inform broader historical and comparative linguistic investigations.

After briefly reviewing the history of Aramaic (§ 6.2), I will survey the various types of NP-strategy constructions throughout its history (§ 6.3). The ensuing analysis will put the spotlight on the eastern dialects from the Late and the Neo periods, tracing the historical relations between them (§ 6.4).

## 6.2    A brief history of Aramaic

As noted in the Introduction (§ 0.8.2), Aramaic is a member of the Northwest Semitic sub-family. According to the standard periodization introduced by Fitzmyer (1979), the history of Aramaic is divided into five phases:

Old Aramaic (925–700 BCE)
Official Aramaic (700–200 BCE)
Middle Aramaic (200 BCE–200 CE)
Late Aramaic (200–700 CE)
Modern/Neo-Aramaic (700 CE–)

The traditional framework draws a contrast between the eastern and the western dialect group from the fourth phase onward. During the Late period, Eastern Aramaic is usually taken to comprise Jewish Babylonian Aramaic, Syriac and

Mandaic – spoken by Jews, Christians and Mandaeans respectively. Still used by some speakers are modern variations of these dialects termed Eastern Neo-Aramaic, of which one diverse group is known as the North Eastern Neo-Aramaic (NENA) dialects. NENA dialects are still used in Christian and Jewish communities of Northern Iraq, Northwest Iran and Southeastern Turkey. However, most of them are now in danger of extinction, as the majority of their speakers have emigrated and settled throughout the world.

## 6.3    NP-strategy constructions in the history of Aramaic[1]

Throughout its 3,000-year history, Aramaic provides no clear-cut attestations of two-unit constructions at Stage I, incorporating a singular verb.

The first instances of the NP-strategy for expressing reciprocity in Aramaic are found in the Biblical period in the Book of Daniel, which pertains to the Official Aramaic,[2] and subsequent examples are from Middle Aramaic. The two such examples in Middle and Late Aramaic can be classified as hybrid constructions

---

**1.** For a preliminary survey of the data on the Western dialects, see Dalman (1905: 114–115) and Fassberg (1990: 126–127). In addition to those mentioned here, at least two more constructions are found in the history of Western Aramaic (which were previously mentioned in § 1.3.2.2.3). The first such example is from Christian Palestinian Aramaic:

(i)  *w-hawu        memallel-in        pleg-hon            ʿim  pleg*
and-be.3MPL speak.PTCP-M.PL part-POSS.3.M.PL with part
"And they were talking to each other."                                    (Luke 4:36)

Both in its entirety and compositionally, this construction is similar to the one found in Classical and Standard Arabic:

(ii)  *danā                  baʿḍ-u-hum               min  baʿḍ-in*
approach.PST.3.M.SG some-NOM-POSS.3.M.PL from some-GEN.IND
"They approached each other."                        (AS 161, Kremers 1997: 31)

This similarity is striking, as it is commonly assumed that Palestinian Aramaic influenced Arabic and not vice versa (for recent reviews of the literature about the Aramaic-Arabic language contact, see del Río Sánchez (2013) and Neishtadt (2015)).

The other construction is from the Neo-Western Aramaic dialect of Maʿlula; it employs the Arabic anaphor *baʿḍi*+pronoun (see, for example, Werner 1991: 93 line 44). For the use of *baʿḍ*+pronoun as a one-unit construction in Standard Arabic, see Example (4c) in Chapter 1. The influence of Arabic on the Aramaic Maʿlula dialect is not surprising, as most of its speakers are bilingual (Aramaic and Arabic).

**2.** See Choi (1994: 1–27) for a review of the literature regarding the extent to which the Aramaic of Daniel pertains to Official Aramaic.

(see § 2.4.2), since they employ a plural verb and incorporate two units. In fact, as was demonstrated in Chapter 3 for Modern Hebrew and Modern Italian, this configuration may attest to Stage III. However, in an ancient language, a boundary between a Stage II hybrid construction and a Stage III one-unit construction comprising a relic cannot be drawn with any degree of certainty. The first construction, from Official Aramaic, consists of a repetition of original, demonstrative pronouns (1)–(2),[3] and the other, first attested in Middle Aramaic, reiterates an existential quantifier in the form of the cardinal number "one" (4)–(5).

(1) Biblical Aramaic (Official Aramaic):
a. *wĕ-ʾarkubb-āt-ēh     dāʾ    lĕ-ḏāʾ    nāqĕš-ān*
and-knees-PL-POSS.3.M.SG DEM.F.SG to-DEM.F.SG strike.PTCP-F.PL
"And his knees were striking one another." (Dan. 5:6)
b. *wĕ-lāʾ    lehĕwōn    dābĕq-īn    dĕnâ    ʿim dĕnâ*
and-NEG be.FUT.3.M.PL adhere.PTCP-M.PL DEM.M.SG with DEM.M.SG
"But they will not adhere to one another." (Dan. 2:43)

Reiteration of demonstratives is found not only in Biblical Aramaic, but in its other dialects as well, including Middle Aramaic at Qumran (Muraoka 2011: 51) and the Late Western Samaritan (Stadel 2013: 42). Recall, however, that older constructions are often hallmarks of a higher register, as is evidenced in both Mishnaic (§ 4.3.3) and Modern Hebrew (§ 4.4). It is therefore unclear whether the examples from Qumran and Samaritan Aramaic belong to higher registers imitating Biblical style, or whether they are genuine relics of the old construction. Similarly, although demonstrative reiteration is not the norm in the Jewish Late Western dialects,[4] sentences in the late *Targum Pseudo-Jonathan* which do not translate Biblical verses also use this strategy for stylistic reasons:

(2) *Targum Pseudo-Jonathan* (Late Jewish Literary Aramaic)[5]
*u-qrebu          den    lĕ-den*
and-approach.PST.3.M.PL DEM.M.SG to-DEM.M.SG
"And they approached each other." (*Tg. Ps.-J* Num. 21:14)

---

**3.** Demonstrative pronouns are also the standard NP-strategy component in Mishnaic Hebrew and occasionally appear in Biblical Hebrew as well. Concerning the relationship between Aramaic and Hebrew in this regard, see § 4.3.3.2.

**4.** Galilean Aramaic contains some rare examples of demonstratives with a reciprocal function, see *inter alia y. Yebam* 10:6, (and see also in *y. B. Meṣiʿa* 2:5) and *Lam. Rab.* 1:46. The sentences in the Galilean Aramaic may be examples of an archaic formula or a variation retained in this and certain other dialects.

**5.** About the historical classification of this translation, see Kaufman (2013).

Since these sentences are not renderings of a Hebrew source, they may constitute a variation of Palestinian Aramaic that had preserved this old construction, which is unknown elsewhere in this phase of Aramaic. At the same time, the repetition of a demonstrative had lost this function in some dialects, for example, in the Late Eastern dialect of Jewish Babylonian Aramaic (Bar-Asher Siegal 2016a: 95–96; see also § 4.4.3). In order to convey reciprocity using demonstratives, these dialects require two clauses:

(3)  *pag̱ʿu*              *hane    be-hane    w-hane        be-hane*
     attack.PST.3.M.PL DEM.PL in-DEM.PL and-DEM.PL in-DEM.PL
     *w-miqtel               ḥad    me-hane     w-ḥad      me-hane*
     and.kill.PASS.PST.3.M.SG one.M from-DEM.PL and-one.M from-DEM.PL
     "These attacked each other and one of these and one of those got killed."

                                                                    (*Meg.* 6b)

A repetition of "one"[6] is found already in Middle Aramaic (4a)[7] but is also common in the Western Late Aramaic dialects (4b) and in Syriac (4c). The emergence of the one-unit construction through a fusion of the two forms of the two-unit construction can be traced in the various Late Eastern dialects including Syriac (5).

(4)  a.  Targum Onqelos (Middle Aramaic):
         *ḥameš  yĕrīʿ-ān    yĕhwīyān       melāpĕp-ān       ḥĕdā  ʿim   ḥĕdā*
         five   curtain-PL be.FUT.3.F.PL join.PRS.PASS-F.PL one.F with one.F
         "The five curtains should join each other."          (Exod. 26:3)[8]
     b.  Galilean Aramaic (Western Late Aramaic)
         *ʾinnūn pĕlīg-īn          ḥdā  ʿal  ḥdā*
         they   be.at.variance.M.PL one.F on  one.F
         "They are at variance with each other."                 (*y. Ḥal.* 3:2)

---

**6.** Concerning the cross-linguistic use of "one" in these constructions see § 1.3.2, where I argue that a similar construction in many Semitic languages reflects an Aramaic substrate.

**7.** There is some evidence that this formula was also used in Qumran Aramaic, although only part of the expression is restored. See Muraoka (2011: 51).

**8.** The translator of the Pentateuch to Aramaic, Onqelos, regularly renders Biblical expressions containing *ʿīš* "man", *ʾāḥīw* "his brother" via the Aramaic equivalents *gəbar* and *ăḥohī*. For the current analysis, however, of importance are examples that use authentic expressions, not the words equivalent to the original Hebrew text. In the above Example (4a), the translation deviates from the Hebrew original, probably because in Biblical Hebrew the terms *ʾiššâ* "woman" and *ăḥōtāh* "her sister" are used to refer to inanimate objects. As noted in (§ 4.3.5), in some languages including Mishnaic Hebrew, pronominal expressions whose original lexical meanings denote animate objects do not refer to inanimate participants. It is beyond the scope of this paper to review examples of indefinite pronouns used in symmetric relations, such as the combination of *ḥad* "one" and *ḥabr* "friend" + possessive pronoun (see for example Macuch [1965: 416], in the case of Mandaic).

    c.    Syriac (Eastern Late Aramaic):[9]

        *məpaqqed-nā*             *lə-kon*     *də-taḥbun*        *ḥaḏ lə-ḥaḏ*

        command.PTCP.M.SG-1.SG to-2.M.PL REL-love.FUT.2.M.PL one.M to-one.M

        "I command you that you love one another."            (John 15:17)

(5)  a.    Syriac:

        *wa-mall-un=waw*            *ʿam ḥəḏāḏē*

        and-speak-PTCP-M.PL=be.PST.3.M.PL with RECP

        "And they spoke to each other."            (Luke 4:36)

    b.    Jewish Babylonian Aramaic (=JBA) (Eastern Late Aramaic):[10]

        *hekā de-nāšěq-ān*     *ʾarˁā wa-rqīˁā*     *həḏāde*

        where REL-kiss.PRS-F.PL earth and-heaven RECP

        "The place where earth and heaven touch each other."     (*B. Bat*. 74a)

    c.    Mandaic (Eastern Late Aramaic):[11]

        *hdadia gazria*

        RECP   circumsize.PRS.3.PL

        "They circumcise each other."            (Gy 224:10)

Nöldeke (1875: 349–350, n. 2 § 242) proposes that univerbation in the Eastern dialects (5a–c) reflects an influence of Indo-European constructions with a similar anaphor that is a fused form of a repeated pronoun, such as *ἀλλήλως* in Greek (see also Macuch 1965: 415, n. 57 and Sokoloff 2002: 362). However, the discussions in Chapter 1 on the typology of the Semitic NP-strategies and in Chapter 2 on the emergence of one-unit constructions suggest that an account in terms of an external influence is superfluous, as these anaphors could have developed in the Aramaic dialects independently. Thus, the evolvement of the one-unit anaphor in Syriac and JBA probably proceeded as follows:

(6)  †*ḥaḏḥaḏ* > *ḥaḏḥaḏ+ē* > *ḥěḏāḏē*

–    In the shift towards Stage III, the two-unit construction underwent univerbation, giving rise to the one-unit construction.
–    Once the construction had univerbized, the second /ḥ/ in the second form elided, probably as a result of haplology.

---

**9.**  In line with Boyarin's (1981) classification of Syriac as a dialect interfacing the eastern and western Late Aramaic dialects, it has constructions used in both these groups. Similarly, Cook (1994) deems Syriac to be a representative of what he terms "Central Aramaic".

**10.**  In this dialect, the non-fused expression reiterating the cardinal number *ḥad/ḥədā* is found very rarely, mainly as *ben ḥad ləḥad* "between each other" (*Yoma* 10a, *Qidd*. 71b and *B. Meṣiˁa* 84a).

**11.**  See Macuch (1965: 415).

–   The plural/dual marker *ē* was added as agreement between the anaphor and its antecedent.
–   The loss of the consonant resulted in a lengthening of the ensuing vowel (*a > ā*).

In Chapter 2, I showed that the first three changes are common cross-linguistically. In addition, the JBA and the Mandaic forms display the *ḥ>h* shift in the initial position (Bar-Asher Siegal 2016a: 79–81).

It follows that univerbation can be added to Kutscher's (1971, 1977) list of features that distinguish the eastern from the western dialects. Moreover, this feature is an innovation shared by all Eastern dialects, unlike some of the items on that list. Thus, a form deriving from †*ḥaḏḥaḏ* must have been part of the Proto-Eastern Aramaic. This conclusion provides the first example in this chapter to the bearing that the history of the NP-strategy may have on an investigation in comparative linguistics.

## 6.4   Linking Eastern Neo-Aramaic NP-strategy constructions with their Late Aramaic forebears

The relationship between the Neo-Eastern and Late Eastern dialects has, for decades, stood at the heart of the historical study of Aramaic. The distinctive features of their grammar have given rise to the question whether and to what extent the Neo-Eastern dialects represent new phenomena or whether they are vestiges of older, undocumented dialects. This issue is addressed in what follows through an examination of documented NP-strategy constructions. The object is to apply the insights from the typological-historical analysis carried out in the previous chapters in tracing the history of these dialects.

The analysis of the various forms documented in the Neo-Eastern dialects may shed light on their connections with their regional predecessors. This section demonstrates four different types of relationships between NP-strategy constructions found in the NENA dialects and correlative data attested in Syriac, Jewish Babylonian Aramaic and Mandaic.

### 6.4.1   Two types of constructions preserved from late Aramaic

In the previous section, I demonstrated that Jewish Babylonian Aramaic and Mandaic have only the one-unit construction, while Syriac has both the (two-unit) hybrid and the one-unit constructions. This discrepancy might indicate that the two-unit construction had been preserved in Syriac as an archaism and that, accordingly, the one-unit construction operated at a less formal register.

However, this hypothesis loses credibility in light of data from at least one of the Jewish Neo-Dialects from the region between Southeast Turkey and Northwest Iraq (Challa). This dialect has both a two-unit construction reiterating the cardinal number "one" and a one-unit construction that is historically related to its one-unit counterpart in Syriac. The Challa sentence in (7) is clearly a Stage II hybrid construction, as the verbal plural form is situated between the two pronominal elements (see above § 2.4.2):

(7) *xa lu      mšaboḥe ʾəl-xé*
    one COP.3.PL praise.PRF to-one
    "One is praising the other."                          (Fassberg 2010: 48)

Of the two separated elements in the above construction, one is subject and the other object. Alongside this construction, Challa also has the one-unit anaphor *ġdād(e)*, which derives historically from the one-unit anaphor of the Late Eastern dialects, as shown in the next section:

(8) The Jewish Neo-Aramaic dialect of Challa:
    *rə́qqe-lu      mə́-ġdād*(*e*)
    far.PL-COP.3.PL from-RECP
    "They are far from each other."                       (Fassberg 2010: 47–48)

It appears that, like Syriac, Challa may have retained both the one- and the two-unit constructions, which operated side-by-side. Furthermore, as shown in Chapter 3, a similar state-of-affairs obtains in other languages, such as Modern Hebrew, Italian and Judeo-Arabic, where the two-unit construction co-exists with a fully-fledged one-unit form. In contrast to Syriac and other languages discussed in Chapter 3, where the etymological relation between the two variants is apparent, in most Neo-dialects it is opaque. Nonetheless, their co-existence in Syriac suggests that both these constructions could have been used in equal measure. This case shows that a better understanding of the distribution of the two alternative NP-strategy constructions and of their uses in spoken languages can inform the study of historical languages. Put differently, probing the typology of these constructions is salient for historical linguistic analysis.

### 6.4.2  Derivatives of the Late-Aramaic one-unit constructions/anaphors

As observed by Talay (2008: 208–210), some of the NP-strategy forms in the dialects from Southeast Turkey (and North Syria) derive from the Syriac one-unit anaphor following predictable sound-shift patterns:

(9)   *ḥdade*[Hertevin (Jastrow 1988: 31)]

  *óxḏaḏe*[Čāl, Ṭāl, Tall, Hurməz, Gundək, Gəəsa. Sarspido]

  *óxdade*[Walṭo]

  *óġdaḏe*[Halmun, Tall Tammər, Mazṛa]

  *óġdade*[Bespine (Sinha 2000: 75)]

  *úxḏaḏe*[Berəǧnaye]

  *úxḏalə*[Arbuš]

  *óxdaḷe*[Iyyəl]

  *óġḏaḷa*[Ḡilu]

  *úxdaḷe*[Bāz, Lewən]

  *údaḷə*[Timur]

  *úḏaḷe*[Barwar, Dīz, Gawar, Marbišo, Nočiya, Qočanəs]

  *úḏāl*[Saṛa]

Similar forms are also attested in northern Iraq, e.g., *ġḏaḏe* in Qaraqosh (Khan 2002: 84) and Barwar (Khan 2008b: 153). Likewise, the Neo-Mandaic dialect of Khorramshahr has a form that displays the *ḥ>h* shift typical of JBA and Classical Mandaic:[12]

(10)   *ani kol=waxt qə=haz-én*  *hədādā*
  we always IND=see.PTC-1.PL RECP
  "We always see one another."    (Häberl 2009: 161–162)

### 6.4.3   NENA forms deriving from unattested morphemes

While *ġdād(e), hədādā* and other similar forms derive from expressions akin to those found in Late Aramaic, I contend that some of them, and in particular those used in Northeast Iraq in the Jewish dialects of Sulemaniyya, Koy Sanjaq and Arbel, developed independently from the fusion of the reiterated cardinal number "one" *ḥaḏ* (which is the same form that gave rise to the Late Aramaic one-unit construction †*ḥaḏḥaḏe*). In this dialectal group, the common one-unit construction comprises the anaphor *dóxle*, as illustrated in the following example from the Jewish Neo-Aramaic dialect of Koy Sanjaq:

(11)   *nšíqlū*  *l-dóxle*
  kiss.PST.PL by[13]-RECP
  "They kissed each other."    (Mutzafi 2004: 64)

---

**12.**  For different forms in Neo-Mandaic see Macuch (1965: 415–416).

**13.**  I translated the preposition *l* as "by", with the object of precluding its analysis as ergative case (see Bar-Asher 2008; Bar-Asher Siegal 2014a, cf. Coghill 2016).

Khan (1999: 88) proposed two possible derivations for the form *dixle* (i-ii), and Mutzafi (2004: 2004: 221) added a third (iii):

i.   *ḥḏāḏe > †dxaḏe > dixle* (<=the second phase is the result of a metathesis).
ii.  The origin of the form was *d-o xēnā* (*d* is a relative pronoun, which comes at the beginning of the formula *o xēnā*, also attested in Christian Urmia).[14]
iii. *†d-ə́xdāḏe > də́xle*[15]

However, instead of the above three trajectories I propose another mechanism, which is as plausible, yet more economical and elegant:

(12)   *ḥaḏḥaḏe > †ḥ̶a̶ḏ̶ḥ̶a̶ḏ̶è̶ > dixle*

a.   The first process (i) involves haplology, albeit operating differently from that attested in Syriac.
b.   The shifts of *ḥ>x* and *ḏ>l*, known from other words in these dialects, are assumed to be part of the transition from Stage II to Stage III. The occurrence of the *ḏ>l* shift on the second fricative *ḏ* but not on the first stands to reason if we assume that the postvocalic /d/ was still aspirated when the haplology took place. Thus, the /d/ allophone of [d] is expected in the initial position. An alternative explanation would be to apply Khan's (1999: 31) suggestion that the *ḏ>l* shift did not take place consistently and is subject to exceptions (cf. the form *úḍaḷe* from Barwar, Dīz, Gawar, Marbišo, Nočiya and Qočanəṣ).
c.   This analysis presupposes that the stress at Stage II was on the ultima – which is justifiable, since in Late Eastern Aramaic, final vowels, both long and short, apocopated.[16] However, such an apocopation usually did not take place in agreement markers (compare *màlkī* [17] *> malk* "my king" to *malkī̀n > malkī̀* "kings" in Jewish Babylonian Aramaic, which is not an agreement marker).

---

**14.** For similar forms in the dialects of Amedia and Zakho, see below. Such forms with the particle *d-*, however, are restricted to prepositional phrases.

**15.** This proposal probably assumes that /d/ originates from a determinative pronoun. Although cross-linguistically one-unit expressions indeed appear with such a pronoun in genitive constructions, a grammaticalization process in this case cannot be posited, and it is impossible to say whether this specific use of the form in the genitive construction was generalized to all syntactic environments. Moreover, generalization to constructions other than genitive is unknown in other languages. It is possible, however, that this specific use of the *d-* is related to Khan's second proposal in the body of the text. See below regarding constructions such as *d-o xeta* in Zakho, and their restrictions to prepositional phrases. See also the previous note.

**16.** The position of stress for Late Aramaic cannot be reconstructed; see *inter alia* Morag (1988: 117–119).

**17.** I use the sign ʼto mark the location of stress according to reconstructions.

Thus, it is reasonable to assume that the stress was conditioned by syntactic and morphological considerations, and since in *ḥaḏḥaḏe* the ending -*e* was originally an agreement marker, the stress must have fallen on the ultimate syllable.

In Section (§ 2.6), I argued for a shift from a one-unit anaphor to a two-unit construction in two dialects of NENA, with the possibility of a slightly different derivation for one of them:

(13)   *ḥaḏḥaḏē > †xaḏxaḏē > †xaḏxalē > †xa dxalē᾿ > †xa dəxəlē᾿ > xa dixle*

The above mechanism (13) is premised on the assumption that, alongside *ḥĕḏāḏē*, which is the shared ancestor of the common Eastern forms (mentioned earlier in (9)), other Eastern dialects may have a variant deriving from the older form from this region: *ḥaḏḥaḏē*.

Considering this option, processes similar to (13) could be posited for the forms *ʾexde* in Benature (Mutzafi 2008: 44) and *ʾəǵde* in Amedia (Greenblatt 2011: 83), both found in Northwest Iraq:

(14)   *ḥaḏḥaḏė >†ḥaḏḥaḏė > †ḥdė > ʾexde*

Accordingly, either the first syllable *ḥad* elided by way of haplology, or the first element of the original two-unit construction, *ḥaḏ*, was deleted, as is the case in various Arabic dialects (see § 2.4.3.2). Subsequently, a prosthetic glottal stop was added, resulting in the elision of the vowel /a/ after the *ḥ*.[18] It is equally plausible, however, that the forms *ʾexde* and *ʾəǵde* developed via a secondary haplology from *ʾəǵdaḏe* (Halmun) and similar forms used in Southeast Thrukey:

(15)   *ʾəǵdaḏe > ʾəǵdade > ʾəǵde*

### 6.4.4   The emergence of a new one-unit anaphor

As noted earlier, in the dialect of Amedia, in addition to the one-unit forms *ʾəǵde* and *ʾəǵdade*, unspecified relations are encoded through a two-unit construction reiterating the cardinal number one, *a-o-xə́t* (Greenblatt 2011: 83). Examples adduced in Sabar (2002) for Zakho suggest that, in that dialect, components cognate to Amedia underwent univerbation, at least at the phonological level. When, in a sentence, the pronominal expression is direct object, the NP-strategy employs the forms *xawxit* (p. 94), *xa-àwxit* (p.162), *xauxit* (p.234) or *xauxét* (p.296) – all four *de facto* the same (Sabar p.c.). When used with a preposition, the two elements of such a form are occasionally separated and the particle *d-* is added.

---

**18.** For a similar account regarding the emergence of prosthetic vowels, see Bar-Asher (2009b: 236–237).

(16)  a.  *qṭil-lu*          *xa-àwxit*     *ž-de*
          kill.PST-3.M.PL one-another on-DEM
          "They killed each other on account of this one."          (Sabar 2002: 162)

      b.  *la   mḥak-ax       xa  mən d-o        xeta*
          NEG speak-PRS.1.PL one from REL-DEM.M.SG other
          "We don't speak to each other."                    (Greenblatt 2011: 83)

All the four expressions above comprise *xa* "one" and *xit* "another" (derived from the Late Aramaic form *axrī(n)tā* [Sabar 2002: 196]) and in all probability are calques of the equivalent Kurdish form composed of *yek* "one" and *din* "another".[19] This semantic borrowing from a European language is parallel to the one described in Chapter 4 for Modern Hebrew, which was subject to such influences as well (see § 4.4.2). The Kurdish calque in Zakho is thus another example of an influence exerted by an Indo-European language on a Modern Semitic language. Several observations are in order in this connection:

– Historically, the element *-o-* is probably a demonstrative pronoun. If so, its position before the second element may indicate that the entire phrase is definite (Khan 2008a), as in the two-unit construction many languages insert the definite marker (only) before the second element (English: one… the other; Modern Hebrew *exad* "one"… *ha-šeni* "the second").
– This is a frozen formula, as it does not agree with its antecedent (see § 2.4.3.4).
– The insertion of *d-* before the prepositional phrase is probably a token of a more general phenomenon whereby this particle appears before demonstratives in prepositional phrases (see Greenblatt (2011: 84)).

The upshot is that one dialect has two distinct one-unit constructions, *xa-àwxit* and *ġzāze* (Sabar 2002: 95), both derived via univerbation, in which two separate elements fused together, albeit at different historical stages. In one variant, prepositions precede the entire expression (*mə-ġdade*), while in the other, a preposition is adjoined to the second component (*xa mən d-o xeta*). A parallel can be drawn between this variation and the two alternatives in Modern Hebrew presented in (§ 3.5), as well as the English "one… other" versus "each other" construction (e.g., "one on top of the other" versus "on top of each other"). The case analyzed for Zakho, then, constitutes additional evidence that two variants of the same construction may co-exist in a language.

_____

**19.** I owe this observation to anonymous readers of Bar-Asher Siegal (2014b).

## 6.5    Concluding notes

Apropos of the relationship between the Neo-Eastern dialects and their Late Aramaic predecessors, Maclean (1895: x, xv) wrote at the end of the 19th century:

> *Origin of the Vernacular*: It would appear that the dialects, though sufficiently different to make it difficult for a man to understand one of a distant district, are yet sufficiently alike to argue a common origin. This origin, however, we can hardly seek in the written or classical language. It would be a mistake to look on the spoken Syriac as a new creation, springing from the ruins of the written tongue; the former may indeed in a sense be called *The New Language*, as it has greatly developed its grammatical structure in an analytical manner, and has dropped many of the old synthetic forms, but much or most of it was doubtless in use side by side with the written classical Syriac for centuries. It retains in many cases forms less developed than corresponding forms in the written language."

Although some of the hypotheses advanced in this chapter rest on conjecture, once corroborated, they would bolster Maclean's account. In other words, the development of the NP-strategy, whose origin in Eastern Aramaic dialects is in the reiteration of the cardinal number "one" *ḥad*, resonates with Maclean's observations, in the sense that the relationship he describes is parallel to that between the NENA dialects and their Late-Aramaic forebears:

1.  Based on the available data, the two-unit construction with a repetition of *ḥad*, attested already in Middle Aramaic, is a common feature of all branches of the Aramaic dialects. In the diachronic development of this construction, a shift towards Stage III can be posited only in respect of the Eastern dialects, such that the two separate units underwent univerbation and fused together becoming the anaphor of the one-unit construction. This historical process was described in detail in Chapter 2. One-unit forms are attested in all Late Eastern Aramaic dialects, including Syriac, and in most of the Neo-Eastern dialects (§ 6.3 and § 6.4.2).

2.  Syriac had retained both the two- and the one-unit constructions. A similar phenomenon is attested in a Neo-dialect from the border-region of Southeast Turkey and Northwest Iraq (§ 6.4.1), and as already noted, is known from various other unrelated dialects.

3.  The univerbation of the two-unit construction in all the Late Aramaic dialects resulted in the elision of the second /ḥ/ through haplology (†*ḥadḥad* > †*ḥadḥad+ē*). I have contended that some of the forms of the one-unit anaphors, especially those from Northeast Iraq (Sulemaniyya, Koy Sanjaq and Arbel), developed from the older form that had been in use before the elision

of the second /ḥ/. It was suggested that other dialects (such as Benature) may also evince a similar development (§ 6.4.3).

4.   In the dialect of Zakho, univerbation occurred twice at different historical periods (§ 6.4.2).

5.   Data from the dialect of Arbel point to a process operating in the opposite direction, i.e., a two-unit construction evolving from a one-unit counterpart (§ 2.6).

In sum, the detailed analyses of historical changes among the Semitic languages performed in the previous chapters supplied the wherewithal for identifying developments related to the NP-strategy in general. At the same time, the tracing of recurrent cross-linguistic changes, both internally and externally induced, resulted in new analytical tools for probing the history of the relationship between the various Aramaic dialects, and in particular among NENA. This chapter has also afforded the opportunity to apply the investigations carried out in this book to a language with a long and well-documented history.

Chapter 6 concludes the book's second part, where I have examined historical phenomena across the Semitic languages in light of the observations about the origin and the typology of NP-strategy constructions set forth in the first chapters. The last part of the book is devoted to the semantics of these constructions.

PART 3

# The basic meaning of the NP-strategy for expressing reciprocity

## 7.1   Introduction

Part 3 of this book, which begins here, is devoted to the semantics of the NP strategy and proposes a semantic analysis for this strategy utilizing the methodology outlined in the introduction and based on the conclusions of the first two chapters. Although data from Semitic languages will play a crucial role in the analysis, I suggest that it is applicable not only to these languages but also to other languages that have constructions belonging to this strategy. The extrapolation from one language group to others relies on the assumption that the semantics of NP-strategy constructions is similar cross-linguistically. This assumption was in fact empirically confirmed by Evans et al. (2011a), which, based on data from 20 languages from different families, concludes that reciprocal constructions indeed share the same basic meaning (see especially Majid et al. 2011: 50).[1]

Since the discussions in this chapter correspond with the literature on the relevant English constructions, some of the examples examined here will also be taken from English. Furthermore, since native-speaker judgments about the possible interpretations of specific sentences are required, the only Semitic language to be discussed in this chapter is Modern Hebrew, the native tongue of the author.

Relying on the data presented in the previous chapters (mostly in Chapters 1 and 2), the next section of this chapter (§ 7.2) discusses the relationship between the syntax and semantics of NP strategy constructions. This will be followed by a review of some prominent issues addressed in previous studies of these constructions (§ 7.3). As this review will show, one of the main questions that preoccupy the semantic literature, which was briefly presented in the introduction to this book (§ 0.6), is the fact that NP-strategy constructions have a range of different interpretations. Sections § 7.4–5 present several hypotheses as to how a given sentence is assigned a specific interpretation in context, and address some empirical

---

**1.** It must be noted that their discussion is not restricted to the NP- strategy for expressing reciprocity. Future studies will have to examine some of the conclusions of the current study in the context of other types of strategies. König (2011, esp. 336–337) already remarked on the need to distinguish between various constructions presented in Evans et al.'s (2011a) typology.

problems that these solutions encounter. After reviewing a variety of cases in which NP-strategy constructions allow non-reciprocal readings (§ 7.6), Section §7.7 proposes a new solution for the puzzle by filling out the semantic analysis that was briefly presented in the introduction (§ 0.6). To support this proposal § 7.7.3 will take another look at diachronic data presented in the previous chapters (mostly in Chapter 1). Based on this data and various theoretical and empirical facts, I will propose that the basic meaning of NP-strategy constructions is weaker than strong reciprocity, but can become stronger in specific contexts. Once this chapter presents the empirical data that must be taken into account in discussing the semantics of this construction, Chapter 8 will propose a framework and a mechanism for generating the interpretation of a given sentence in a given context.


## 7.2    Structure and meaning

The syntax and the semantics of "reciprocal constructions," as they are known in the literature, have been studied extensively. However, the typology of the various constructions, their origin and the historical relations between them are issues that have largely been ignored. As will be demonstrated, historical and typological studies present facts that a semantic analysis of the relevant constructions should be able to explain, and therefore demand a more nuanced analysis than the ones that have heretofore been proposed. For example, the first part of this book established that the two types of constructions illustrated schematically in (1) are very common in the Semitic languages and others, and that they tend to be historically related:

(1)   a.   Two-unit construction:

| $\{NP_1, NP_2...NP_n.NOM\}$ | VERB.SG | pronoun$_1$ NOM.SG | pronoun$_2$ ACC.SG |
|---|---|---|---|
| Broad subject | | Subject | Object |

b.   One-unit construction:

| $[\{NP_1, NP_2... NP_n\}.NOM]$ | VERB.PL | RECP.ACC.PL |
|---|---|---|
| Subject | | Object |

Despite being structurally different, these two constructions convey similar logical relations, which raises the question of the relationship between their syntax and semantics. In other words, since a semantic analysis of a construction should ideally be compositional, i.e., should explain how its various components contribute to its meaning, it is necessary to explain how two constructions so different in

their surface structure come to yield the same semantics. Hypothetically, there are at least three potential explanations for this:

(2)  a.  At some level of representation (LF, Deep Structure, etc.), the two types of construction are the same. This means that one must be syntactically derived from the other, or alternatively that both must be derived from a third, and the semantics reflect the hypothetical "basic construction".

b.  The semantics is detached from the syntactic representation of these constructions. This means that reciprocity is an independent semantic function, unrelated to the syntactic constructions that express it.

c.  The relations between the different types of construction and their respective semantics should be kept separate. While there are (at least) two types of constructions, they convey reciprocity based on similar principles. Although each type of construction involves a different compositional way of expressing reciprocity, they nevertheless convey the same meaning.

Options (a)–(b) are essentially endorsed by analyses that have been proposed for the semantics of "reciprocal constructions", as will be shown below. As these analyses have been extensively discussed in the literature, I will not elaborate on all their features but merely outline the main themes relevant to the proposal introduced in this chapter.

The previous chapters have demonstrated that there are good reasons to analyze the two-unit constructions in a compositional manner and not as "constructions" lacking internal structure (§ 1.4, 2.7, 4.3–4), and that, the one-unit constructions derive historically from two distinguished types of constructions – a fact that suggests considering this type of construction independently of its origin (§ 2.7).

Finally, one of the major goals of this book in general and of this chapter in particular is to demonstrate how historical linguistics and formal approaches to semantics may contribute to one another. The introduction of the book briefly presented the range of readings available to NP- strategy constructions (§ 0.6). It then noted that, while typological discussions (e.g., Lichtenberk 1985 and Kemmer 1993, among others) begin by identifying constructions that denote symmetric relations – and therefore consider asymmetric uses of these constructions as atypical, or as "extended uses of reciprocal markers" (Nedjalkov 2007a: 9) – I approach the matter from a different perspective. In Chapter 1, I posited that, at least for the purposes of the historical inquiry, one should examine the entire range of relations denoted by NP-strategy constructions and consider their evolution in this larger context (without assuming in advance that symmetry is their prototypical meaning.) In this chapter I tackle the issue from the opposite direction and consider the relevance of the historical facts to the discussion of the semantics of these

constructions. That is, I will consider whether understanding the origin of these constructions can shed some light on their semantic analysis.

## 7.3 Previous scholarship

Discussions of reciprocal constructions often start with the fact that sentences with NP-strategy expressions, such as (3a), seems to be semantically equivalent to a sequence of two sentences in which the participants exchange roles symmetrically, as in (3b).

(3) a.  James and Beth love each other.
    b.  James loves Beth and Beth loves James.

The question is therefore how the pronominal expression ("each other") in sentences like (3a) conveys the meaning of the two sentences in (3b). The literature of the last six decades takes three theoretical directions in attempting to account for this fact. Focusing on English sentences with *each other* (which belongs to the type of NP-strategy constructions designated in § 1.3.2.2.4 as "the quantificational construction with a universal quantifier"), these types of studies differ in their answers to three main questions that must be addressed concerning the syntax (4a–b) and the semantics (4c) of these sentences:

(4) a.  How many syntactic components does the basic sentence have?
    b.  Does this construction derive from a different construction?
    c.  Can the syntactic components account for the meaning of the sentence?

Regarding question (4a), the syntactic structure of a sentence like (3a) clearly consists of the antecedent "James and Beth" (which is plural) and the predicate "love," which agrees with the antecedent. But the question is whether the rest of the sentence comprises one component (*each-other*) or two (*each* and *other*):

(3') a.  [James and Beth] [love] **each other**.

The literature presents both options: some regard this phrase as a single unit while others divide it into a distributor/distributive quantifier (*each*) and a reciprocator/pronoun (*other*). This controversy is connected to the answers given by the different theories to questions (4b) and (4c).

The earliest syntactic analysis, called the *Conjunction Reduction Hypothesis* (Gleitman 1965; Lakoff and Peters 1966), posits that (3a) is actually derived, by reduction, from (3b). This approach assumes that, "[i]f two or more coordinate sentences are alike in specific ways, they can be reduced in a specific way to yield a single derived sentence containing either a coordinate NP or coordinate VP"

(Dougherty 1974: 4). This is assumed to explain why (3a) has the same semantic interpretation as (3b).

Although the syntactic part of this theory was, unsurprisingly, largely rejected, at least one aspect of its semantic dimension are still accepted in the literature, namely the assumption that the two sentences (3a–b) are semantically equivalent. There are, however, two major approaches to the source of this semantic equivalence, which Dougherty (1974) refers to as the Phrase Structure Analysis (PSA) and the Logical Structure Hypothesis (LSH). While this terminology reflects the state of the art in the early 70s, the essence of the debate is still relevant. In fact, these approaches are relevant to the two hypotheses introduced in (2): PSA takes the approach outlined in (2a), whereas LSH is a variant of (2b).[2]

According to PSA (Dougherty 1970, 1974 [assumed by Chomsky 1973] and Heim et al. 1991),[3] reciprocal expressions effectively "have no semantic properties peculiarly their own" and "their meaning instead arises from the compositional interactions of the meanings that their constituent parts have in isolation" (Heim et al. 1991: 67). From the syntactic point of view, this approach "break(s) up *each other* into the distributor *each* and the reciprocator *e other*, each of which occupies its own place in LF structure and makes its own semantic contribution… The distinct morphosyntactic parts of the reciprocal are responsible for different aspects of this complex semantic operation – *each* contributing the universal quantification and *other* the distinctness requirement" (p. 68).

Thus, the LF representation of (5a) is (5b):

(5)  a.  The men saw each other
     b.  $[_S[_{NP}[_{NP}$ the men$_1]$ each$]$ $[_S$ $e_2[_{VP}[_{NP}$ $e_2$ other$]_3$ $[_{VP}$ $e_3]]]]]$

The motivation behind this, as emphasized by Dougherty (1970, 1974), is the fact that (5a) is semantically equivalent to (6a–b)

(6)  a.  Each man saw the other.
     b.  The men, each of them saw the other.

---

**2.** A fourth approach, relatively unknown in the literature, is Glinert's (1983) proposal that in DS there is a repetition of the two NPs participating in the reciprocal relation. Glinert's syntactic analysis (§ 3.3) is somewhat problematic, as discussed in (§ 3.3), while the semantic aspect of his approach is underdeveloped. It should be noted, however, that as noted in Chapter 1, many languages indeed express reciprocity by repeating the nouns (see § 1.3.2.1). Therefore, as will become clear in the current chapter, Glinert's proposal may in fact be somewhat relevant to what is suggested here.

**3.** Heim et al. (1991) do not refer to Dougherty's papers from the early 70s, although, as noted by Everaert (1999) and others, in principle their approaches are very similar. Belletti's (1982) syntactic analysis also adopts the the PSA approach, in essence.

However, while (as noted in § 1.3.2.2.4) the three constructions (5, 6a and 6b) are indeed historically related (Haas 2010), over the last four decades various problems with this approach have been noted in the literature;[4] I will focus on two main ones.

The first problem concerns the applicability of this hypothesis to other constructions in English and to constructions in other languages (Fiengo and Lasnik 1973: 464, Dalrymple et al. 1994). While the components of the sentence in (5) can indeed by re-ordered to form (6a) and (6b), this is unique to the construction in English and in a few other Germanic languages. An examination of other two-unit constructions, surveyed in Chapter 1, reveals that none of them features a distributor.[5] Haas (2010) has noted that it is even harder to see how one-unit anaphors (to use the terminology from the previous chapters), such as *hinanden* in Danish, can be broken up into two components. It would be at least as hard to propose something similar for a pronoun like *ahāmiš* in Akkadian (see § 5.5 concerning the etymology of this anaphor) or for many other one-unit constructions that are historically derived from two-unit constructions by univerbation, especially when the etymology of these constructions is often opaque at the synchronic level.[6]

The second difficulty associated with the PSA approach has to do with the relationship between the LF structure and its semantic interpretation. Dougherty (1974) and Heim et al. (1991: 70) admit that their analysis works properly only in sentences where the reciprocal relation involves two sets of participants. With a larger number of sets, while the *each other* construction (as in (5)) allows "weak distributivity", constructions such as those in (6) (often called "each-the-other constructions") do not allow such a reading (see also Williams 1991 and Brisson

---

4. For a summary of the discussion on PSA and the various arguments for rejecting it, see Haas (2010: 32–37).

5. In the context of Biblical Hebrew, Jay (2009), relying on Heim et al. (1991), proposes that *ʾīš* functions as a quantifier, but it is significant that, unlike English *each*, this pronominal element is not a distributive quantifier in its basic function. Although Jay (2009), based on Stein (2008), demonstrates that *ʾīš* rarely has its "lexical" meaning (of "man"), he does not demonstrate that it functions as a universal quantifier anywhere in the Biblical corpus. Plank (2008) and Vezzosi (2010) make similar assumptions in the context of German and Italian, respectively, positing a similarity to the English morphology without any historic or synchronic lexical evidence. Heim et al.'s (1991) terminology is also found in various papers in the linguistic typology presented by Evans et al. (2011a); here too the term "distributor" is used even when it is not justified historically or lexically. See, for example, Kruspe (2011: 154, n. 4).

6. Similarly, Kremers (1997: 25) notes that the Dutch pronoun *elkaar* derives from the archaic form *elkander*, which in turn results from the fusion of *elk* "each" and *ander* "other". Synchronically, however, the etymology of *elkaar* is opaque. Moreover, Dalrymple et al. (1994) claim that a similar semantics is achieved in languages such as Chicheŵa where reciprocity is expressed by a verbal affix.

1998, *inter alia*). A comparison of the two sentences in (7), for example, shows that, while (7b) requires strong distributivity where every child kissed another child, (7a) could be true even with weak distributivity, where some of the children were only kiss recipients, and did not necessarily kiss any of the other children.

(7) a. The children were kissing each other
    b. The children were each kissing the other

Others, such as Sauerland (1998) and Beck (2001), provide different analyses within the PSA approach that can account for a larger variety of interpretations. However, as Beck (2001) admits, they are still unable to account for some of the most prominent interpretations of sentences in the relevant constructions.[7]

For these reasons, the PSA approach was rejected by proponents of the LSH approach, which claims instead that, despite the phonological affinity between the constructions illustrated in (5) and (6), "the similarity in shape between the quantifier and the reciprocal pronoun is an *ad hoc* fact about English synchronically" (Fiengo and Lasnik 1973: 464). Accordingly, they suggest that "*each other* never arises from a transformation, but is generated freely as a deep structure pronominal NP" (Fiengo and Lesnik 1973: 447). According to this approach, the semantic similarity between (5) and (6a–b) does not result from a syntactic derivation but merely from the logical structure of these expressions. In other words, the various reciprocal expressions, regardless of their syntactic position in the sentence and how many components they have, are phonological representations of the semantic function represented by the formula in (8).

(8)  $[[REC(R(x,y))]] = \forall x,y\ (x{\neq}y{\rightarrow}R(x,y))$

These expressions are assumed to take predicates as their arguments and yield identical symmetric relations in terms of the role of the participants. Thus, the equivalence between (3a) and (3b) is purely semantic and has nothing to do with their syntax.

The semantic function in the LSH approach thus provides no compositional account of the syntactic structure of NP-strategy constructions, i.e., for their components and the relations between them. This analysis takes the type of approach

---

7. Beck (2001) takes an approach similar to the Heim et al.'s (1991) while attempting to allow readings weaker than strong reciprocity. She does this by assigning the meaning "the other one among them" to the anaphor, and deriving the universal/distributive part of the meaning from the semantics of plurality (based on Schwarzschild's 1996 analysis for plurality). Beck (2001: 126–130) concedes that her analysis cannot account for the meaning of a specific interpretation (called IAO), which I take to be the basic meaning of these constructions. The problems noted earlier in Heim et al.'s analysis, namely that these constructions do not have the same components in all languages, are equally relevant to Sauerland's and Beck's proposals.

described in (2b), whereby the reciprocal interpretation results merely from the existence of some designated "reciprocal expression" in the sentence. It is immaterial whether this expression is a pronominal or a verbal marker of reciprocity; they are all assumed to share the underlying semantic function represented in (8). I.e., the assumption is that different syntactic/morphological elements express the same semantic function. Thus, the distinction between the two types of NP-strategy construction attested cross-linguistically, the one-unit and the two-unit constructions, has no bearing on the semantics of these construction; these are just different types of construction that overtly express the same semantic reciprocal function. This lack of "direct compositionality" – i.e., of commitment to the assumption that syntax and semantics work in tandem, as advocated by Montague semantics (Montague 1970), which requires homomorphism between syntax and semantics – is, of course, a less than optimal result.

## 7.4 The Strongest Meaning Hypothesis

Setting aside the problem of compositionality, I now turn to the major challenge that both approaches, PSA and LSH, seek to deal with, namely the problem of multifunctionality, already presented briefly in the introduction to this book (§ 0.6).[8] In all languages, the constructions under discussion have more than one interpretation. Different sentences with similar designated "reciprocal expressions" have different truth conditions in terms of how many relationships must hold between the participants for the sentence to be true. Dougherty (1974) notes that there are different types of semantic-relation patterns and Langendoen (1978: 180–181) illustrates them with the following diagrams, applying each type of pattern to sets of various sizes:



---
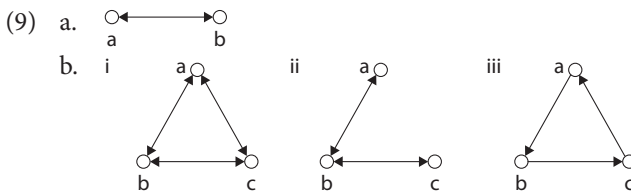
**8.** Within the PSA approach, it is Beck (2001) that deals with this challenge in the most explicit manner. She essentially adopts Dalrymple et al.'s (1998) Strongest Meaning Hypothesis, discussed below, to explain how the choice between different interpretations is made. In her approach, this hypothesis is a more general principle, and does not depend on the semantics of a specific construction (see p. 131).
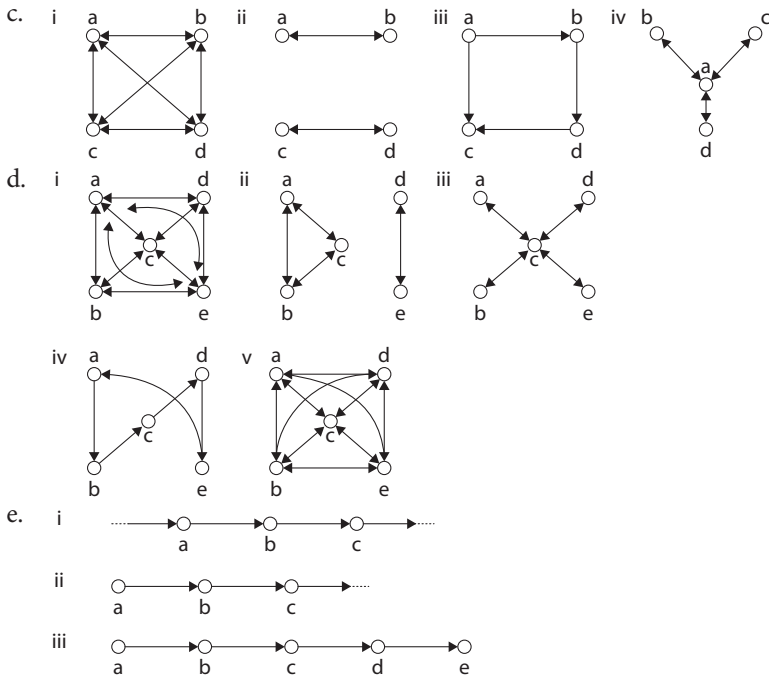
The following sentences (taken from Dalrymple et al. 1998) illustrate a few of the possible logical relations, representing only a small portion of the relations that NP-strategy constructions can express. For the purposes of the current discussion, it is only important to point out that the various NP-strategy constructions convey multiple types of semantic relations. The Roman letter in brackets following each sentence refers to the diagram that illustrates the relationships that must hold between five participants for the sentence to be true in that context.

(10)  a.  House of Commons etiquette requires **legislators** to address only the speaker of the House and **refer to each other indirectly** (d-i)
 b.  "The captain" said the **pirates, staring at each other in surprise** (d -iv)
 c.  **Five Boston pitchers sat alongside each other** (e-iii)

Dougherty (1974: 18–19) notes that the multiple semantic functions illustrated by these sentences give rise to the following question:

(11)  How is a specific input linked to a specific output? That is, what is the rule of semantic interpretation for *each other* sentences… [which determines] how any specific interpretation (or range of interpretations) is assigned to an arbitrary sentence?"

It is important to emphasize that, in most cases, the relevant sentences are unambiguous, as it is clear how many members must participate in the relations, and

in what roles, for the sentence to be true. The fact that NP-strategy constructions have a range of possible types of meaning poses a serious theoretical challenge for a semantic analysis of these constructions. This puzzle stands at the heart of many discussions in this book.

One natural approach to this question is a pragmatic one, which assumes that reciprocal sentences have a fixed semantic meaning, strong or weak, which can be strengthened or weakened by pragmatic factors such as Grice's Cooperative Principles (1975). However, Dalrymple et al. (1998) demonstrate that this is not the case, since explicit strengthening or weakening of the reciprocity produces a contradiction rather than the canceling of an implicature, as shown by the following sentences:[9]

(12) #House of Commons legislators refer to each other indirectly; the most senior one addresses the most junior one directly.

(13) #The pirates were staring at each other in surprise; one of them wasn't staring at any pirate.

In light of these observations, Dalrymple et al. (1998) conclude that the *meaning* of the relevant constructions varies from one sentence to another and is selected from a small inventory of meanings. To answer the question of how a specific input is linked to a specific output, they propose the Strongest Meaning Hypothesis,[10] which is meant to yield the context-sensitive meaning of any sentence containing an NP-strategy construction. The hypothesis states that a sentence takes the strongest meaning among the inventory of interpretations that is consistent with known facts about the antecedent and the scope of the relevant relation in the given domain and the specific context. **Strength is formally defined in terms of logical relations: the stronger interpretation entails the weaker ones**. The following are five (of several) possible interpretations:

**Strong reciprocity**: $|A| \geq 2$ and $\forall x,y \in A$ $(x \neq y \to Rxy)$
**Intermediate reciprocity**: $|A| \geq 2$ and $\forall x,y \in A$ $(x \neq y \to$ for some sequence $z_0, \ldots z_m \in A$ $(x = z_0 \land Rz_0z_1 \ldots Rz_{m-1}z_m \land z_m = y))$
**One-way Weak Reciprocity**: $|A| \geq 2$ and $\forall x \in A$ $\exists y \in A$ $(x \neq y \land Rxy)$
**Intermediate Alternative Reciprocity**: $|A| \geq 2$ and $\forall x \in A$ $(x \neq y \to$ for some sequence $z_0, \ldots z_m \in A$ $(x = z_0 \land (Rz_0z_1 \lor Rz_1z_0) \land \ldots \land (Rz_{m-1}z_m \lor Rz_mz_{m-1}) \land z_m = y))$
**Inclusive Alternative Ordering**: $A| \geq 2$ and $\forall x \in A$ $\exists y \in A$ $(x \neq y \land (Rxy \lor Ryx))$

---

9. See Philip (2000), who provides empirical support for Dalrymple et al.'s (1998) analysis, but argues that the principle that stands behind SMH is pragmatic rather than semantic.

10. See also Kim & Peters (1998).

According to the Strongest Meaning Hypothesis, if a context is inconsistent with the assignment of a strong interpretation, a weaker meaning is assigned. For example, in (10c), repeated below, the strongest meaning is ruled out:

(10c)   Five Boston pitchers sat alongside each other.

Since it is impossible for each of the pitchers to sit alongside each of the others, a weaker interpretation is assigned, according to which each pitcher had the maximal number of others (two in this case, or one if he is at the edge of the row) sitting alongside him.

Sabato and Winter (2012) note a serious problem with the idea that the meaning is determined contextually. Consider the following two sentences, uttered in succession. According to Dalrymple et al's theory, once we hear (14a) (which explicitly rules out strong reciprocity), we should be able to accommodate (14b) by assigning it a weaker (asymmetric) interpretation. But the fact is that juxtaposing these sentences does not produce a weak interpretation of (14b) but rather a contradiction.

(14)   a.   John doesn't like Mary.
       b.   Mary and John like each other.

This seems to be a serious problem for Dalrymple et al. (1998), especially since, as mentioned earlier in the context of Examples (12)–(13), cases which lead to contextual contradiction are common, suggesting that the multifunctionality is a semantic phenomenon rather than a pragmatic one (which should be amenable to local weakening). We will return to this issue below in the discussion of Mari's (2014) criticism of Dalrymple et al. (1998).

Sabato and Winter (2012)'s proposal is essentially similar to Dalrymple et al.'s (1998) Strong Meaning Hypothesis, but instead of focusing on contextual information, they propose a theory called the Maximal Interpretation Hypothesis, according to which there is a taxonomy of restrictions on the interpretation of relational expressions. In this version, the maximal interpretation does not depend on the context but rather on the predicate. Each predicate receives a different parameter value, which yields an unambiguous interpretation for each sentence.[11] Regardless of the differences between Dalrymple et al. (1998) and Sabato & Winter (2012), both approaches agree that sentences with NP-strategy constructions are

---

**11.** For our purposes Poortman et al.'s (2018) Maximal Typicality Hypothesis (=MTH) is similar. According to the MTH, for any given sentence with an NP-strategy construction, the MTH specifies a core situation that is maximally typical for the verb concept. This hypothesis predicts that sentences in the core situation will tend to be more acceptable than in other situations. From our perspective the criticism of Sabato and Winter (2012) is also applicable to Poortman et al. (2018).

unambiguous and each has a single interpretation in a particular context. Below I examine whether this assumption is consistent with the data.

While Dalrymple et al. (1998) and Sabato and Winter (2012) can deal with the various asymmetric interpretations by means of their Strongest Meaning Hypothesis, they still encounter two types of empirical problems: those presented by Mari (2014), which are discussed below, and another type that will be discussed in Section § 7.6.

Mari (2014) rightly notes that Dalrymple et al. (1998) cannot account for the unacceptability of the sentences in (15) (all sentences are taken from Mari (2014); in parentheses are their respective numbers in her paper):

(15)   a.   # The boys are taller than each other (8a). (cf. Dalrymple et al. 1998, Example 109)
      b.   # My mother and I gave birth to each other (12). (cf. Sauerland 1998, Example 67)
      c.   # We are smarter than each other (18b).
      d.   Said in description of a living human being: #The head and the body are on top of each other.

These sentences describe situations which are inherently incompatible with a strong interpretation. For example, assuming a set of two boys (for the sake of simplicity), each cannot be simultaneously taller than the other; similarly, a child cannot be the mother of its own mother. But according to Dalrymple et al., given that the strong reading is ruled out, the sentences should be acceptable with a weaker meaning. Thus, (15a) should produce an interpretation where one of the boys is taller than the other, just as (16), if referring to two tables, merely means that one is on top of the other.

(16)   The tables are stacked on top of each other.

Similarly, (15b) should be equivalent in meaning to "my mother gave birth to me." This is clearly not the case.

To account for cases like these, Mari (2014) rejects Dalrymple et al.'s (1998) proposal that the NP-strategy is associated with a fixed set of interpretations, the strongest possible of which is always applied. We turn now to her alternative proposal.

## 7.5   The Modal Hypothesis

Mari (2014) posits that NP-strategy constructions always denote strong reciprocity, as represented by (8), but with some modifications. She adds a modal aspect to

the semantics of these expressions, claiming that they **describe a relation that is either *actually* or *possibly* a strong reciprocal**. According to her, English sentences with expressions such as "each-other" are true if strong reciprocity can be enacted across reasonable futures. Example (16), for example, is judged to be acceptable since, assuming a set of tables, each of the tables **can be** stacked on top of every other in some expected future. Conversely, the examples in (15) are unacceptable because they are not consistent with strong reciprocity even if future scenarios are taken into account. Assuming that the world remains as we know it, and assuming that height and intelligence are taken to be stable individual-level features, the relations between the participants are fixed, so strong reciprocity cannot be achieved even across a set of possible futures. Similarly, a daughter will never give birth to her mother (15b), and in all expected futures, the head of a living body is always on top of the body (15d), and smartness (assuming it is an *individual-level* predicate) is not expected to change.

It is beyond the scope of the current chapter to provide a full assessment of Mari's (2014) proposal;[12] however, I would like to point out various empirical problems that it too encounters. Mari (2014: 254) herself notes that her analysis cannot account for the acceptability of (17) (79a in her paper):

(17)   The numbers follow each other.

(17) is not an exception; similar sentences are systematically documented in mathematics discussions:

(18)  a.   Your algorithm assumes that the players agree on which pieces are bigger than each other.$_\gamma$
      b.   You can figure out the degree of a polynomial if you haven't forgotten which numbers are bigger than each other.$_\gamma$
      c.   We see, therefore, that the sides of similar triangles are bigger or smaller than each other in just the same ratio.$_\gamma$

Similarly, "each-other" may be used in sentences describing permanent features (stative, individual-level predicates), such as size:

(19)  a.   A single male can fertilize many females. Often, he must fight off other potential suitors for the privilege. As such, it's useful for males to be bigger than each other.$_\gamma$

---

12.  Among the aspects that should be discussed are to what extent these sentences indeed have modal components, and whether possible futures are indeed part of their truth conditions. In the next chapter (§ 8.5) I will propose a different mechanism, somewhat close in spirit to Mari's analysis, involving an additional implicature that affects the meaning of the NP-strategy.

b.  One arm is bigger than the other?
So for the past couple of weeks I've noticed that one arm is bigger than
the other, so I went to the tailor and asked the lady to measure my arms,
a n!gga doesn't have a tape measure, anyway **they ended up being a
inch bigger than each other**, and it looks like I have a baby arm and one
massive arm because one arm fills out shirts and one doesn't. It wouldn't
matter if I was bigger, but I'm not so what can I do to make them look
equal? I do a lot of dumbbell exercises and I can lift equally on both
sides so I don't get it.$_\gamma$

The examples in (20) present further instances where possible futures cannot
produce symmetry:[13]

(20)  a.  The kids gave each other measles.
  b.  They jumped off the cliff and followed each other to their death.
  c.  We're cooking multiple steaks one after the other in the same pan.[14]

The problem in (20a) is that measles can be contracted only once. Hence, once a
child has had measles and given the disease to another, he cannot contract it again
in the future. Similarly, in the tragic circumstances described in (20b), there can be
no "normal" future event in which the first person who jumped to his death comes
back to life and jumps again, this time after one of his comrades. In (20c), once a
steak is cooked, it cannot be cooked again in the future.

These observations show that the strong reciprocity assumption is problem-
atic even with Mari's (2014) addition of the possible futures modal component.
Before suggesting an alternative approach, let me first of all summarize all the
cases in which NP-strategy sentences have a non-reciprocal reading, which are
largely accounted for by Dalrymple et al. (1998) and Sabato & Winter (2012), and
then point out another type of problem for the Strongest Meaning Hypothesis.

---

**13.** For Mari, it seems to be crucial whether a single possible asymmetric order available. She
may therefore explain the grammaticality of the sentences in (20) by arguing that possible
branches open up at the very beginning (prior to the first realization of the relation). However, it
is unclear why this possibility would then be unavailable with stative, individual-level predicates,
as in: "#I'm going to build several skyscrapers taller than each other." Moreover, it is unclear to
me what, in her approach, is the role of the possibility for a change after the first instantiation of
a relation. (I wish to thank her for discussing these issues with me.)

**14.** I wish to thank Yadid Bar-Asher Siegal for this example.

## 7.6   Non-reciprocal readings of NP-strategy constructions for expressing reciprocity

The previous literature focused on two types of cases in which NP-strategy constructions do not require that a reciprocal relationship hold between all of the participants in the relevant relations. The first are sentences whose predicate is logically inconsistent with full reciprocity, as in (21a–b), where "to follow" and "to be on top of" denote inherently asymmetric relations:

(21)   a.   The children entered the door following each other.
       b.   The books were stacked on top of each other.

In other, similar, cases a reciprocal interpretation is not ruled out by the predicate but is inconsistent with extra-linguistic knowledge, as in (22).

(22)   The third-grade students in Mrs. Smith's class gave each other measles.

As noted earlier regarding (20a), it is widely known that measles can be contracted only once. Therefore, the predicate "give measles to" cannot be understood as symmetric.

This is the type of problem which Dalrymple et al. (1998) and Sabato and Winter (2012) attempt to solve. The second type of problem, also considered in previous literature (Fiengo & Lesnik 1973: 452–453; Dalrymple et al. 1998: 167–168), involves sentences which usually have a strong reciprocal reading, but are occasionally used "loosely", such as the following:

(23)   The men were hitting each other.

Although this sentence could describe a fight in which each of the participants hit at least one other and was hit by at least one other, it could also felicitously describe an event in which some of the men did not give blows or did not receive them. Dalrymple et al. (1998) explain this by stating that is "[t]he possible 'looseness' or 'imprecision' we ascribe to 30 [=example 23 above] is not unlike that which may be found in a universal statement such as 'everyone in the room was drunk'". An alternative solution to this problem is the "cover" mechanism of Schwarzschild (1996, esp. Chapter 6), which was introduced at length in Chapter 1. This can also be related to the fact, which recently received new attention in the literature, that definite plurals do not always have a maximal reading (Malamud 2012; Magri 2014; Kriz 2015, 2016; Bar-Lev 2018 Chapter 3).

However, there are additional cases of non-reciprocal interpretations that pose a problem for Dalrymple et al. (1998), namely sentences that describe states-of-affairs that are consistent with a strong interpretation but nevertheless have a weaker one. More precisely, these are sentences whose predicates allow

strong reciprocity, uttered in contexts that likewise allow such reciprocity but invite a weaker interpretation as the most natural reading. I will show that this phenomenon is widespread, and that the availability of the weak interpretations is systematic, i.e., not restricted any certain type of verb or construction. Thus, even if the reading of one sentence or another can be contested, the broad range of examples will hopefully demonstrate the validity of the claim.

The type of interpretations that I have in mind are those associated with sentences like (24), taken from a Hebrew blog, in which the author relates her experiences at a water park. (The first sentence, presented in translation, provide the context; the relevant sentence is presented in Hebrew, followed by its English equivalent. As the English translation reveals, the phenomenon is the same in both languages):

(24)    "The fathers looked at me in disgust, but luckily I didn't hear what they said.
*hem betax    amru    exad la-šeni    tistakel    al ha-šmena*
they probably say.PST.3.PL one   to.DEF-second look.IMP.2.M.SG on DEF-fat
*hazot*
DEM.F.SG
**"They were probably saying to each other: 'check out that fat lady'".**$_{\gamma}$

In uttering this sentence, the blogger was probably imagining a situation where only one of the fathers expressed this offensive sentiment and the others merely nodded or smiled in agreement. However, it seems significant that, in the given situation, any of the fathers staring at her could have said the sentence, or at least that it does not matter which of them said it. The following passage presents a similar phenomenon in an original English text:

(25)    "Thinking back, I realize that my parents must have been stunned and disappointed in my choice to jump the career/life track I'd been traveling. So much potential, **they probably said to each other, she's wasting herself**. But they never said that stuff to me; my parents had a laissez-faire attitude once my sisters and I reached adulthood".$_{\gamma}$

Again, it doesn't matter which parent actually expressed his/her disappointment by saying "she's wasting herself", since this feeling is shared by both. Crucially, the passages in (24)–(25) *could* conceivably describe a situation where each of all the participants expressed the relevant sentiment to the other, but this is rather unlikely (in contrast, for example, to the following sentence describing two lovers: "the couple always say 'I love you' to each other before they go to sleep", which most likely invokes a reciprocal interpretation in which each one of them, in every instance, says these words to the other.) This phenomenon is by no means restricted to uses of the verb "to say." Sentences with other verbs can also express

weak reciprocity or even describe situations that do not require reciprocity at all. Consider the following:

(26)  "You guys hit each other"

Out of context, this sentence probably invokes a sense of strong reciprocity when addressed to two people. However, when placed in the following contexts, it acquires a different interpretation in each:

(26')  a.  "If you hit each other, you won't get dessert".
      b.  "If you hit each other, you get one point".

Imagine that (26'a) is uttered by a father to his two daughters. Clearly, the threat does not apply only to a situation in which each of the girls hits the other. (If one of the girls hit her sister, she would not be able to claim that she should still get desert because her sister did not hit her.) This is not the case in (26'b), which evokes a sports competition and is most likely be understood with a strong reciprocal interpretation, i.e., as indicating that a player can still score despite being hit. The following is another example where the same sentence acquires different interpretations in different contexts:

(27)  a.  The two witnesses spoke to each other.
      b.  Since the two witnesses spoke to each other, they won't be allowed to take the stand.[15]
      c.  Once the trial ended, the two witnesses spoke to each other.

Out of context, the default interpretation of (27a) is probably strong reciprocity. In (27b), on the other hand, our knowledge of court situations leads us to assign it a weaker interpretation: it is clearly enough for one witness to speak to his fellow to preclude either of them from taking the stand. In (27c) the context suggests the strong interpretation (the sentence is most naturally understood as describing a conversation in which both parties participated equally).

One might suggest that the reading of (27b) is due to the conditional (as the antecedent of a conditional is a *downward entailing* context; see below (§ 7.7.2) for why this could be a relevant factor). This solution, however, does not account for the non-reciprocal readings we observed in (24–25), or for (28b), where the reciprocal cannot be reconstructed as embedded in a conditional:

---

**15.** A documented sentence with a similar construction and meaning is the following: "When witnesses speak to each other, their perspectives are affected by the words of other witnesses."γ

(28)   a.   They will wake each other up.
      b.   I never put my twins on the same crib, because they will wake each other up (<= acceptable even if only one baby wakes the other but is not woken himself)[16]
      c.   They agreed that they would wake each other up (<= most naturally understood as an agreement between two or more people to take turns sleeping).

Similarly, although out of context the expression "send messages to each other" implies mutual communication, the sentence "if you want to send a message to each other" can also be used in contexts like the ones below, where a reciprocal meaning does not necessarily arise. In all these cases, the clause means "if any member of the relevant set wants to send a message to any other member of the set". The first example is from a website providing tools for organizing online events, from a passage explaining the functions of the online "guest book":

(29)   Guest Book
      The guest book is a wonderful way to stay in touch before and after the event. When a website visitor makes a guest book entry, it becomes visible on the website after being approved by you.
      The guestbook is a great tool to collect small messages from party guests commenting on the look and functionality of the website or commenting on the event. **Party guests can send a message to each other without exposing their email address.**$_\gamma$

In this case "to send a message to each other" cannot be reciprocal in the strict sense, since the idea behind hiding the address is to prevent the addressee of the messages from knowing who sent it in the first place, which precludes him from replying to that specific sender.

Similarly, a discussion-room post about iPads provides the following explanation:

---

16.  A documented sentence with a similar construction and meaning is the following: "If you have twins, I would suggest to get two cribs, it is common, in my case anyway, that they will wake each other up".$_\gamma$ The following too is compatible with a reading where the one who wakes up the other is not woken herself: "Once in a while they woke each other up, when Laura a restless sleeper bounced her pet around or Nellie chased some animals in her dreams"$_\gamma$. It could be argued that in such cases reciprocity holds across different episodes, but the following clearly describes a single event: "They woke each other up before 6 a.m., left their apartments and walked about 200 yards through a parking lot and under street lights to the empty basketball arena"$_\gamma$.

(30)  **If you send a message to each other from the iPad**, you should receive
      this message on both your phone and iPad as it is using your email address
      rather than your number.<sub>γ</sub>

Here, the clause containing the reciprocal expression means "if any of you sends a
message to any other," without implying that mutual communication necessarily
takes place at any time between any two participants.

I will enlisted some more expressions that can be understood as strongly recip-
rocal in some cases, but in certain other contexts have an entirely non-reciprocal
reading. This is true, for example, of the English expression "having their arms
around each other" and of its Hebrew equivalent:

(31)  *kol ha-xaver-im  šeli       tamid mitxabk-im,       **sam-im   yad exad***
      all  DEF-friend-PL POSS.1.SG always hug.RECP.PRS-PL put.PRS-PL hand one
      ***al ha-šeni      stam, sam-im    roš   exad al  ha-šeni***
      on  DEF-second  simply  put.PRS-PL head  one   on  DEF-second
      "All my friends are always hugging, **putting their arms around each other**
      just like that, resting their heads on each other".<sub>γ</sub>

The expression "putting their arms around each other" in both languages can
be used to describe situations when only one person is actually putting his arm
around another. Similarly, the following two images from the web are accompa-
nied by descriptions containing the expression "arms around each other," although
in each picture only one individual is hugging the other.



**DSC_0350 (1)**

Little boys all the way up to grown men are
very affectionate here. They always have
their arms around each other or hold
hands...I loved it!

Uploaded on **Nov 25, 2008**
**0 comments**

<http://www.flickr.com/photos/elizabethdief/page2/>

Jessica Biel and Justin Timberlake stepped out for a sunny afternoon in LA yesterday. The duo showed PDA [public displays of affection] with their arms around each other <http://www.popsugar.com/Jessica-Biel-Engagement-Ring-Pictures-22111922>
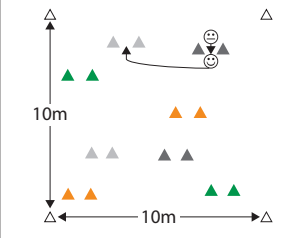
Native English speakers I consulted even suggested that, had the text said "he had his arm around her," it would have implied that "she wasn't that into it." Use of the "each other" construction indicates that it is completely irrelevant whose arm was around whom.

Let us consider one more example by comparing several attested instances of the phrase "players pass the ball to each other." The first occurs in a paragraph describing the rules of football (or soccer, to use the American term):

(32)    "The modern game is played by two teams of eleven players on a rectangular field with a goal at each end. **Players pass the ball to each other** by kicking or heading it, with the aim being to score goals by getting the ball into the opponent's goal."$_\gamma$

Clearly, this sentence does not imply that a team member who receives a pass must then kick the ball back to the passer. In contrast, the following instance of the phrase, describing a rugby drill, does refer to a passing of the ball back and forth between two players:

(33)    "In pairs, **players will pass the ball to each other** through the gate. See which pair can pass the ball the most times in a minute."$_\gamma$

| 2. Play the Ball Drill | – Set up a grid 10m × 10m<br>– Inside the grid set up a number of 'gates' with markers 1m apart<br>– Each gate will be marked with the same colour markers, however each gate should be of a different colour to surrounding gates<br>– In pairs, players will pass the ball to each other through the gate. See which pair can pass the ball the most times in a minute. |
|---|---|

**Progression 1:** After passing the ball through the gate the receiver needs to find a different coloured gate and pass the ball back to their partner through the gate. See which pair can pass the ball through the most gates in a minute.

**Progression 2:** After passing the ball the receiver needs to run to the tryline they are facing and score a try. Repeat the process in the opposite direction. See which pair can score the most tries in a minute. The players now must pass the ball 'backwards' through the gate.

Another indication that these constructions do not have a fixed interpretation is that speakers can fine-tune the strength intended by a particular phrase in the course of a conversation. Although Dalrymple et al. (1998) are correct in pointing out that the pragmatic weakening or strengthening of reciprocals can produce contradictions, as in (12)–(13), the following Hebrew sentences and their English translations demonstrate that speakers can fine-tune their meaning without producing a contradiction. Thus, while (34a) is contradictory, (34b–c, 35) are not:

(34)  a.  ${}^{\#}$ *hem nišku        exad et   ha-šeni    kvar  ba-xodeš      še-avar,*
they kiss.PST.3.PL one  ACC DEF-second already in.DEF-month last,
*hu lo   nišek       ota*
he NEG kiss.PST.3.SG ACC.3.F.SG
Intended: "They already kissed (each other) last month; he did not kiss her."

   b.  *hem nišku        exad et   ha-šeni    kvar  ba-xodeš      še-avar,*
they kiss.PST.3.PL one  ACC DEF-second already in.DEF-month last,
*leyeter diyuk  ze       hu še-nišek        ota,       aval hi  meod*
more   accurate DEM.M.SG he REL-kiss.PST.3.SG ACC.3.F.SG but  she much
*ahava         et ze*
like.PST.3.F.SG ACC DEM.M.SG
"They already kissed each other last month; well, to be more accurate, he's the one who kissed her, but she really liked it."

   c.  *hem nišku        exad et   ha-šeni    lo? ani lo   mitkaven*
they kiss.PST.3.PL one  ACC DEF-second NEG i   NEG mean.PRS.M.SG
*še-kol    exad nišek        et  ha- šeni,   ela še-hayta    šam*
REL-every one  kiss.PST.3.M.SG ACC DEF-second but REL.be.3.F.SG there
*eize  nešika*
INDF kiss
"Haven't they already kissed each other? Well, I don't mean that each one of them kissed the other but only that some kissing took place."

Similarly, imagine the following gossip between two friends:

(35)  A:  "I walked into the room and they were kissing each other."
  B.  "Details! I want all the details!"
  A:  "Well actually, he was kissing her, and she seemed to be enjoying it."

These clarifications by the speaker are meta-linguistic, indicating how many instantiations of the relation must hold for the sentence to be true. In (35), upon hearing A saying "I walked into the room and they were kissing each other", B would probably understand that the kissing was mutual, i.e., that mutual kissing is part of the truth conditions of the utterance. To preclude this, A clarifies that in this particular case a weaker meaning of "kiss" is intended, where it is sufficient that only one of the pair did the kissing. Therefore, while (34a) is interpreted as a contradiction, since no such clarification is provided, (34b–c) and (35) are felicitous.

Turning once again to Dalrymple et al. (1998), according to which strong reciprocity is the default reading as long as it is not inconsistent with the context, notice that nothing prevents (32), for example, from taking a strong reciprocal reading. A priori it could be read as a rule stating that players can score if and only if two players pass the ball back and forth between them, as in (33). Sabato & Winter (2012), which claims that each predicate has a certain parameter that determines the (strongest possible) meaning, encounters similar problems, since (32) and (33) have the same predicate, but nevertheless yield different interpretations; moreover, as we saw in (34–35), it is even possible to negotiate the semantic strength assigned to the reciprocal in a given context.[17] Thus, unless we want to claim that each of these sentences contains a different *each other* expression, a different type of solution – one which involves some contextual resolution – is clearly needed.

In sum, the data above show that NP-strategy expressions appear in non-reciprocal contexts on a regular basis. Moreover, similar sentences may appear in different contexts with different interpretations, some requiring reciprocal readings and others allowing weaker ones. Crucially, in all these contexts **a reciprocal reading is possible** but is not necessary for satisfying the truth conditions of the sentence.

The last two facts can be summarized laconically as follows:

i.   Identical sentences are assigned different strengths in different contexts.
ii.  Sentences can have a weak interpretation even when the state-of-affairs they describe is consistent with a stronger/the strongest interpretation.

Dalrymple et al. (1998) and Sabato & Winter (2012) cannot account for these two empirical facts. For Sabato & Winter (2012), each sentence should have a single

---

**17.** Similarly, according to Poortman et al. (2018), sentences are assigned the reading most typical of the verb concept, and this too is not supposed to depend on the context.

interpretation, as the strength of the interpretation is formally derived based on the predicate. This is incompatible with the observation in (i). Dalrymple et al. (1998) cannot account for (ii), as they predict that only the strongest possible interpretation can be assigned in a given context.

While it is evident that the context determines the strength of the interpretation, it is still necessary to propose a mechanism that yields the relevant interpretation in a given context. Before this, it is necessary to establish the basic meaning of NP-strategy constructions, namely the semantic meaning that is modified by the context. The next Sections (§ 7.7.1–3) argue that this basic meaning is weak, rather than strong, whereas the next chapter will propose a mechanism that strengthens this meaning in certain contexts.

## 7.7 Unspecified constructions

### 7.7.1 A weak interpretation as the basic meaning

As we saw in the introduction (§ 0.6), typologists (e.g., Lichtenberk 1985; Kemmer 1993, among others) assume a prototypical symmetric relation that natural languages express using a variety of different constructions. Consequently, they consider the use of such constructions in asymmetric relations to be an "extended use of a reciprocal marker" (Nedjalkov 2007a: 9). Similarly, as the survey in the current chapter has shown, several semanticists assume that these constructions denote strong reciprocity (Heim et al. 1991; Mari 2014), at least as long as there is no contextual/logical parameter that prevents such an interpretation (Dalrymple et al. 1998; Sabato & Winter 2012). I take the opposite perspective and assume a non-reciprocal interpretation as the basic meaning for NP-strategy constructions.

I propose that these sentences with NP-strategy constructions are in fact ambiguous (in a way that will be clarified). In order to characterize this underspecified meaning, it is necessary to identify the common ground shared by all the various interpretations these constructions can have, or, in more formal semantic terms, identify the semantic representation that all the other representations entail. I therefore begin by spelling out the "minimal" semantic requirements for using these constructions. I will first lay out the truth conditions, and then add further restrictions and modifications (in § 7.8–9).

The data above demonstrates that the following is true for all the types of relations that have been identified as possible interpretations of the NP-strategy in various contexts:

(36) For a given set:
All members of the set must participate in the relation denoted by the predicate with one other member of the set.

Consider the examples in (37), which were discussed in (§ 7.6).

(37)  a.  The children entered the door following each other.
      b.  The third-grade students in Mrs. Smith's class gave each other measles.
      c.  Since the witnesses spoke to each other, they won't be allowed to take the stand.
      d.  All my friends are always hugging, **putting their arms around each other** just like that, holding hands, resting their heads on each other…$_\gamma$

First, it should be noted that the definition in (36) requires that each member of the set participate in the relation denoted by the predicate with at least one other member **of the same set**. In other words, these sentences cannot describe states-of-affairs in which all or some members of the relevant set participated in the relevant relation *only* with members of some other set, not denoted by the antecedent the pronominal expression. For example, (37b) cannot describe a scenario where all the children in Mrs. Smith's class gave measles to, or were given measles by, the children in some other class. Similarly, in a case where the witnesses spoke only with other people, (37c) is false (and the witnesses are not prevented from taking the stand). This constraint should not be considered trivial, especially since other strategies for expressing reciprocity do not exhibit it.[18]

As for the semantics of these sentences (after excluding cases in which looseness is allowed in the case of definite descriptions – mentioned earlier in Example (23)), (36) entails that the core reading of (37a) is that each child entered either before or after some other child. (In some contexts there is a stronger

---

18. A case in point is the verbal strategy for expressing reciprocity, which systematically has a distributive reading in which the reciprocal relation holds with participants outside the set, as demonstrated in the following example (see Bar-Asher Siegal 2016b: 16):

*rut   ve-miriam   hitnašku*
Ruth and-Miriam kiss.REC.PST.3.PL

i.   Collective reading:
     "Ruth and Miriam kissed each other"
ii.  Distributive reading:
     "Both Ruth and Miriam kissed with someone else" (i.e., not each other)

Siloni (2012) argues that the lexical representation of reciprocal predicates includes two entries: a monadic reading, which produces the collective reading (i), and a dyadic entry, which produces the distributive reading. Bar-Asher Siegal (2016b) argues that these are in fact two possible realizations of the same lexical entry.

requirement, namely that they must all enter in an uninterrupted row, but this is irrelevant for determining what is common to all the possible interpretations.) Similarly, in (37c), the witnesses are not allowed to take the stand because each of them either spoke to or was spoken to by another. The highlighted sentence in (37d) indicates that each of the relevant friends is either hugging or being hugged by another. In light of this, a formal representation of the definition in (36) for a set A with two or more members and the relation R is the following:

(38)   $|A|\geq 2$ and $\forall x \in A \; \exists y \in A \; (x \neq y \land (Rxy \lor Ryx))$

In paraphrase, (38) states that, for a given set A, each member of the set must be a member of a pair within set A that stands in the relation R. I claim that **(38) represents the basic meaning of the NP-strategy, which can be specified and strengthened further in various contexts**.[19]

In sum, there are at least three competing hypotheses for the basic semantics of the NP-strategy for expressing reciprocity:

**The Reciprocal Hypothesis (RH)** (a common assumption in the typological literature and various semantic analyses, such as Mari (2014)): The meaning of the NP strategy is strong reciprocity. Instances that denote weaker relations can be explained either as "loose use of language" or via some modification of how strong reciprocity should be defined.

**The Strongest Meaning Hypothesis (SMH)** (Dalrymple et al. 1998; Sabato & Winter 2012): NP strategy constructions have a set of possible meanings. A sentence takes the strongest meaning in the set that is consistent with known facts about the specific context.

The SMH has several variants, involving either a principle for interpreting linguistic expressions that have a systematic set of interpretations (Dalrymple et al. 1998), or a more general principle for interpreting expressions with underspecified meaning (Beck 2001).[20]

**The Unspecified Construction Hypothesis (UCH)**: NP strategy constructions are a type of *unspecified construction*. Specifically, they are expressions expressions denoting that, within a given binary relation R between at least two (defined) ordered sets, it is not specified which set occupies which position.[21] The formula

---

**19.** These truth-conditions are known in the literature by the name given to them by Kański (1987): Inclusive Alternative Ordering (= IAO). However, I do not follow this terminology since to a large extent it assumes some level of reciprocity as the meaning of the relevant expressions.

**20.** SMH has been applied to other semantic phenomena with similar characteristics. It is central, for example, to the some discussions of definite plurals, see inter alia Krifka (1996), Spector (2013), and Bar-Lev (2018).

**21.** The concept of "non-specification" is elaborated in the next chapter.

in (38) describes this informal definition for a set A with two or more members and the relation R.

According to the UCH, the basic meaning of these constructions is much weaker than the meaning assumed by the RH and SMH, because it only requires each member of the set to stand in the relevant relation to one other member of the set. Although this basic meaning is necessary, i.e., true for all sentences containing these expressions, it is not always sufficient to capture the meaning of these sentences in a given context. But before discussing the mechanism for deriving the meaning in context, which will be the topic of the next chapter, let me provide some further support for the UCH.

So far, it has been demonstrated that the UCH is consistent with data that the RH and SMH fail to account for. Below I present the three arguments in its favor, all of which are also arguments against the RH and, to some extent, against the SMH as well:

a.  As noted above, the UCH, formalized in (38), captures all the various relations that can be described by means of this strategy (including: behind each other, next to each other, see each other, write to each other (in various contexts), etc.). This means that the UCH is consistent with all cases that the RH and the SMH are inconsistent with.
b.  It explains the interaction between the NP strategy and negation (§ 7.7.2).
c.  It is consistent with facts about the origins of NP-strategy constructions. This point will take us back to the discussion in the introduction (§ 0.7) and in the first part of the book (mainly Chapters 1–2) about the diachronic aspects of these constructions (§ 7.7.3).

### 7.7.2  NP-strategy constructions under negation

An interesting fact that has been noticed in the literature is that, when NP-strategy sentences are negated, the result is not a negation of the strongest possible reading (Krifka 1996: 147; Dalrymple et al. 1998: 207–208; Beck 2001: 132 ff). In other words, the default interpretation of negative NP-strategy sentences (39c) is not (39b), which is the negation of (39a):

(39)  a.  Strong reciprocity: $|A| \geq 2$ and $\forall x,y \in A$ $(x \neq y \rightarrow Rxy)$
      b.  Negation: $|A| \geq 2$ and $\sim \forall x,y \in A (x \neq y \rightarrow Rxy)$
      c.  They didn't kiss each other $\nrightarrow$ it is not the case that each of them kissed every other, i.e., at least one of them did not kiss or was not kissed by one other.

This is not the case with other strategies for expressing reciprocity, whose meaning under negation is in fact accurately captured by (39b).[22]

The default interpretation of negative sentences with NP-strategy constructions is that **no member of the set** participated in the relevant relation with any other. In other words, the negative relation $[(\sim R) (x, y)]$ is assigned.

(40)  a.  They didn't see each other → no one saw anyone
      b.  They didn't kiss each other → no one kissed anyone

This interpretation is captured in (41):

(41)  $|A|{\geq}2$ and $\forall x,y{\in}A\ (x{\neq}y{\to}\sim Rxy)$

It should be stressed this is only the *default* reading for most speakers. The reading in (39b) is possible, especially when stressing the anaphor ("They didn't kiss EACH OTHER.")[23]

The observations above are consistent with the UCH as formalized in (38). Note that the formula contains two quantifiers, and negation can interact with either. When negation scopes only over the existential quantifier, as represented in (41), the readings in (40) are produced, since (42) is semantically equivalent to (41):

(42)  $|A|{\geq}2$ and $\forall x{\in}A\sim\exists y{\in}A(x{\neq}y{\wedge}(Rxy{\vee}Ryx))$

Thus, when negation scopes below the universal quantifier ($\forall{\sim}\exists$), the result is the reading where no member of the set participates in the R relation with any other. The alternative reading, where negation takes wide scope ($\sim\forall\exists$), is possible as well and is signaled by emphasizing the reciprocal expression. Obviously, it is still necessary to explain why the default scope of the negation is the narrow one ($\forall{\sim}\exists$). But it is worth noting that sentences with an overt universal quantifier (43a) and with definite plurals (43b), which presumably involve maximality, behave in a similar manner (Cf., Horn 1989: 226-231; Zeijlstra 2004: 76–78, *inter alia*): in their case too negation tends to scope over the existential quantifier but below the universal quantifier ($\forall{\sim}\exists$):

---

**22.** This is true, for example, for the verbal strategy for expressing reciprocity, as demonstrated by the following:

> *dany   ve-yael   lo   hitxabku*
> Danny and-Yael NEG hug.REC.PST.3.M.P
> "Danny and Yael didn't hug (reciprocally)" → at least one of them did not hug the other

This sentence is true if one of them hugged the other but the act was not reciprocated.

**23.** Cf. Filip & Carlson (2001: 445).

(43) a. *kol ha-ylad-im lo axlu tapuax*
   all DEF-child-PL NEG eat-PST.3.PL apple
   "All children did not eat an apple"

  b. *ha-ylad-im lo axlu tapuax*
   DEF-child-PL NEG eat-PST.3.PL apple
   "The children did not eat an apple"

In both these examples, the default reading is that no child ate an apple.

This behavior of negative sentences with NP-strategy constructions poses a serious problem for an approach that follows the RH, which predicts that the only reading should be (39b).[24] As for the SMH, Dalrymple et al. (1998) and Krifka (1996) argue that (41)/(42) is in fact the expected meaning of negative NP-strategy sentences, because in downward-entailing environments like negation "the absolutely weakest interpretation of the reciprocal is selected, which is the strongest one in this context" (Krifka 1996: 147). In other words, negation applies to the weakest reading of the reciprocal because this produces the strongest possible reading of the negative sentence, as required by the SMH. This approach still faces some problems, however. First, if negation must produce the strongest interpretation possible, i.e., the one in (41), the readings in (40) are indeed expected. But then it is unclear why the weaker non-default interpretation in (39b), which only asserts that stronget reciprocity does not hold, is possible. If SMH is a semantic principle, it is difficult to see how both readings, and not only the strongest, can be available. A possible answer would be that the non-default reading involves a different type of negation, external negation, which necessarily takes wide scope and thus negates the positive sentence as a whole (see Bar-Asher Siegal 2015 a-b; cf. Filip & Carlson 2001: 445).

Second, the SMH predicts that, in cases where the strongest interpretation of the negative sentence is ruled out by the context, a weaker interpretation (i.e., a negation of a stronger reading of the reciprocal) would be available. This expectation is not borne out. Consider the following sentence:

(44) The male elephants and the female elephants do not mate with each other.

This sentence is false, as we know that elephants have offspring. Given that knowledge of the world rules out the strongest interpretation of this sentence ("no

---

24. A possible solution for this approach could be to suggest that the interpretation of the negative sentences derives from a principle of homogeneity, which is known to create an "all or nothing" effect with plurals (as proposed to Beck (2001: 133–136) by Irene Heim and Roger Schwarzchild). Examining the applicability of this principle to the NP strategy is beyond the scope of this study, but it should be recalled that, as noted in n. 21, this principle does not seem to apply to the verbal strategy for expressing reciprocity.

male and female elephants mate with each other"), SMH predicts that a weaker reading (for instance "it is not the case that every male elephant mates with every female elephant") should be available, which is evidently not the case. Conversely, under the UCH, the falsity of (44) is expected, since the (narrow scope) negation interacts with only one single interpretation, the one represented by (42), and there is no option of choosing an alternative interpretation (as should be possible according to SMH).

Third, according to Dalrymple et al. (1998) and Krifka (1996), in downward-entailing environments the weakest interpretation of the reciprocal (38) is selected, since this produces the strongest negative proposition. If this is the case, it should not be unique to negation, but should apply to other downward-entailing contexts as well, for instance to sentences with "at most," like (45).

(45)   At most two people in the room recognized each other.[25]

The fact is that, in some contexts, the expression *each other* in this sentence can take a strong, fully symmetric interpretation, namely that the number of people who recognized each other **mutually** was no more than two. This yields a weak interpretation of the sentence as a whole, whereby it is possible that more than two people recognized someone in the room but were not themselves recognized by that same person. Obviously, this is not a problem for the RH, which posits that expressions like *each other* have the fully symmetric reading as their default interpretation. However, this is a problem for the SMH approach, which predicts that the strongest possible meaning of the sentence should always be selected, meaning that in downward-entailing environments, like propositions with "at most", expressions like *each other* must always be assigned a weak interpretation unless this is strictly ruled out by the context. Conversely, for the UCH this is not a problem, since the weakest interpretation is only expected when the negative operator interacts with the basic meaning of the NP-strategy expression, as represented by (38). The crucial point is that, according to the UCH, these expressions can be strengthened when the context requires it, and nothing prevents the contextual strengthening of *each other* in (45). In other words, under the UCH, downward-entailing environments do not constrain the range of readings that can be assigned to an NP-strategy expression.

---

**25.** See here (https://gmatclub.com/forum/there-are-at-least-three-people-in-the-room-at-most-two-people-in-the-89652.html) for a context in which this sentence indeed has the strongly reciprocal meaning. But, as expected according to UCH, in other contexts, NP-strategy expressions with *at most* can take the weak reading in (38). For example, in the context presented in (30) above, the sentence "at most two people sent messages to each other" can convey that at most two people sent a message to some other member of the group (who did not send them a message), i.e., that "at most two messages were sent in total".

In sum, data involving the interpretation of negative sentences is clearly consistent with the UCH, but poses serious problems for the RH, which assumes the strongest reciprocity (39a) as the basic meaning of the NP strategy, for it is unclear how negating (39a) can produce the reading in (40). As for the SMH, the interpretation in (40) does not constitute decisive evidence against it, but as shown above, this approach encounters several empirical and theoretical problems.

### 7.7.3    Support from diachronic evidence

Taking a diachronic look at the various NP-strategy constructions in Semitic languages, Chapters 1 and 2 demonstrated that the UCH provides an elegant explanation for their origins. That is, the assumption that they originally denoted an unspecified relation (36), i.e., the weak reading represented by (38), is compatible with their diachronic evolution. Without repeating the discussion in Sections § 1.3–4, let me summarize the argument briefly and illustrate it with a single example. The meaning in (36), formally represented by (38), can be expressed compositionally as a combination of the following components, divided into two parts (bracketed here as part a and part b):

(46)   **[For a given set B of individuals, every individual is part of a pair A of members from this set in which]**$_a$ $[|A|=2$ and $\exists x,y \in A(x \neq y \wedge Rxy)]_b$

Chapter 1 noted that all NP-strategy constructions in the Semitic languages originated as two-unit constructions with the structure in (1a), repeated here as (47), consisting of a main clause containing two pronominal expressions, and an antecedent (denoting the set which participates in the relevant relation) as a broad subject located in the left periphery. We are therefore required to explain how the structure of (47) compositionally yields the meaning in (46).

(47)   The two-unit construction:

| Antecedent | Main clause | | |
| --- | --- | --- | --- |
| {NP$_1$, NP$_2$…NP$_n$.NOM} | VERB.SG | pronoun$_1$ NOM.SG | pronoun$_2$ ACC.SG |
| Broad Subject | | Subject | Object |

Returning to (46), the part bracketed as (a) comprises the following two semantic components:

(48)   i.   The division of the plurality into pairs.
　　　ii.  The requirement that each member of the plurality be part of at least one pair (distributivity).

As explained in detail in § 1.4, these two components can be derived directly from the semantics of the plural antecedent or broad subject in (47), in the following way. The first component (48i, the division of the plurality into pairs) is derived by interpreting the plural NP with a specific COVER. This is part of the general semantics of plural NPs (following Higginbotham (1981); Gillon (1987) and Schwarzschild (1996), among others); the NP strategy involves the PAIR-COVER (as defined in (48) in Chapter 1). The second component (48ii, the requirement that each member of the plurality be part of at least one pair) derives directly from the definition of COVER presented in Chapter 1 ("every member of the set denoted by the plural NP must be part of a subset to which the larger set is divided").

As for part b in (46): $|A|=2$ and $\exists x,y \in A(x \neq y \wedge Rxy)$

it was demonstrated in § 1.3 that the various NP-strategy constructions in Semitic and other languages express the existential-quantifier component of (46b). In other words, the main-clause part of (47), repeated below,

| VERB.SG | Pronoun$_1$ NOM.SG | pronoun$_2$ ACC.SG |
|---|---|---|
| | Subject | Object |

contains the elements that semantically express the relevant quantification when it is a given that the set A has only two members. For example, various languages have NP-strategy constructions consisting of two indefinite pronouns, which are existential quantifiers, as in (49), from the Judeo-Arabic Moroccan dialect of Tafilalt:

(49)  Judeo-Arabic Moroccan dialect of Tafilalt:
    *muḥmməd u-musa ṭaw si l-si kadu*
    Muhammad and-Moses give PST.3.M.PL someone to-someone gift
    "Muhammad and Moses gave each other gifts."

When the relation holds between only two participants, the formula "someone R someone", directly expresses the unspecified relation represented by $\exists x,y \in A(x \neq y \wedge Rxy)$.

It is now clear how the various syntactic components of (47) express the meaning schematized in (46), i.e., the meaning of unspecified relations (36). This is the basic meaning of the NP strategy according to the UCH.

According to this approach, the grammaticalization of these constructions is very simple, involving **only** the selection of one particular COVER: NP-strategy constructions confine the semantics of the plural NP to a PAIR-COVER interpretation (as defined in (48) in Chapter 1). This can be regarded as a case of semantic reanalysis. Moreover, it is reasonable to assume that this reanalysis was prompted by contexts in which the PAIR COVER is the most salient option. UCH thus provides a simple and compositional account of the grammaticalization of these constructions.

Let us now turn to the second type of NP-strategy construction, the one-unit construction (exemplified in (1b), repeated here as (50)):

(50)   The one-unit construction:

| [{NP$_1$, NP$_2$... NP$_n$}.NOM] | VERB.PL | RECP.ACC.PL |
|---|---|---|
| Subject | | Object |

Chapter 2 (specifically § 2.4) demonstrated that, in Semitic and other language groups, this construction derives, through reanalysis, from the two-unit construction denoting an unspecified relation.

Before discussing this further in the context of the UCH, let me point out that this analysis brings us back to the discussion in § 7.2 and the options regarding the relationship between the structure and the meaning of NP-strategy constructions. The current chapter, based on a detailed analysis proposed in Chapter 1 (§ 1.4), presented a compositional analysis for the two-unit constructions. As for the one-unit-constructions, at present I remain within the LSH approach (see § 7.3) and do not demonstrate direct compositionality (a correlation between their structure and meaning). But, as demonstrated in Chapter 2, we do have a diachronic account for the emergence of the one-unit construction from the two-unit constructions via syntactic reanalysis.

Turning back to the topic of the UCH, I suggest – in the spirit of the hypothesis I presented in the introduction (§ 0.7.2) – that the data regarding the origin of the two-unit constructions supports the UHC. To repeat the essence of this hypothesis, its main claim is that historical reanalysis, syntactic or semantic, can be relevant to the synchronic semantic analysis of certain expressions. Moreover, in some cases, understanding the historical development of a given phenomenon may have significant bearing on the semantic analysis of this phenomenon, in the following manner:

> **Strong relevance, adding an explanandum**:
> Semantic reanalysis means, by definition, that the expression in question has two different compositional interpretations, i.e., an original meaning and a new one. The semantic representation of an expression which was produced through semantic reanalysis (Scenarios 1–2 in Figure 1 below) should therefore be able to trace the course of this reanalysis. In other words, historical data provide additional facts that a semantic analysis should be able to explain, and thereby can provide another criteria for deciding between competing analyses. Given two competing semantic analyses, both equally consistent with the data, an analysis that can also account for the historical reanalysis is preferable.

In order to apply this hypothesis to the development of NP-strategy constructions, it is important to repeat the explanation of the terms relevant to reanalysis:

For a sequence of phonemes F to be meaningful, it must have a (morphological or syntactic) grammatical structure G and a certain truth-conditional interpretation M. Reanalysis involves cases in which a given sequence stream of phonemes F is associated with two different pairings of structure and meaning {G, M} at two different points in time (t). Reanalysis can involve both the morphological/syntactical level and the semantic level (Scenario 1), or can be restricted to one level (Scenarios 2–3):

Scenarios of reanalysis:

$$F$$

Scenario 1:  $\{G_1, M_1\}t_1$             $\{G_2, M_2\}t_2$

Scenario 2:  $\{G_1, M_1\}t_1$             $\{G_1, M_2\}t_2$

Scenario 3:  $\{G_1, M_1\}t_1$             $\{G_2, M_1\}t_2$
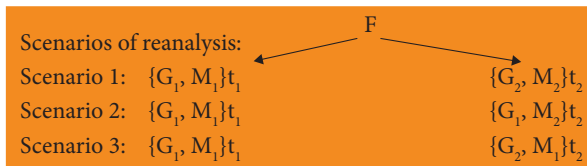
**Figure 1.**  Modeling Reanalysis

Assuming that semantic interpretations are compositional, G must match M in a compositional manner at both points in time ($t_1$ and $t_2$). As noted above, this provides an additional element a synchronic semantic analysis should explain, and thus an additional criterion for deciding between alternative analyses: one that can also account for the relevant historical reanalysis is preferable to one that cannot.

With this is mind, I would like to argue the following with respect to the NP-strategy for expressing reciprocity. As mentioned before, when discussing the semantics of the NP-strategy, a common opinion in the literature, assumed by the RH for example, is that its meaning entails symmetry ($M_{sym}$). However, it is impossible to see how the components of the specific expressions, which originally did not express reciprocity, could be reanalyzed to produce [$G_{\text{NP-strategy}}$, $M_{sym}$], as it is unclear how the units of the NP-strategy construction could have been interpreted as $M_{sym}$ in a compositional way.

This is a strong motivation for considering a different semantic analysis for M in the relevant constructions ($G_{\text{NP-strategy}}$). In fact, an examination of NP-strategy constructions across Semitic languages, which was undertaken in Chapter 1 (and briefly illustrated above, in (46–49)), shows that their historical development can be explained only by assuming that they grammaticalized to become "unspecified constructions" ($M_{uc}$), represented by (38), **as predicted by the UCH**: [$G_{\text{NP-strategy}}$, $M_{uc}$]. Had their meaning entailed strong reciprocity, represented by (8) (as claimed by the RH), they should have contained elements that originally expressed universal quantification.

(8)  Strong reciprocity: $|A| \geq 2$ and $\forall x, y \in A\ (x \neq y \rightarrow Rxy)$

But, as the typology in Chapters 1–2 demonstrated, these constructions almost never contain such forms;[26] instead, they comprise pairs of expressions like the following, which mostly function as existential quantifiers: "one-another" (as in English itself, for example); "one-one" (e.g., Aramaic *ḥad-ḥad*); "another-another" (e.g., Finnish *toinen-toisiaan*); "some of them-some of them" (e.g., Standard Arabic *baʿḍuhum-baʿḍ-an/-in*); "someone-someone" (e.g., *si-si* in the Judeo-Arabic Moroccan dialect of Tafilalt).

Thus, while it is clear how these existential quantifiers could have evolved to denote the relation represented by (38), it is hard to see how they could have acquired a strong interpretation, as claimed by the RH.[27] A theory like the RH, which claims that $G_{NP\text{-}strategy}$ denotes symmetry (=$M_{sym}$), would need to propose a historical analysis which explains how the relevant Gs were reanalyzed to produce $M_{sym}$ (or, in other words, why and how the strengthening took place), and also why the relevant [G, M] always, cross-linguistically, go through this process of strengthening.

The same is true for the SMH, which associates NP-strategy expressions with a set of possible interpretations, and assumes that the meaning selected is always the strongest interpretation compatible with the context and/or the predicate. This approach does not explain how the constructions came to acquire this particular set of interpretations. Conversely, only with UCH, it is possible to see how the relevant constructions grammaticalized to denote the weakest interpretation, represented in (38), which is derived compositionally and which can be strengthened in particular contexts.

To conclude, the discussion has so far pointed to three theoretical advantages of the UCH over the RH and SMH:

---

**26.** As noted in § 1.3.2.2.4 (and also in 2.7.2), the English expression "each other", which does contain a type of universal quantified ("each"), is an exception. Furthermore, the element *each* first univerbalized with the element *other*, and thus stopped functioning as a universal quantifier in this context. Furthermore, even if the English construction did represent a pattern of development that is cross-linguistically common, or had evolved from a regular two-unit NP-strategy construction (which is not the case) – the argument above would have been still valid, since we also seek to trace the semantic development of NP-strategy constructions that do not contain a universal-quantifier component, as in the Semitic languages and other language groups.

**27.** Bar-Lev & Margulis (2014) and Bassi & Bar-Lev (2016), based on Fox (2007), propose that various expressions have a basic existential meaning which is obligatorily strengthened into a universal meaning in upward entailing environments, while being preserved in downward entailing environments. This approach is similar to the one proposed here in that the basic meaning is taken to be weak as in (38).

1.  It is better suited to the empirical data. Cases in which a weak interpretation is assigned even though circumstances do not logically rule out a stronger one are consistent with the UCH but not with the RH or the SMH.
2.  The semantics of negative NP-strategy sentences is compatible with the UCH, but is problematic for the SMH and contradicts the RH.
3.  Only the UCH provides an explanation for why certain expressions are prone to be reanalyzed as constructions of the NP-strategy for expressing reciprocity.

The UCH in its present form, however, cannot account for all the data, since in many cases the truth conditions of such sentences are stronger than (38). A full semantic analysis must provide two additional components, answering the following questions:

1.  What is the mechanism for strengthening the meaning?
2.  How is the level of the strengthening determined?

In this context, it is important to keep in mind that only one reading is possible in a given context, as demonstrated by (14). Finally, it is also necessary to account for the data presented by Mari (2014) involving infelicitous sentences (15) whose unacceptability seems to derive from the fact that a strong interpretation is logically excluded, which is not expected under the UCH.

We will proceed by adding a further, pragmatic, restriction on the interpretation of NP-strategy constructions. As will become clear, this restriction sheds light on some of the issues raised throughout the discussion, thereby facilitating a better understanding of the semantics of the NP strategy. Following this discussion, the next chapter will address the strengthening mechanism and how its impact is determined.

## 7.8 The indifference implicature

The examples discussed above suggest that there is a further pragmatic restriction on NP-strategy constructions, an Indifference Implicature. The next chapter (§ 8.5) will discuss this implicature from a more formal perspective, but for now it can be characterized as follows:

(51)  It is immaterial which member of the set takes which role in the relation; only the number of instances the members of the set participate in the relation matters.

The implicature is not associated exclusively with the speaker, but is objective and shared by all the participants in the conversation.

Its presence can be detected (with some reservations that will be mentioned below) by adding the following expressions **"and for our purposes it doesn't really matter who R whom"** (=where R is the relation that is said to hold in the context). Naturally, this is relevant only in cases where strong reciprocity does not hold, because in cases of strong reciprocity every member of the set stands in that relation to every other, by definition.

This test can be illustrated with some of the examples discussed above:

(52)   a.   Since the witnesses spoke to each other, they won't be allowed to take the stand, and for our purposes it doesn't really matter who spoke to whom.

b.   I never put my twins on the same crib, because they will wake each other up, and for our purposes it doesn't really matter which one of them wakes up the other.

c.   All my friends hug all the time, they always have their arms around each other, they are always holding hands, resting their heads on each other's shoulders – and for our purposes it doesn't really matter who has his or her arm around whom.

d.   Five Boston pitchers sat alongside each other, and for our purposes it doesn't really matter who was sitting next to whom.

When the phrase cannot be added, it indicates that the sentence fails to give rise to the implicature, and I claim that such instances are incompatible with the NP strategy. In other words, if an NP-strategy sentence violates the Indifference Implicature the result is an infelicitous utterance. Compare the following two sentences:

(53)   a.   The two books were on top of each other, and for our purposes it doesn't really matter which was on top of which.

b.   #The elephant and the glass of water were on top of each other [unacceptable in the normal understanding of this sentence, as "for our purposes it doesn't really matter which was on top of which" cannot be added.]

It should be noted that "indifference" is not a matter of ignorance. The speaker may know who did what to whom; the important point is the objective irrelevance of this parameter, as illustrated in (54):

(54)   I never put my twins on the same crib because they will wake each other up. Actually, it is always Jacob who wakes up Esau, but that is beside the point.

Second, this is not an agent's indifference but an "objective" one in terms of the purposes and the goals of the sentence in a given context. The interaction between this implicature and the context, and the notion of objectivity, will be elaborated further below.

I suggest that the Indifference Implicature, as defined in (51), can account for the data presented by Mari (2014), repeated below:

(55)  a.  #The boys are taller than each other (8a).
      b.  #My mother and I gave birth to each other (12).
      c.  #We are smarter than each other (18b).
      d.  Scenario: a living human being is being described: #The head and the body are on top of each other.

All these sentences describe situations which are inherently inconsistent with a strong interpretation, so the question is why a weaker interpretation is blocked. According to Mari (2014), these sentences are infelicitous because they are inconsistent with strong reciprocity not only in one particular scenario, but across all possible futures (a daughter will never give birth to her mother (55a); the head of a living body can never be severed from the body (55d), etc). However, as noted above, Mari's proposal cannot account for the acceptability of other sentences (17–20). I propose that the difference between the sentences in (55) and those in (17–20) does not hinge on their consistency with strong reciprocity, as Mari (2014) proposes, but on the Indifference Implicature: the infelicitous sentences violate the implicature. As noted, the presence of the implicature can be diagnosed by adding "and for our purposes it doesn't really matter who R whom". Sentences can violate this implicature for various reasons: for instance because it does matter who stands in relation R to whom, but also because it is **necessarily predetermined** who stands in relation R to whom, making the implicature irrelevant. Consider the following sentences:

(56)  a.  #My mother and I gave birth to each other, [it is impossible to add: "and for our purposes it doesn't really matter who gave birth to whom."]
      b.  Scenario: a living human being is being described: #The head and the body are on top of each other, [it is impossible to add: "and for our purposes it doesn't really matter which is on top of which."]

Similar sentences may violate the implicature or not, depending on the context. Thus, (57a) is compatible with the implicature because the point of the sentence is that the sides of similar triangles are always proportional in length, so it does not matter precisely which side is longer than which). Conversely, in the case of (57b), it is difficult to imagine a context where it does not matter which boy is bigger (in cases in which such an indifference does prevail, the sentence would be acceptable).

(57)  a.  We see, therefore, that the sides of similar triangles are bigger or smaller than each other in just the same ratio, and for our purposes it doesn't really matter which one is bigger or smaller.

b. #My boys are bigger than each other, [it is impossible to add: "and for our purposes it doesn't really matter who is bigger than whom."]

The Indifference Implicature probably requires additional qualifications and clarifications. First, it is not meant to imply that the speakers do not *care* who did R to whom, as the following sentences indicate:

(58) a. They listened to our instructions as to how the books should be stacked on top of each other.
b. They put the orange book on the green book, so that they would be nicely organized, one on top of the other.

In these cases it seems to be important that the order is not predetermined, and the indifference is more local, in the sense that the books could be arranged in any order for the purposes of the context. The evaluation/choice of the specific order is of secondary importance. The next chapter (§ 8.5) will propose a formal analysis for this implicature, and will further discuss the challenges mentioned here.


## 7.9    An additional type of implied meaning

In some cases, there is a further requirement which seems to go beyond the strength of reciprocity assigned to the expression. For example, it sometimes seems to be required that all the set-members be equally involved in producing the result of the event described by the sentence. Consider the following sentence, in the context described earlier in (25):

(59) "They [=the parents] probably said to each other [about their daughter]: 'she's wasting herself'".

The sentence in (59) clearly triggers the Indifference Implicature (because it does not matter whether the mother said this to the father, or the father to the mother, or both). However, it also involves an additional implicature: that, no matter which of them said this, both would agree to this claim. Similarly, the expression "have their arms around each other" in (31) seems to reflect a state in which, no matter who actually hugs whom, all of the friends share the sentiment that triggers the hugging; they are all fond of one another. Thus, the Indifference Implicature can be modified to state: "for our purposes it doesn't matter who stands in relation R to whom **as long as the overall effect is Z**".

However, this requirement is not always present, as shown by the example below (said by a father to his children):

(60) If you guys hit each other, you won't get dessert.

This sentence remains true even if only one child hit the other, but in that case they would not be equally involved in producing the effect (one will hit and the other will be hit). Similarly, the expression "sending a message to each other" (29–30) may result in just one person on the "guest book" sending a message to another, a result that does not affect the entire set denoted by the antecedent. The effect of delivering a message is different for the sender and the receiver of the message. Thus, sentences with NP-strategy constructions seem to have different licensing conditions in various non-reciprocal contexts.

These additional meanings vary from one context to another, and are not selected from a fixed set of interpretations, as claimed in some of the previous literature, but constitute a much broader and more open-ended continuum. The Indifference Implicature does not account for these additional requirements; rather, they seem to be related to a different question, of precisely how the required strengthening of the truth conditions is produced. We shall return to this in (§ 8.3.2).

## 7.10    Summary

Based on the data provided throughout this chapter, I propose that the semantics of the NP strategy comprises the following two components, the truth condition described in I and the implicature characterized in II:

**The Unspecified Construction Hypothesis (UCH):**

I.    For a given set:
Each member of the set participates in the relation denoted by the predicate, as one of its arguments, with another member of that set.

(38)    $|A| \geq 2$ and $\forall x \in A \exists y \in A \ (x \neq y \wedge (Rxy \vee Ryx))$

II.    Indifference Implicature

(51)    It is immaterial which member of the set takes which role in the relation; only the number of instances the members of the set participate in the relation matters.

The above two requirements are compatible with the description NP-strategy constructions as *unspecified constructions*, defined as follows:

(61)    Unspecified constructions: expressions denoting that, within a given binary relation R between at least two (defined) ordered sets, it is not specified which set occupies which position.

The formula mentioned in (38) captures the truth-conditions of this definition.

Whereas (§ 0.6) proposed the definition in (61) as a way to describe all the uses of these NP-strategy constructions, this definition is unsatisfying at this point, since the truth conditions represented by (38) do not explain how the specific meaning of a sentence is determined in a given context. According to (38), it is enough that each member of the set stands in a relation to another member. But clearly, while this is indeed true of all sentences with these constructions, it is not sufficient to rule out many sentences that are infelicitous (in given contexts). The next chapter will attempt to resolve these problems by explaining the mechanism that strengthens the basic weak meaning in certain contexts and transforms the unspecified meaning into a specific one.

# Specifying the meaning of the NP-strategy through context

## 8.1 Introduction

Up to now, I have established that an NP-strategy construction will lend itself to more than one interpretation. An anaphor like "each other" can induce a number of different requirements for the truth conditions of the sentence, depending on the context. Moreover, these truth conditions may vary in strength, as formulated in (1a–d), all of which entail (2):

(1) a. $|A| \geq 2$ and $\forall x, y \in A$ $(x \neq y \to Rxy)$

   b. $|A| \geq 2$ and $\forall x, y \in A$ $(x \neq y \to$ for some sequence $z_0, \ldots z_m \in A$
   $(x = z_0 \land Rz_0 z_1 \ldots Rz_{m-1} z_m \land z_{m} = y))$

   c. $|A| \geq 2$ and $\forall x \in A$ $\exists y \in A$ $(x \neq y \land Rxy)$

   d. $|A| \geq 2$ and $\exists x \in A$ $\forall y \in A$ $(x \neq y \land Rxy)$

   e. $|A| \geq 2$ and $\forall x \in A$ $(x \neq y \to$ for some sequence $z_0, \ldots z_m \in A$
   $(x = z_0 \land (Rz_0 z_1 \lor Rz_1 z_0) \land \ldots \land (Rz_{m-1} z_m \lor Rz_m z_{m-1}) \land z_{m} = y)$

(2) $|A| \geq 2$ and $\forall x \in A$ $\exists y \in A$ $(x \neq y \land (Rxy \lor Ryx))$

For some of the sentences discussed in the previous chapter, the truth conditions can be represented, with a fair degree of accuracy, by one of the formulae in (1) or (2). For example, each of the bolded sentences in (3) has the truth conditions as per the formula above indicated in parentheses:

(3) a. If **the witnesses speak to each other**, they won't be allowed to take the stand. (2)

   b. Once the trial had ended, **the witnesses spoke to each other**. (1a)

   c. **They** probably **said to each other**: "Check out that fat lady". (1d)

   d. **The parents** probably **said to each other**: "Our child is wasting herself". (2)

What is more, as demonstrated in the previous chapter and reiterated in the beginning of this section, an NP-strategy sentence has more than one potential interpretation, and similar sentences may have different truth conditions in different contexts. In the previous chapter, I also showed, based on (12–13), that the

strengthening the meaning is not rooted in an implicature. Sentences expressing reciprocity via the NP-strategy, in a given context, are not ambiguous, but have clear truth conditions.

Let us return to the main question as regards the meaning of NP-strategy sentences: "How is a specific interpretation (or a range thereof) assigned to an arbitrary sentence?" As established in Chapter 7 (§ 7.3–7.5), no satisfactory solution to this question has so far been proffered in the literature. However, before embarking on this project, let us delimit the problem more precisely. In the case of a sentence whose interpretations differ in strength depending on the context, the following information about the set that figures in the sentence is crucial: (1) What is the minimal number of set members that must participate in the given relation? (2) What is the minimal number of times each participant must be involved? and (3) What is the minimal number of roles that each member must assume? In other words, with a given set of participants, what is the required cardinality for a set of non-identical pairs ($x \neq y$) in which a given relation ($Rxy$) obtains? (This set is a subset of the set of pairs for which (2) is true; cf. Poortman et al. (2018), for a similar rendering of the requirements above.) Notably, in light of the Indifference Implicature (§ 7.8), the answer to each of these questions never points to a specific participant, but may target any member of the set.

This chapter provides a new answer to the main question regarding the meaning of the NP-strategy constructions formulated above. In Section § 8.2 I establish the role of context in the interpretation of the NP-strategy, and in Sections § 8.3–4 proceed to theorize on an interpretation of a sentence relevant in a given context and the mechanism of strengthening its meaning. Section § 8.5 addresses the Indifference Implicature discussed in the previous chapter (§ 7.8) and captures it formally within the framework proposed in what follows. Sections § 8.6 and § 8.7 elaborate the semantic analysis introduced in this chapter, and § 8.8 summarizes some of the aspects of the semantic analyses performed in both this and the previous chapters.

## 8.2   The role of context in interpretation

As a preamble to the hypothesis to be advanced here regarding the meaning and interpretation of the NP-strategy, consider the sentence: "They hug and kiss each other" in two different, documented contexts:

A Blog entitled "Please Keep Your Sick Kids Home. Really" includes the following passage:

(4)   "It is that time of year. The weather is dreary and people tend to get sick… if people have or are around children (especially small children), they are at an even higher risk. Children are veritable Petri dishes for germs.
They (sic) are many of them, in close quarters with each other, often not practicing proper germ prevention. **They hug and kiss each other**, sometimes share contaminated cups and/or snacks, often do not wash hands after using the restroom (face it, as much as they are told to by parents and teachers, they don't always do it), cough or sneeze in each other's faces, etc. It's really rather disgusting".$_\gamma$

The bolded line also appears in a different internet post:

(5)   "They seem to have a sexual relationship with each other. **They hug and kiss each other** and sleep in the same bed".$_\gamma$

The first paragraph is written by a mother concerned about the spreading of germs. She is describing the scenario in which children kiss and hug other children, catching each other's illnesses. It is of no consequence whether a child who received a kiss from another child will reciprocate with a kiss or a hug. In contrast, the author of the second passage adduces evidence that the couple the sentence is about are in a sexual relationship. For this purpose, only reciprocated kisses and hugs are important. In both cases, the interpretation is disambiguated by the context. There are kisses and there are kisses, depending on whether at issue is transmitting illness or displaying affection. In the former case, kisses are conceived of as physical contact, while in the latter, they are expressions of tenderness.

A key to striking on the intended interpretation is telicity or contextual causal relations. Put differently, **the strength of the interpretation is more often than not contingent on the causal relation between the denotation of a given sentence incorporating an NP-strategy construction and the denotations of other sentences/known facts in the discursive context**. Such causal relations are at the core of the analysis suggested below, but as will be shown in due course, other relations can be equally relevant.

The analysis I propose pivots on the assumption that the interpretation of an NP-strategy sentence can be strengthened as long as it entails the basic meaning of that sentence. Prima facie, the following three elements are required:

i.    A mechanism that induces alternative (stronger) interpretations to the proposition expressed in the sentence under discussion.
ii.   A theoretical framework for identifying the interpretation for that sentence relevant to the causal relations that are assumed to operate in the context.
iii.  A mechanism that eliminates all (weaker) interpretations that are inconsistent with the causal relations that are assumed to operate in the context.

I begin this investigation by addressing item (ii) above, namely, determining the strength of the interpretation salient for a given context. Subsequently, I will show that the solutions to (i) and (iii) follow directly from (ii).[1]

## 8.3   Hypothesis: Consistency with relevant descriptions of events in causal relations (CRDECR)

### 8.3.1   Identifying the causal relations for a given context

This section elaborates the premise introduced in the previous section that the interpretations of an NP-strategy sentence are determined by the causal relations that are assumed to obtain in the context. In advancing a theory for identifying the interpretation of a sentence salient in the context, I will rely on a central aspect of Donald Davidson's account of events and causal relations (based mostly on Davidson 1967a, 1967b and 1970). While my proposal utilizes only one dimension of the Davidsonian approach, other components of his theory need to be introduced first. I will focus on the paragraph below, which succinctly formulates a caveat concerning his "Principle of the Nomological Character of Causality":

> The principle of the nomological character of causality must be read carefully: it says that when events are related as cause and effect, they have descriptions that instantiate a law. It does not say that every true singular statement of causality instantiates a law.                                  (Davidson 1970: end of I)

---

1. Parallels can be drawn between the discussion here and the account of definite plurals, and indeed numerous studies have attempted to combine the analysis of reciprocal constructions and definite plurals (inter alia, Langendoen 1978; Sauerland 1998 and Beck 2001). It is therefore worth examining whether the current proposal is applicable to the cases of "loose interpretations", as per Example (23) in the previous chapter, and whether Malamud's (2012) account, which applies a decision-theoretic approach to the interpretation of definite plurals, is relevant for the NP-strategy as well. The current proposal is different from Malamud (2012) in many essential aspects. Most notably, Malamud takes the basic meaning of definite plurals to be underspecified and lacking a basic minimal meaning, while I argue that the basic meaning of NP-strategy constructions is weak and that the level of underspecification is contingent on contextual strengthening. Moreover, in my analysis, I endeavor to define the criteria for selecting the most salient of all potential interpretations. My analysis is also less complex than Malamud's and relies on principles that underpin other known semantic and pragmatic phenomena. The proposal I introduce hereafter resonates with Rawlins' (2015) analysis of free relatives (e.g., whatever), whereby indifference implications triggered by these expressions are conceptualized as goal-oriented (teleological) modal inferences. My framework, however, involves some broader notions of causal relations.

This statement incorporates the following components of his broader approach to events and causal relations:

i.   Events are particulars, and sentences can be analyzed as predicates whose arguments are the events they describe.
ii.  Causal statements should be analyzed in terms of events; both the Cause and the Effect are events ("The fast driving caused the accident").
iii. Events lend themselves to different descriptions ("The fast driving"; "The stepping on the accelerator"). In other words, events are particulars, and as such, an event has different characteristics, which can be truthfully predicated of it.

Item (iii) is important for Davidson's distinction between descriptions of causal relations and nomological statements. According to the passage quoted above, although for Davidson, the validity of a causal statement can be justified only by it being a particular case that follows a law, it is possible for a causal statement to be true even if it does not instantiate a law. Davidson's observation can be schematized as follows:

(6)   As regards a causal relation between the eventualities C and E [C CAUSE E]: Given that both C and E have several true descriptions (D): $D^C_1$ $D^C_2$ $D^C_3$ ….; $D^E_1$ $D^E_2$ $D^E_3$, although the truthfulness of a sentence in the form of [C CAUSE E] relies on a specific description of C and E, let's assume $D^C_s$ and $D^E_r$, which instantiates a law ("every occurrence of an eventuality *s* has another eventuality *r* occurring after it"); any statement of the sort "$D^C_x$ causes $D^E_y$", describing the same particular eventualities, is true as well.

Accordingly, recognizing the truth of sentences of the sort of "$D^C_x$ causes $D^E_y$" relies on the possibility of converting them to other descriptions of the same eventualities ($D^C_s$ and $D^E_r$ in the example). For Davidson, "$D^C_s$ causes $D^E_r$" is a valid causal judgement only if it instantiates a law; for the purposes of the current discussion, however, i–iii may hold regardless of whether Davidson's nomological approach to causation is adopted.

In other words, once it is established that C CAUSE E is true based on a certain description of C and E, any description of these eventualities as causally related, ("$D^C_x$ causes $D^E_y$") can be accepted as true. From a discourse perspective, accepting that a certain "$D^C_x$ causes $D^E_y$" is true would make every other causal statement about these eventualities true as well, as long as it is presupposed that the descriptions in these statements refer to the same eventualities (C and E). **Central to our purposes is the observation that the truth of a statement of the sort "$D^C_x$ causes $D^E_y$" often relies on the possibility to identify other descriptions $D^C_x$ and $D^E_y$ of the same eventualities (C and E).** Crucially, the relations between the different descriptions are not anchored in semantics (namely the

meaning of the propositions,) but have to do with the state-of-affairs which these statements describe.

Taking this rationale one step further, I will argue that the interpretation of $D^C_x$ often contextually depends on $D^C_s$ – a description of the same eventualities that posits the same causal relation. I term this principle the Consistency with Relevant Descriptions of Events in Causal Relations (CRDECR) hypothesis, and summarize it below:

(7)  a.  when a proposition $q$ is expressed, and
     b.  $q$ describes a state-of-affairs (C) which is the cause of another state-of-affairs (E), and
     c.  (C) is understood as the cause of (E) by virtue of the description $r$ of (C), then
     d.  $q$ must be interpreted in a way that is consistent with, and also not weaker than, $r$.
         In other words:
         The interpretation of $q$ relies contextually on the semantics of the proposition $r$, which is a description that establishes this causal relation in a given context.

(7) is formally summarized in (8):

(8)   $[[q]]_{\text{contextual strengthening}} = \lambda r_{<s,\, t>} \lambda q_{<s,\, t>} \lambda w \,. C[r,\, q] . q(w) \wedge r(w)$

The relation $C[r,\, q]$ is presupposed, and it indicates the following: for the causal relations in a given context, $r$ is the relevant description of the eventuality which $q$ is about. This presupposition ensures that both propositions, $p$ and $r$, are about the same eventuality.

Several clarifications are in order:

–  This analysis is compatible with any account of causation that takes eventualities or propositions to be the relata of causal relations.
–  While Davidson framework revolves around events, the analysis here operates with eventualities, with no distinction made between events and states, as both are equally relevant for causal relations.
–  This formulation does not detail the shift from events to proposition; it rests on a standard ontology where objects are of the type $e$, eventualities of the type $v$, worlds of the type $s$, and truth values of the type $t$. Furthermore, sentences are propositions, which are sets of possible worlds. Thus, it is possible to express formally that both sentences, propositions $r$ and $q$, are about the same events. However, these details are superfluous to my main argument, and I will not pursue this issue any further (for elaboration, see inter alia Lewis 1973: 562, and for a detailed account also Hacquard 2010).

– Davidson takes events to be coarse-grained and individuated based on the regions of space-time they occupy. In line with this premise, my proposal assumes that the same event can be rendered through various descriptions. However, my analysis is also compatible with an approach whereby events are fine-grained, such that fragile events likewise participate in causal relations. This rationale necessitates an account of other defined relations between the events described, which render them *distinct but related* (see Pietroski 2015).[2]

– (7) is phrased with respect to the description of the CAUSE ($D^C$), but the same principles also hold for the description of the EFFECT ($D^E_y$): all sentences that describe the EFFECCT must be consistent with, and not weaker than, the description of the EFFECT that establishes the causal relation.

– While this discussion focuses on causality, the semantic analysis proposed here covers other contextual relationships between statements, such as grounding, telicity or evidence. In other words, a context may allow for different relations between the events described by the sentences, and these relations can be established through different contextual descriptions of the same state-of-affairs.

My hypothesis can be illustrated with the following example:

(9)   <u>John drank wine at the party</u>, which caused the accident he was involved in later that night as he drove back home.

When considered in isolation from its context, the underlined sentence ("John drank wine at the party") is true even if John only took a sip of wine. However, this meaning is underspecified, as in the context provided in (9), the causal statement is true only if he drank a certain amount of alcohol (calculated in milligrams per milliliter of blood, sufficient to depress his central nervous system). Thus, the interpretation of the underlined sentence relies on the knowledge that the description relevant to the causal relation that operates in the given scenario is the following:

(10)

| John drinking of the amount of alcohol that depresses his central nervous system | CAUSE | John failing to notice another car in the junction (=the car accident) |
|---|---|---|
| | C | | E |

Since, according to (7), any description of the causal relation $D^C_x$ causes $D^E_y$ cannot be weaker than the one in (10), the sentence "John drank wine at the party" receives, in the context described in (9), a stronger meaning than in isolation from this or any other context – along the following lines: "John drank at least the amount of alcohol that depresses his central nervous system".

---

**2.** I wish to thank Zoltán Gendler Szabó for raising this issue.

This is also true when the causal relation is not stated explicitly, but is inferable from the context, as below:[3]

(11)   Now that he is crippled for life, John's wife will never forgive him for drinking wine at the party.

Like (9), (11) is true only in the event that John drank the amount of alcohol that affects his central nervous system. In other words, the sentence in (11) entails that John drank the amount of wine that is salient for the given context.

The CRDECR hypothesis, introduced in (7), can likewise be applied to NP-strategy sentences:

(12)   a.   When $q$ is an NP-strategy sentence,
       b.   $q$ describes a state-of-affairs (C) which is the cause of another state-of-affairs (E), and
       c.   (C) is understood to be the cause of (E) by virtue of the description $r$ of (C), then
       d.   $q$ must be interpreted in way that is consistent with, and also not weaker than, $r$.
            In other words:
            The interpretation of an NP-strategy sentence relies on the semantics of the proposition $r$ which establishes the causal relation salient in the context.

However, the NP-strategy licenses yet another implicature, the "Indifference Implicature", which requires the interpretation to be unspecified in terms of the identity of the participants of the relation described. This implicature must be incorporated when computing the semantic of $q$.

Thus, to the extent that (2) ($|A| \geq 2$ and $\forall x \in A \ \exists y \in A \ (x \neq y \wedge (Rxy \vee Ryx))$) represents the basic meaning for the NP-strategy, the interpretation, in a given context, of the proposition $q$ incorporating an NP-strategy construction must entail (2). Such an interpretation can therefore be regarded as an optimal choice between all alternative interpretations which entail (2). As already stated, all these options must be at least as strong as the interpretation of the sentence outside the context, and moreover, must *also* be consistent with, and not weaker than, the description which establishes the causal relation salient in that context.

---

**3.** See below (§ 8.3.3) for references for the psycholinguistic literature on implicit causation.

### 8.3.2   Inducing alternatives

By way of illustration, let us return to the two passages in (4–5) comprising the sentence "they hug and kiss each other". For simplicity, the analysis will target only the sentence "they kiss each other". The basic meaning formulated in (2) is entailed by several logical propositions, all of which constitute possible alternative interpretations for this sentence. In consideration of space constraints, the analysis here will pertain two of these, $P_1$ and $P_2$, formulated and paraphrased below:

(13)

$P_1$:  A  $\geq 2$ and $\forall x \in A\ \exists y \in A\ (x \neq y \wedge (Rxy \vee Ryx))$

Each member of the set either kissed another member of the set or was kissed by another member of the set

$P_2$:  A  $\geq 2$ and $\forall x,y \in A\ (x \neq y \rightarrow Ryx)$

Each member of the set kissed all other members of the set and was kissed by all other members of the set
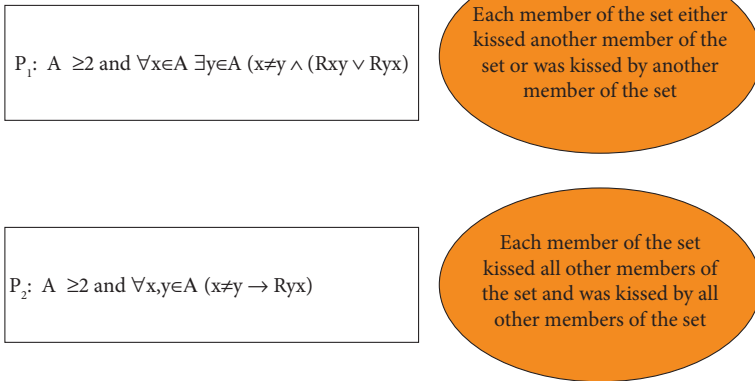
For the Blog "Please Keep Your Sick Kids Home. Really", cited in (4) above, the description of the events that establishes the causal relation is below:

(14)

Physical contact   **C**

CAUSE

Spread of germs   **E**

STRONG ENOUGH

Each member of the set either kissed another member of the set or was kissed by another

STRONG ENOUGH

Each member of the set kissed all other members of the set and was kissed by all other members of the set
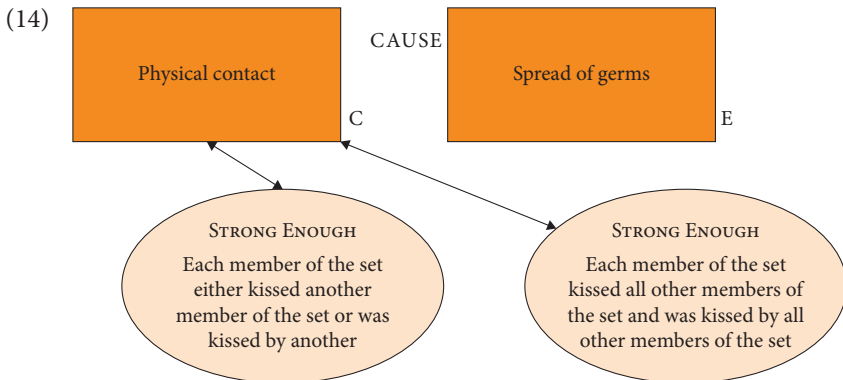
In this context, the sentence "they kiss each other" could be effectively rendered as "sometimes one of them touched the other's cheek with his lips / kissed the other", which describes the same eventuality participating in the same clausal relation. Thus, $P_1$ is as strong as the description of the event relevant for the causal relation that operates in the context. Since both $P_1$ and $P_2$ are not weaker than the causal

description, the sentence "they kiss each other" is interpreted in this context based on a non-reciprocal reading ($P_1$). The kisses are only significant as instances of physical contact, and for the causal relations relevant in this case, it is enough that each child had such contact (no matter which child was the kisser or the kissee). Assuming a set of two children, the cardinality of the set of pairs that participate in a kissing relation required to spread germs is 1.

In contrast, in (15) the description $D^C$ CAUSE $D^E$ that will capture the causal relation for this sentence, as expressed in the context of (5), is the following:

(15)
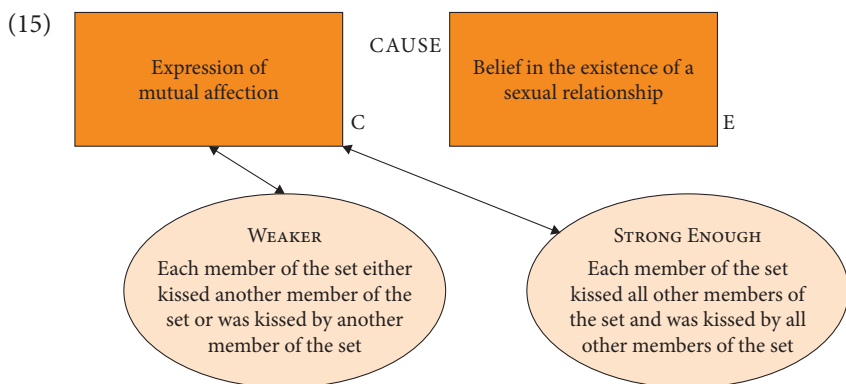


Kisses, in the case in point, are manifestations of affection. In this context, only reciprocated kisses provide the evidence required to establish a sexual relationship. The state of affairs that evinces a sexual relationship involves more than one kiss given by only one member of the couple to the other. Accordingly, only $P_2$ is as strong as the causal description of the CAUSE-event in (15); $P_1$ is weaker, and therefore, in the given context, it is not licensed as an interpretation for the NP-strategy sentence at issue. In the case of a set of two people, the cardinality of the set of ordered pairs that participate in a kissing relation that constitutes the evidence required is 2 (aKb∧bKa).

Consider, however, the following sentence (that was introduced in the previous chapter as a caption under a picture):
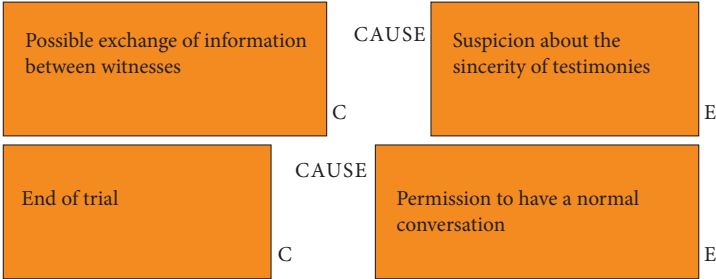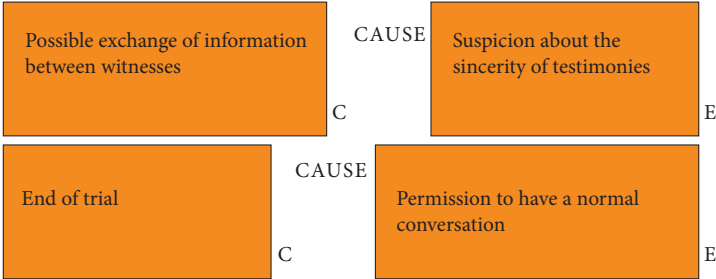
(16) "The duo showed PDA with their arms around each other."

In this case, only one party placing his/her arm around the other without evoking resistance is enough to be considered a Public Display of Affection, since walking willingly with an arm of another person around oneself provides the same evidence for PDA as putting an arm around someone else. In other words, one party having his/her arm around the other without evoking resistance is an expression of mutual affection.

Before moving on, let us consider Example (27) from the previous chapter in two different contexts (17b–c) that have different truth conditions.

(17)   a.   The witnesses spoke to each other.
      b.   If the witnesses spoke to each other, they won't be allowed to take the stand.
      c.   Once the trial had ended, the witnesses spoke to each other.

The interpretation of sentence (17a) is contingent on the two different causal relations implied in the two contexts (18a) and (18b), respectively:

(18)   a.



      b.

Thus, when stated in the context of (17b), (17a) has to be consistent with the description of the event to the effect that "some information passed between the witnesses", which is consistent with $P_1$ and $P_2$. In (17c), on the other hand, (17a) should be consistent with a description of an ordinary conversation. Assuming that, in a normal conversation, both parties do the talking, only $P_2$ – but not $P_1$ – is consistent with the relevant causal description of the same state-of-affairs (note, that in this case it is the EFFECT). Therefore, $P_1$ cannot be an interpretation of (17c).

Furthermore, considering the background for (24) from the previous chapter, repeated below as (19), this sentence implies not only that it is immaterial who among the fathers could have uttered the insult, but also that it would have met with a general agreement among all participants:

(19)   They probably said to each other: 'check out that fat lady' "[4]

According to the current proposal, this inference may result from the relevant causal relation that underpins this passage:

---

4. The larger context of this sentence was a blog in Hebrew in which a woman relays her experiences at a water park, and assumes that any of the fathers around her could have said the sentence.

(20)

| A consensus that the speaker is fat | CAUSE | Feelings of shame |
|---|---|---|
| C | | E |
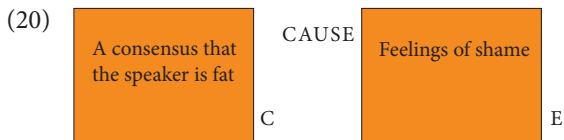
Thus, the cardinality of the set of pairs that stand in a relation of "saying" is the cardinality of the set of fathers in the event minus one (since only one of them speaks to each of the other), or, if all the other fathers are taken as a collective standing in a relation to the one father who supposedly said the sentence, then the cardinality is 1. In addition, as noted in (§ 7.9), this case appears to impose a further requirement: consensus among all the participants. The latter is a specific reading of $P_1$ which may be conceived of as expanding the meaning of the verb "say" along the following lines: "one says something to the other, and the other agrees". In the current analysis, however, this reading is not induced by the verb as such, but rather derives from discursively determined premises accepted by all participants of the situation. The CRDECR hypothesis provides a mechanism to account for the strengthening of NP-strategy sentences to align with the causal relations assumed for a given context. The content of these additions can vary significantly from one context to another. Furthermore, it is not restricted to a restricted set of possible interpretations (such as the list in (1)–(2)) – as was assumed by previous analyses probing the meaning of the NP-strategy.

As stated in § 8.2, an approach whereby the NP-strategy conveys unspecified meaning comprises the following three components:

i.   A mechanism that induces alternative (stronger) interpretations to the proposition expressed in the sentence under discussion.
ii.  A theoretical framework for identifying the interpretation for that sentence relevant for the causal relations that are assumed to operate in the context.
iii. A mechanism that eliminates all (weaker) interpretations that are inconsistent with the causal relations that are assumed to operate in the context.

So far, I have applied the CRDECR hypothesis only to the second of these aspects. As a heuristic for the first component, I let on as if all the possible interpretations of an NP-strategy sentence are induced, and then the ones that are not licensed in the given context are filtered out through a comparison of their strength with that of the interpretation relevant to the causal relation. The current analysis, however, eliminates the need for this heuristic. In line with other semantic analyses which make a case for underspecified meanings for various expressions (for example Poesio 1994), there is no need to assume that specification is a choice among a set of alternative interpretations. As concerns both the drinking of wine at the party (9–11) and the interpretation of the NP-strategy, the basic meaning of a sentence

is taken to be weak. In the former, the weakness has to do with the amount of wine that satisfies the truth conditions of the assertion, while in the latter, it is represented in (2). As indicated in (8), a stronger interpretation for the sentence in both these cases is achieved via conjunction, by adding to its truth conditions those of the descriptive proposition that establishes the causal relation salient in the context.

Accordingly, all final interpretations necessarily entail the basic meaning (by virtue of the trivial logical relation $p \wedge q \vDash p$); thus, conceptually, all propositions that entail the basic meaning can be conceived of as alternative interpretations for the given sentence. Moreover, as already demonstrated, the added proposition can vary significantly according to the context. This conclusion accounts for the first component. Now only item (iii) requires an explanation: the mechanism that eliminates interpretations that are too weak contextually.

Theoretically, however, CRDECR must be conceptualized not as a tool to filter out all interpretations weaker than the relevant description of the causal relation assumed for a given context, but rather as one that strengthens the meaning of the original proposition by conjoining it with the proposition that provides such a description. This account could be salient above and beyond the semantics of the NP-strategy and hence warrants further exploration.

### 8.3.3    Broader issues germane to the current analysis

This proposal is grounded in broader principles that determine the role of causal relations in interpreting a proposition in context:

i.   One's understanding of a linguistic expression in context depends on cohesiveness between the sentences in the surrounding discourse. Among other things, such cohesiveness is rooted in the causal relations between the eventualities described in these sentences.
ii.  Interpreting sentences about eventualities participating in causal relations depends on other ways they are described.

In the case in point, the notion of cohesion presupposes the existence of rules according to which a given expression is interpreted and which govern its possible relations to other expressions in the context. The idea that these rules are propelled by a search for causal structures has been raised in the literature, and the current discussion relies, to a large extent, on studies about the role of coherence in the interpretation of an utterance, often associated with Hobbs' (1979) study on the interpretation of pronouns. Research has repeatedly demonstrated that causality plays a role in this regard, as coherence and pronoun interpretation often involve the so called "implicit causality" (Caramazza et al. (1977); Kehler et al. 2008; and

see Rudolph & Forsterling (1997) for a review of the literature on this issue). This principle is also salient to numerous psycholinguistic studies on the role of causal connectives in sentence and text comprehension (inter alia Haberlandt & Bingham (1978); Keenan et al. (1984); Trabasso & van den Broek (1985); Sanders & Noordman (2000); Kuperberg et al. (2011); see Solstad & Bott (2017) for a literature review). Especially important is the case made in several studies that causal relations are presupposed by discourse participants when processing consecutive sentences (inter alia Mann & Thompson (1986); Segal et al. (1991); Murray (1997); Levinson (2000); Sanders (2005); and Asr & Demberg (2012)).

I argue that causality and cohesion have a bearing on truth conditions as well. In light of the principles stated in (i–ii), identifying a sentence as describing an eventuality that participates in a causal relation *de facto* involves the identification of the relevant description for this eventuality that establishes the causal relation. Accordingly, to understand that the sentence "they kiss each other" in the given context describes an eventuality that causes the spreading of germs is tantamount to conceiving of it as a type of physical contact and not an expression of love.

More broadly, this proposal adds a new dimension to our conceptualizing and modelling of conversation as a mode of linguistic communication. The rationale in this regard aligns with Roberts's (2012) approach, according to which discourse is a game organized by the interlocutors around *questions under discussion* (QUD). The line of reasoning Roberts develops reworks Stalnaker's (1978) classic model of conversation:

> Stalnaker's goal of discourse can itself be viewed as a question, the Big Question, What is the way things are?, whose corresponding set of alternatives is the set of all singleton sets of worlds in the context set at a given point in discourse. This suggests another way of viewing the set of alternatives proffered by a question: a question sets up a partition on the context set at the point of utterance, each cell the set of worlds in which one complete answer to the question is true (cf. the use of partitions to characterize answer-sets in Groenendijk & Stokhof (1984)). Then we can view the context set itself as representing the ultimate set of alternatives, for it is the selection of a unique ("actual") world which is our ultimate goal…
>
> Assertions are, as for Stalnaker, choices among alternatives. If accepted, they are added to the common ground and thereby shrink the context set. In order for discourse to be coherent (obey Relevance), it must be clear what alternatives (corresponding to cells in a partition on the context set) a given assertion selects among. The relevant alternatives are those proffered by the question, or topic, under discussion".                                                          (p. 5–6)

Thus, for Roberts, the discourse addresses the Big Question, **"What is the way things are?"** I contend, however, that at the heart of the discourse stands yet another Big Question: **"What are the causal relations between the eventualities described**

**in the given context?"** Thus, on my approach, what Roberts terms "the shrinkage of the context" is accomplished also through recognizing the causal relations it encompasses. Such an awareness, in turn, involves an implicit willingness to add assertions to the common ground – ones that establish these causal relations.

Put differently, when the proposition $p$ is accepted by discourse participants, all possible worlds that do not contain it are eliminated from the context. Furthermore, if $p$ describes an eventuality E that participates in a causal relation salient in the context, and if the description of this event for this causal relation is $r$, then all possible worlds that do not contain $r$ are eliminated as well (this satisfies the requirement iii). That is, the relevant description of the event that participates in the causal relation is implicitly asserted, and consequently, any interpretation of $p$ weaker than the interpretation of $r$, or inconsistent with it, is filtered out. Thus, the elimination of the weaker interpretation is the result of adding an implicit assertion.

The mechanism whereby the content of $r$, which is the description that establishes a causal relation salient in the context, is implicitly added to the context can be regarded as a particular case of accommodation – a phenomenon in which utterances presuppose the truthfulness of other propositions which were not part of the common ground at the time of the utterance (Karttunen 1974; Stalnaker 1973, 1978, 1998; Lewis 1979; Thomason 1990, for a review of the literature see Von Fintel 2008). I adopt the definition of accommodation introduced by Lewis in 1979 (21) and explore its applicability to the interpretation of the NP-strategy constructions:

(21)   The Rule of Accommodation for Presupposition
       If at time $t$ something is said that requires presupposition $P$ to be acceptable, and if $P$ is not presupposed just before $t$, then – *ceteris paribus* and within certain limits – presupposition $P$ comes into existence at $t$.        (Lewis 1979)

Accordingly, to the extent that (1) causal relations are crucial for the cohesion of conversation, and (2) causal statements are verified by specific descriptions of the eventualities participating in the causal relations which obtain in a given context, then when $p$ is asserted, if understanding the causal relations of the event it describes in the context at time $t$ relies on accepting $r$ (the description of the eventuality participating in the causal relation), $r$ "comes into existence at $t$".

The above rationale elucidates how the contextual strengthening that was discussed with respect to the NP-strategy could operate at the semantic level, affecting the truth conditions of a proposition. If presuppositions are false, then the propositions that presuppose them are false (or undefined) as well, as demonstrated for external negation ("it is false that the king of France is bald"). Applying this rule to the analysis of the NP-strategy, when the truth conditions of the proposition (r), which is the description relevant for the causal relation (r), are

not satisfied, then other descriptions of the same eventuality will be false in that context, due to the falsity of the presupposition. I contend that this dynamic is also at work in the interpretation of the NP-strategy: If the relevant description for the contextual causal relation has stronger truth conditions than the NP-strategy construction outside its context, it affects the truth conditions of this construction, through accommodation.

This analysis corroborates the account proffered in previous chapters. I argued that a number of grammatical phenomena, including semantic agreement (§ 2.4.2), are rooted in the interpretation of NP-strategy constructions as stronger than (2), especially when the participants in the events described stand in symmetric relation to each other. I further contended that such stronger interpretations are incorporated as part of the meaning of these expressions and in the course of time may affect their grammatical features as well. In the next section, I would like to clarify this proposal, by demonstrating how it can solve an additional semantic puzzle.

## 8.4    The NP-strategy with focus-sensitive particles

Above, I formulated the semantic representation of the NP-strategy as (2) and argued that it is often strengthened in line with the context. However, as discussed in the previous chapter (§ 7.7.2), when these constructions interact with negation, it is the basic meaning that is negated. For now, suffice it to point out that this approach for the semantics of the NP-strategy may explain cases wherein the semantics of such sentences involves both a positive and a negative interpretation, which are distinct. For example, with focus-sensitive particles, the semantics of a sentence also comprises the negation of alternatives. Consider a sentence with "only":

(22)   Only Jeff ate an apple.

In general terms, this sentence involves two propositions: the prejacent (23a) and the exclusion (23b). For our purposes, the relationship between (22) and (23a) is immaterial (it has been analyzed as entailment (Atlas 1996), presupposition (Horn 1996), or implicature (van Rooij & Schulz 2007)):

(23)   a.   Jeff ate an apple.
         b.   Nobody other than Jeff ate an apple.

Let us now consider a case where "only" appears within an NP-strategy sentence:

(24)   Only John and Beth fed each other, therefore they aren't hungry.

In such a context, sentence (24) involves the following propositions:

(25)  a.   John fed Beth and Beth fed John.
      b.   Nobody other than John and Beth fed anyone else.

Interestingly, while the prejacent (25a) is interpreted in terms of strong reciprocity (1a) of (24), the semantics of the exclusion proposition (25b) is understood only if we assume that the negation of (24) interacts with the weak interpretation, represented by (2). This is true in general of contexts that involve the negation of alternatives.

That said, the puzzling coexistence of two different interpretations for a single sentence, each reflecting a component of its meaning, it is not germane to the current approach regarding the semantics of the NP-strategy. In this analysis, the meaning of the NP-strategy is invariably the one represented by (2). The strengthening of the *positive sentence* (the prejacent) is achieved contextually, by adding a proposition to the common ground.

## 8.5   The indifference implicature within CRDECR

Armed with the above analysis for the semantics of NP-strategy constructions and the role of contextual causal relations in their interpretation, I will now address the Indifference Implicature, which was introduced informally in the previous chapter (§ 7.8). I will make a case for considering it as a component of the CRDECR hypothesis rather than an independent pragmatic restriction.

The implicature was phrased earlier in the following way:

(26)   It is immaterial which member of the set takes which role in the relation; only the number of instances the members of the set participate in the relation matters.

Above, I used the word "immaterial" without specifying its frame of reference. Also, earlier I had noted that the "indifference" in the respective implicature is objective, in the sense that it is not speaker/agent oriented – it is predicated of the circumstances, the objective state-of-affairs. In the analysis here, we can connect these two observations and propose that it is immaterial with respect to the causal relation that obtains in a given context.

Put differently, whenever an NP-strategy sentence allows for an interpretation other than strongly reciprocal, it does not matter for the instantiation of the causal relation denoted by the predicate who among the participants takes which role in this relation. If the sentence describes the CAUSE, then, as long as the cardinality of events that take place is the same, the same EFFECT would occur regardless of the identity of the participants in each role. This idea can be illustrated with the example discussed earlier (17b), the causal relation whereof is represented by (18a):

(17a)   If the witnesses speak to each other, they won't be allowed to take the stand.

(18a)
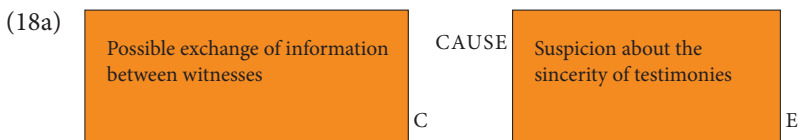


Assuming that the scenario involves two witnesses, A and B, the EFFECT – suspicion about the sincerity of the testimonies – would ensue regardless of whether A spoke to B or B spoke to A. The implicature, then, can be formally captured through a counterfactual analysis (cf. von Fintel's (2000) regarding the Agent's Indifference Implicature triggered by "whatever"). As for conditional sentences, the semantics of this implicature can be formalized using universal quantification over counterfactual alternative worlds. These worlds minimally differ from the actual world in respect of the roles played by the members of the set figuring in the sentence (who among the set did what to whom) but not in respect of the other eventualities salient for the causal relation in the context. In the NP-strategy, all alternative events (in which similar type of relations would be held) will also have the same characteristics as the one in the actual world, with some adjustments implemented to fit the participants. As concerns causal relations, the eventuality that results from the event described in a sentence will not differ in any of the alternative worlds. Thus, the event in (17a), which is a CAUSE of the "suspicion about the sincerity of the testimony", can be characterized as "possible exchange of information between witnesses" regardless of whether the witness A spoke to the witness B or vice versa.

Bearing in mind the contextual strengthening in (18):

(18)   $[[q]]_{\text{contextual strengthening}} = \lambda r_{<s,\,t>}\lambda q_{<s,\,t>}\lambda w\,.C[r,\,q].q(w)\wedge r(w)$

our analysis of the Indifference Implicature can be formally represented as below:

(27)   $\forall w' \in \min w\,[F\cap q(w')]: [z(w') \wedge C\,(q,\,z)]$
The truth conditions of $q$ are equivalent to (2):
$|A|\geq 2$ and $\forall x\in A\exists y\in A\,(x\neq y\wedge(Rxy\vee Ryx))$

–   The truth conditions of $z(w')$ minimally differ from $r(w)$. The description of the event which $q$ is about is relevant for the causal relation only with respect to the identity of the participants in each argument position.
–   C(q, z), indicates the following: $z$ is the description of the event which $q$ is about that is salient for the causal relation in the context. This part ensures that (1) both propositions, $q$ and $z$, are about the same eventuality; (2) the other event [either CAUSE or EFFECT] in the causal relation has all the characteristics germane to the event described in the sentence in respect of the causal relation held in w.

Thus, (27) can be paraphrased as follows: in all worlds minimally different from *w* that are in the circumstantial modal base F in which the basic meaning of the NP-strategy (2) holds, it is also true that a description of the same eventuality relevant to the causal relation, which is different from the relevant description in w only with respect to the roles of the participants in the same relation, is true.[5]

This rendering of the implicature sheds light on some of the observations made in the previous chapter. First, I claimed that, in cases where the relation among the participants is **necessarily** predetermined, an NP-strategy construction will be unacceptable, since the indifference implicature is not satisfied:

(28)  [#]My mother and I gave birth to each other.

The analysis here accounts for this restriction. For all worlds in which the daughter gave birth to the mother, it is not true that the only difference between these worlds and ours lies in the role of the participants in the causal relation described.[6] A world with different types of causal relations would be required. Therefore, sentences such as (28) are unacceptable.

Second, as demonstrated earlier (§ 7.8), the "indifference" does not stem from the speaker's ignorance or the agent/speaker indifference. The modal base of this implicature is not epistemic but circumstantial – it involves evaluation of worlds in which the relevant causal relation holds.

Our analysis likewise elucidates the acceptability of (29):

(29)  a.  They listened to our instructions as to how the books should be arranged on top of each other.
      b.  They put the orange book on the green book, so that the books will be neatly arranged one on top of the other.

These sentences satisfy the Indifference Implicature insofar as they do not entail that there is only one way to arrange the pile of books for the purposes relevant in the context. Thus, (29 a and b) do not stipulate a necessity for what will be considered an arrangement of the books but only point to the speaker's preference in the matter. If,

---

**5.** This follows Kratzer's (1981, 1991) account for modals that applies as a conversational background a circumstantial/root modal base, which chooses a set of worlds compatible with the circumstances in the context. Since in my analysis causality involves events, the rationale follows Hacquard (2010), where modals are taken to be relative to an event rather than to a world of evaluation. However, for simplicity, the semantics here is represented with evaluations of worlds.

**6.** The explanation for the ungrammaticality of (28) resonates with the notion of *non-decidedness* proposed by Mari (2014). Both accounts require that all of the possible orders of asymmetrical relations be available in distinct yet similar possible worlds. The main difference is that, for Mari (2014), this stipulation pertains to semantics, while the current analysis treats it as a pragmatic implicature.

for example, the goal is to organize the table with books on it, this sentence implies that any order will work as long as the table looks tidy; a preference for a specific order is indicated contextually, and this is irrelevant for the use of the NP-strategy.

Finally, the objective indifference is conceptualized here as an implicature. The main reason is that the content represented by (30) can be cancelled: the speaker can explicitly deny her commitment to the implicature or its negation, and this would not be deemed a contradiction.

(30)   John and Mike had to pick each other up to reach the window. Well, most likely it was John who picked up Mike, since Mike is not strong enough.

This implicature can be derived from Grice's maxim of manner, which requires *inter alia* that the speaker avoid obscurity of expression or ambiguity. According to the semantics proposed here, the NP-strategy denotes unspecified relations. Expressing unspecified relations instead of explicitly indicating the specific interactions that took place violates this maxim, or using Horn's (1984) terms, it violates the Q-principle: "say as much as you can". The violation of this principle may, in turn, trigger the Indifference Implicature ("It is immaterial which member of the set takes which role in the relation; only the number of instances the members of the set participate in the relation matters.")

In the next section, I will briefly clarify two issues important to the semantic analysis of the NP-strategy.

## 8.6   Two clarifications

### 8.6.1   Sentences out of context

The three sets of sentences discussed above, one of them (17), repeated below, raise an additional question elaborated in in this section.

(17)   a.   The witnesses spoke to each other.
       b.   If the witnesses spoke to each other, they won't be allowed to take the stand.
       c.   Once the trial had ended, the witnesses spoke to each other.

As noted throughout this chapter, without the second clause, the sentence in (17a) calls for a strongly reciprocal reading. The previous literature (such as Dalrymple et al. 1998) has tended to analyze such sentences in isolation. Such an approach is fraught with problems because the causal relations that are salient for the scenario described and that affect the meaning of the sentence become visible only in larger contexts. A comprehensive semantic theory of the NP-strategy must therefore

account for the strong reciprocal reading of such constructions in isolation of a broader context.

An important caveat, however, is that not every sentence of this type is decoded as strongly reciprocal, even in default of a logical reason militating against such an interpretation, as below:

(31)   They told each other "be careful."

One can understand the sentence in (31) as depicting a situation in which only one participant is telling the other "be careful", while her companion does not respond in exactly the same manner (although no logical or conceptual considerations preclude the eventuality in which both use these same words).

Second, as noted, according to the CRDECR hypothesis, sentences are about eventualities, and, contrary to Dalrymple et al. (1998), the aspect of the context that affects the truth conditions of a given sentence is taken to be the causal relation that the eventuality it describes is part of, by virtue of the broader context. Hence, the question is: How is a sentence interpreted in isolation from its context if causal relations supplied by the context become part of its interpretation? An answer for this question is by no means trivial. In light of the analysis proposed here, the decoding may not be anchored in the basic meaning of a sentence, but in every given case involves generalizations regarding typical causal relations that the sentence may describe or possibly the choice among competing constructions that can be used to describe a given state-of-affairs.

This issue warrants a separate investigation, such as the one recently undertaken by Poortman et al. (2018). These researchers examined NP-strategy constructions out of context with focus on typicality effects with respect to verb concepts, similar to the typicality effects that noun concepts display when denoting entities (nouns were studied in various experiments that rank some concepts as more typical than others, see Rosch (1973); Smith et al. (1974); and Rosch and Mervis (1975), among others).

Last but not least, the CRDECR hypothesis may seem to be inconsistent with the principle of compositionality, almost invariably upheld in the previous literature. This tenet is usually formulated as follows:

> **Principle of Compositionality**: the meaning of a complex expression is determined by the meanings of its constituents and by its structure.
>
> (Gendler Szabó 2000: 3)

On this approach, in a complex structure, such as a conditional sentence, the meaning of each of the clauses is independent of the entire sentence. However, in (17), for example, the meaning of (a) is contingent on the larger context and is different in (b) and (c), in violation of the compositionality principle.

While it has been well established that contextualism and compositionality are mutually compatible approaches (Gendler Szabó 2001 and Lasersohn 2012), the mechanisms through which the latter operates is beyond the scope of this book. For our purposes, it suffices to say that the basic meaning of all NP-strategy sentences is the same and that the description of the salient causal relation obtained in the discourse is supplied by the context in the form of an added assertion.

### 8.6.2   Contextual contradictions

Another issue that needs to be addressed is contextual contradiction. The analysis proposed here is similar to that of Dalrymple et al. (1998) in one aspect: the interpretation of a sentence is taken to be dependent on the context. In this connection, Sabato & Winters observe that the inconsistency of (32a) and (32b) does not trigger a weaker interpretation, but is conceived of as a contradiction:

(32)   a.   John didn't kiss Mary.
       b.   Mary and John kissed each other.

While in stating (32), the speaker may be justly blamed for deliberately creating a contradiction, this is not the case in (33), which *prima facie* is parallel to it:

(33)   a.   One of them didn't kiss the other.
       b.   They kissed each other.

The analysis proffered by Dalrymple et al. (1998) falls short of explaining how the logical contradiction between (33a) and (33b) is not resolved through a weakening of the truth conditions of (b). According to the CRDECR principle, however, consistency is achieved through the strengthening impact of the contextual causal relation on the semantics of the sentence. The current approach eschews the notion that contradictions can be *resolved* through a weakening of truth conditions; rather, they may or may not arise depending on the discursively or contextually salient causal relations. Sentences (33a) and (33b) contradict each other under the assumption that kissing is a display of mutual affection. If it is considered as an action of spreading germs, this pair of sentences would not be analyzed as a contradiction. Neither is the sentence below conceived of as self-contradictory (especially if more than two participants are involved), as the subject is spreading germs and not making out:

(34)   The kids kissed each other enough to get sick, but it's definitely not John's fault, as he doesn't kiss.

## 8.7    Summary

On introducing the Unspecified Construction Hypothesis (UCH) in the previous chapter, I cautioned that the truth-conditional representation of the basic meaning of the NP-strategy in (2) does not cover all the attested data, since in many cases the truth conditions of such sentences are stronger than (2). In this chapter I have argued that the reason for this limitation of (2) is that it formulates an underspecified meaning for a construction, and that the strengthening of its truth conditions is achieved through further contextual specification. Accordingly, this chapter has addressed the following two questions:

1.   What mechanism accounts for the strengthening of meaning?
2.   What determines the extent of such strengthening?

According to the CRDECR hypothesis, the extent to which the meaning of a sentence is strengthened is contingent on the causal relations obtained in the context, and the strengthening itself is achieved by implicitly adding to the common ground the truth conditions of a description of the eventuality that constitutes either the CAUSE or the EFFECT of such a relation.

In connection to the multifunctionality of NP-strategy constructions for expressing reciprocity, the CRDECR hypothesis advanced here bypasses the problems addressed in the previous literature, e.g., in Dalrymple et al. (1998) and Sabato & Winter (2012), namely, predicates that preclude reciprocal readings, and sentences whose interpretations change depending on the larger context. The above theories are all premised on the assumption that the NP-strategy involves *reciprocal constructions*, and consequently, endeavor to explain how reciprocal expressions can be used in the absence of symmetrical relations. Conversely, under the CRDECR hypothesis, the NP-strategy is taken to comprise *unspecified pronouns*, whose basic meaning, as represented by (2), falls short of reciprocity. The interpretation of such sentences can be strengthened contextually in line with the causal relations between the discursively salient events. It stands to reason that, when the meaning of a predicate does not require a reciprocal reading, or when reciprocity is logically impossible, then the constructions can be interpreted according to a weaker set of truth conditions.

Importantly, under CRDECR, a context may give rise to different relations between the denotation of sentences – ones that are established through different descriptions of the same state-of-affairs. More so, these relations may affect the interpretation of specific expressions via accommodation. While in the CRDECR framework the focus is on causality, it accounts for other contextual relations as well, such as grounding, telicity or evidence.

Last, Dalrymple et al. (1998) observe that what they term "loose readings" is a phenomenon that encompasses constructions other than the NP-strategy, e.g., statements with a definite plural such as "the men in the room drank". It is worth examining whether the CRDECR hypothesis is applicable more generally, to cases like plurality as well.

In conclusion, the semantics of the NP-strategy involves three components:

I.  **The Unspecified Constructions Hypothesis (UCH):**
    For a given set:

> Each member of the set participates in the relation denoted by the predicate, as one of its arguments, with another member of that set.

(2)  $|A| \geq 2$ and $\forall x \in A \exists y \in A \ (x \neq y \wedge (Rxy \vee Ryx))$

II.  **Possible Contextual Strengthening:**
    The basic meaning of a sentence can be strengthened contextually according to the hypothesis of **Consistency with Relevant Descriptions of Events in Causal Relations (CRDECR):**

(12)  e.  When $q$ is an NP-strategy sentence,
      f.  $q$ describes a state-of-affairs (C) which is the cause of another state-of-affairs (E), and
      g.  (C) is understood to be the cause of (E) by virtue of the description $r$ of (C), then
      h.  $q$ must be interpreted in a way that is consistent with, and also not weaker than, $r$.
          In other words:
          The interpretation of an NP-strategy sentence contextually relies on the semantics of the proposition $r$ which establishes this causal relation in a given context.

The truth conditions of $r$ are added implicitly to the common ground:

(8)  $[[q]]_{\text{contextual strengthening}} = \lambda r_{<s,\,t>} \lambda q_{<s,\,t>} \lambda w \ C[r,\,q].q(w) \wedge r(w)$

The relation C[r, q] is presupposed and it indicates the following: $r$ is the relevant description of the eventuality which $q$ is about for the causal relations in the context.

III.  **Indifference Implicature**

(26)  It is immaterial which member of the set takes which role in the relation; only the number of instances the members of the set participate in the relation matters.

This implicature is captured by the formula below:

(27)  $\forall w' \in \min w \, [F \cap q(w')]: [z(w') \wedge C(q, z)]$
The truth conditions of $q$ are equivalent to (2):
$|A| \geq 2$ and $\forall x \in A \exists y \in A \, (x \neq y \wedge (Rxy \vee Ryx))$

–  The truth conditions of $z(w')$ minimally differ from $r(w)$. The description of the event which $q$ is about is relevant for the causal relation only with respect to the identity of the participants in each argument position.

–  C($q$, $z$), indicates the following: $z$ is the description of the event which $q$ is about that is salient for the causal relation in the context. This part ensures that (1) both propositions, $q$ and $z$, are about the same eventuality; (2) the other event [either CAUSE or EFFECT] in the causal relation has all the characteristics germane to the event described in the sentence in respect of the causal relation held in w.

The semantics represented by (2) with the Indifference Implicature aligns with the function of these pronouns as *unspecified constructions* established in (§ 0.6) and described as follows:

(35)  **Unspecified constructions**: expressions denoting that, within a given binary relation R between at least two (defined) ordered sets, it is not specified which set occupies which position.

The above definition brings us back to the starting point of this book. The formulation in (35) represents the assumption about the semantics of the NP-strategy that was central to Parts I and II. In light of this assumption, I have elucidated the origin of many of the two-unit NP-strategy constructions (Chapter 1), and their evolutionary trajectory in compositional terms. It also proved germane to the syntactic analysis of constructions in different languages (Chapters 2 and 4) and to tracing diachronic changes in their semantics (Chapter 5). As demonstrated in Section § 7.7.3, this diachronic investigation corroborates the semantic analysis at the core of this book.

# References

Aissen, Judith. 1982. Valence and coreference. In *Studies in Transitivity [Syntax and Semantics 15]*, Hopper Paul & Sandra A. Thompson (eds), 7–33. New York NY: Academic Press.

Alexander, Philip S. 1999. *The Society of Biblibal Literature Handbook of Style for Ancient Near Eastern, Biblical, and Early Christian Studies*. Peabody, MA: Hendrickson.

Alexopoulou, Theodora, Doron, Edit & Heycock, Caroline. 2004. Broad subjects and clitic left dislocation. In *Peripheries: Syntactic Edges and Their Effects* [Studies in Natural Language and Linguistic Theory 59], David Adger, Cécile De Cat & George Tsoulas (eds), 329–358. Dordrecht: Kluwer.  https://doi.org/10.1007/1-4020-1910-6_14

Amsterdamska, Olga. 1987. *Schools of Thought: The Development of Linguistics from Bopp to Saussure*. Dordrecht: Reidel.  https://doi.org/10.1007/978-94-009-3759-8

Andersen, Henning. 1987. From auxiliary to desinence. In *Historical Development of Auxiliaries*, Martin Harris & Paolo Ramat (eds), 21–52. Berlin: Mouton de Gruyter.
https://doi.org/10.1515/9783110856910.21

Aoun, Joseph, Elabbas, Benmamoun & Sportiche, Dominique. 1999. Further remarks on first conjunct agreement. *Linguistic Inquiry* 30: 669–681.
https://doi.org/10.1162/002438999554255

Ariel, Mira. 1990. *Accessing Noun-Phrase Antecedents*. London: Routledge.

Asr, Fatemeh Torabi & Demberg, Vera. 2012. Implicitness of discourse relations. In *Proceedings of COLING 2012*, Martin Kay & Christian Boitet (eds), 2669–2684. Mumbai: The COLING 2012 Organizing Committee.

Atlas, Jay D. 1996. 'Only' noun phrases, pseudo-negative generalized quantifiers, negative polarity items and monotonicity. *Journal of Semantics* 13: 265–328.
https://doi.org/10.1093/jos/13.4.265

Avanzi, Mathieu, Gendrot, Cédric & Lacheret, Anne. 2010. Is there a prosodic difference between left-dislocated and heavy subjects? Evidence from spontaneous speech. In *Every Language, Every Style, Speech Prosody, 5th International Conference, Chicago IL, 10–14 May*, 20–30. <http://www.isca-speech.org/sp2010/ITRW>

Avinery, Isaac. 1964. *Yad ha-lashon: otsar leshoni be-seder alef-bet shel ha-noś'im* (Yad ha-lashon: Language Treasures Arranged in Alphabetical Order). Tel Aviv: Yizre'el.

Bahat, Ya'acov & Ron, Mordekhai. 1980. *Ve-dayeḳ: tiḳune lashon ve-shipur ha-signon* (Be Precise: Language Amendments and Style Improvement). Mahad. 2, meḥuseshet. 2th ed.

Baldi, Philip. 1975. Reciprocal verbs and symmetric predicates. *Linguistische Berichte* 36: 13–20.

Baraḳ, Semadar & Gadish, Ronit. 2008. *Safah ḳamah: leḳeṭ mi-tokh ha-mador Leshonenu la-'am 'iton ha-Arets 1932–1944* (A Rising Language: Safa qama: selections from the Leshonenu La-am column Haretz, 1932–1944) [*Asupot u-mevo'ot ba-lashon* Vol. 7]. Jerusalem: ha-Aḳademyah la-lashon ha-'Ivrit.

Bar-Asher, Elitzur. 2008. The origin and the typology of the pattern *qtil li* in Syriac and Babylonian Aramaic. In *Sha'arey Lashon: Studies in Hebrew, Aramaic, and Jewish Languages in Honor of Moshe Bar-Asher*, Vol. II, Aharon Mamman, Steven Fassberg & Yochanan Breuer (eds), 360–392. Jerusalem: Hebrew University.

Bar-Asher, Elitzur. 2009. A Theory of Argument Realization and its Applications to Features of the Semitic Languages. *PhD dissertation*, Harvard University.

Bar-Asher, Elitzur. 2009b. The imperative forms of Proto Semitic and a new perspective on Barth's Law. *Journal of American Oriental Society* 128: 233–255.

Bar-Asher, Moshe. 2004. The language of Qumran: Between biblical and mishnaic Hebrew (a study in morphology). *Meghillot: Studies in the Dead Sea Scrolls* 2: 137–149

Bar-Asher, Moshe. 2006. Mishnaic Hebrew: An introductory survey. In *The Literature of the Sages, Second Part*, Michael Edward Stone & Shmuel Safrai (eds), 567–595. Amsterdam: Royal Van Gorcum & Philadelphia PA: Fortress Pres Fefrerg.

Bar-Asher, Moshe. 2012. *Studies in Modern Hebrew*. Jerusalem: The Academy of the Hebrew Language.

Bar-Asher, Moshe. 2014. *Studies in Classical Hebrew*. Berlin: De Gruyter. https://doi.org/10.1515/9783110300390

Bar-Asher Siegal, Elitzur. 2011a. Notes on reciprocal constructions in Akkadian in light of typological and historical considerations. *Semitica et Classica* 4: 23–42. https://doi.org/10.1484/J.SEC.1.102502

Bar-Asher Siegal, Elitzur. 2011b. From typology to diachrony: Synchronic and diachronic aspects of predicative possessive constructions in Akkadian. *Folia Linguistica Historica* 32: 43–88

Bar-Asher Siegal, Elitzur. 2012. Diachronic syntactic studies in Hebrew pronominal reciprocal constructions. In *Diachrony in Biblical Hebrew*, Cynthia Miller & Ziony Zevit (eds), 209–244. Winona Lake IN: Eisenbrauns.

Bar-Asher Siegal, Elitzur. 2014a. From a non-argument-dative to an argument-dative: The character and origin of the *qṭīl lī* construction in Syriac and Jewish Babylonian Aramaic. *Folia Orientalia* 51: 59–111.

Bar-Asher Siegal, Elitzur. 2014b. Reciprocal NP-strategies in Jewish dialects of Near Eastern Neo-Aramaic in light of parallel Semitic constructions. *Journal of Jewish languages* 2: 49–77. https://doi.org/10.1163/22134638-12340018

Bar-Asher Siegal, Elitzur. 2015. Hebrew language. *Encyclopedia of the Bible and its Reception*, Vol. 11, 637–639; 646–665. Berlin: De Gruyter.

Bar-Asher Siegal, Elitzur. 2015a. Arguments in favor of an ambiguist approach. Paper presented at the Göttingen Workshop on Negation and Polarity, September.

Bar-Asher Siegal, Elitzur. 2015b. The case for external sentential negation: Evidence from Jewish Babylonian Aramaic. *Linguistics* 53: 1031–1078. https://doi.org/10.1515/ling-2015-0025

Bar-Asher Siegal, Elitzur. 2016a. Introduction to the Grammar of Jewish Babylonian Aramaic, 2nd, revised and extended edn. Münster: Ugarit-Verlag.

Bar-Asher Siegal, Elitzur. 2016b. The Semitic templates from the perspective of reciprocal predicates. In *Proceedings of the 10th Mediterranean Morphology Meeting* 2010, 16–30, 7–10 September, Haifa. <http://mmm.lis.upatras.gr/index.php/mmm/article/view/2721/2984>

Bar-Asher Siegal, Elitzur. 2017. The pursuit of science: A study in Saussure's philosophy of science through the lens of a historical discussion. *Beiträge zur Geschichte der Sprachwissenschaft* 27: 253–290.

Bar-Asher Siegal, Elitzur. 2019. Formal characterizations of bridging contexts". *Ms. a paer presented at the conference* Formal Diachronic Semantics 4, The Ohio State University, November 2019.

Bar-Lev, Moshe Elyashiv. 2018. Free Choice, Homogeneity, and Innocent Inclusion. *PhD dissertation*, Hebrew University of Jerusalem.

Bar-Lev, Moshe E. & Margulis, Daniel. 2014. Hebrew kol: A universal quantifier as an undercover existential. In *Proceedings of Sinn und Bedeutung* 18, Urtzi Etxeberria, Anamaria Fălăus, Aritz Irurtzun & Bryan Leferman (eds), 60–76. <https://semanticsarchive.net/sub2013/ProceedingsSuB18.pdf>

Bary, Corien L. 2009. *Aspect in Ancient Greek a Semantic Analysis of the Aorist and Imperfective*. Nijmegen: Radboud University.

Bassi, Itai & Bar-Lev, Moshe Elyashiv. 2016. A unified existential semantics for bare conditionals. In *Proceedings of Sinn und Bedeutung* 21, Robert Truswell, Chris Cummins, Caroline Heycock, Brian Rabern & Hannah Rohde (eds), 22–25. <https://semanticsarchive.net/Archive/DRjNjViN/index.html>

Beck, Sigrid. 2001. Reciprocals are definites. *Natural Language Semantics* 9: 69–138. https://doi.org/10.1023/A:1012203407127

Beck, Sigrid & von Stechow, Arnim. 2006. Dog after dog revisited. In *Proceedings of Sinn und Bedeutung* 10, Christian Ebert & Cornelia Endriss (eds), 43–54. <http://www.sfs.uni-tuebingen.de/~cebert/papers/SuB10Proceedings.pdf>

Beck, Sigrid & Gergel, Remus. 2015. The diachronic semantics of English AGAIN. *Natural Language Semantics* 23: 157–203. https://doi.org/10.1007/s11050-015-9111-2

Belletti, Adriana 1982. On the anaphoric status of the reciprocal constructions in Italian. *The Linguistic Review* 2: 101–138. https://doi.org/10.1515/tlir.1982.2.2.101

Benmamoun, Elabbas, Archna, Bhatia & Polinsky, Maria. 2010. Closest conjunct agreement in head-final languages. *Linguistic Variation Yearbook* 2009: 67–88. https://doi.org/10.1075/livy.9.02ben

Bhat, Shankara D. N. 1978. *Pronominalization*. Pune: Deccan College.

Bhatt, Rajesh. 2005. Long distance agreement in Hindi-Urdu. *Natural Language and Linguistic Theory* 23: 757–807. https://doi.org/10.1007/s11049-004-4136-0

Bhatt, Rajesh & Walkow, Martin. 2013. Locating agreement in grammar: An argument from agreement in conjunctions. *Natural language and Linguistic Theory* 31: 951–1013. https://doi.org/10.1007/s11049-013-9203-y

Biber, Douglas, Johansson, Stig, Leech, Geoffrey, Conrad, Susan & Finegan, Edward. 1999. *Longman Grammar of Spoken and Written English*. London: Longman.

Bobaljik, Jonathan David. 2008. Where's phi? Agreement as a post-syntactic operation. In *Phitheory: Phi Features Across Interfaces and Modules*, Daniel Harbour, David Adger & Susana Béjar (eds), 295–328. Oxford: OUP.

Bock, Kathryn, Butterfield, Sally, Cutler, Anne, Cutting, J. Cooper, Eberhard, Kathleen M. & Humphreys, Karin R. 2006. Number agreement in British and American English: Disagreeing to agree collectively. *Language* 82: 64–113. https://doi.org/10.1353/lan.2006.0011

Bolinger, Dwight L. 1987. 'Each other' and its friends. *Another Indiana University Linguistics Club Twentieth Anniversary Volume*, 1–36. Bloomington IN: Indiana University Linguistics club.

Bosch, Peter, Katz, Graham & Umbach, Carla. 2007. The non-subject bias of German. Anaphors. In *Text: Cognitive, formal and Applied Approaches to Anaphoric Reference* [Studies in Language Companion Series 86], Monika Schwarz-Friesel, Manfred Consten & Mareile Knees (eds), 145–165. Amsterdam: John Benjamins. https://doi.org/10.1075/slcs.86.13bos

Bošković, Željko. 2009. Unifying first- and last-conjunct agreement. *Natural Language and Linguistic Theory* 27: 455–496. https://doi.org/10.1007/s11049-009-9072-6

Boyarin, Daniel. 1981. An inquiry into the formation of the Middle Aramaic dialects. In *Bono Homini Donum: Essays in Historical Linguistics in Memory of J. Alexander Kerns* [Current Issues in Linguistic Theory 16], Yoël L. Arbeitman (ed.), 613–650. Amsterdam: John Benjamins. https://doi.org/10.1075/cilt.16.40boy

Brame, Michael K. 1977. Alternatives to the tensed and specified subject conditions. *Linguistics and Philosophy* 1: 381–411. https://doi.org/10.1007/BF00353455

Brisson, Christine. 1998. Distributivity, Maximality, and Floating Quantifiers. *PhD dissertation*, Rutgers University.

Buccellati, Giorgio. 1996. *A Structural Grammar of Babylonian*. Wiesbaden: Harrassowitz.

Bybee, Joan. 2003. Mechanisms of change in grammaticization: The role of frequency. In *The Handbook of Historical Linguistics*, Brian D. Joseph & Richard D. Janda (ed.), 602–623. Oxford: Blackwell. https://doi.org/10.1002/9780470756393.ch19

Bybee, Joan L., Perkins, Revere D. & Pagliuca, William. 1994. *The Evolution of Grammar: Tense, Aspect and Modality in the Languages of the World*. Chicago IL: University of Chicago Press.

Cable, Seth. 2014. Reflexives, reciprocals and contrast. *Journal of Semantics* 31: 1–41. https://doi.org/10.1093/jos/ffs020

Campbell, Lyle. 2001. What's wrong with grammaticalization? *Language Sciences* 23: 113–161. https://doi.org/10.1016/S0388-0001(00)00019-X

Cantarino, Vicente. 1975. *Syntax of Modern Arabic Prose*, Vol. III. Bloomington IN: Indiana University Press.

Caramazza, Alfonso, Grober, Ellen H., Garvey, Caterine F. & Yates, Jack. 1977. Comprehension of anaphoric pronouns. *Journal of Verbal Learning and Verbal Behaviour* 16: 601–609. https://doi.org/10.1016/S0022-5371(77)80022-4

Caudal, Parick. 2015. The *passé composé* in Old French and Modern French: Evolution or revolution? In *Sentence and Discourse*, Jacqueline Guéron (ed.), 178–204. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780198739418.003.0009

Chafe, Wallace L. 1976. Givenness, contastiveness, definitness, subjects, topics and point of view. In *Subject and Topic*, Charles N. Li (ed.), 25–55. New York NY: Academic Press.

Choi, Jongtae. 1994. The Aramaic of Daniel: Its Date, Place of Composition and Linguistic Comparison with Extra-Biblical Texts. *PhD dissertation*, Trinity Evangelical Divinity School, Deerfield IL.

Chomsky, Noam. 1965. *Aspects of The Theory of Syntax*. Cambridge MA: The MIT Press.

Chomsky, Noam. 1973. Conditions on transformations. In *A Festschrift for Morris Halle*, Stephen R. Anderson & Paul Kiparsky (eds), 232–286. New York NY: Holt, Reinhart and Winston.

Chomsky, Noam. 1981. *Lectures on Government and Binding: The Pisa Lectures*. Dordrecht: Foris.

Chomsky, Noam. 1986. *Knowledge of Language. Its Nature, Origin and Use*. New York NY: Praeger.

Coghill, Eleanor. 2016. *Rise and Fall of Ergativity in Aramaic: Cycles of Alignment Change*. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780198723806.001.0001

Condoravdi, Cleo & Deo, Ashwini. 2014. Aspect shifts in Indo-Aryan and trajectories of semantic change. In *Language Change at the Syntax-Semantics Interface*, Chiara Gianollo, Agnes Jäger & Doris Penka (eds), 261–292. Berlin: Mouton de Gruyter.

Cook, Edward M. 1994. A new perspective on the language of Onkelos and Jonathan. In *The Aramaic Bible: Targums in their Historical Context*, Derek R. G. Beattie & Martin J. McNamara (eds), 142–156. Sheffield: Sheffield Academic Press.

Corbett, Greville. 2006. *Agreement* [Cambridge Textbooks in Linguistics]. Cambridge: CUP.

Dalman, Gustaf. 1905. *Grammatik des Jüdisch-Palästinischen Aramäisch: Nach Den Idiomen des Palästinischen Talmud, des Onkelostargum und Prophetentargum und der Jerusalemischen Targume*. Leipzig: J.C. Hinrichs Buchhandlung.

Dalrymple, Mary, McHombo, Sam A. & Peters, Stanley. 1994. Semantic similarities and syntactic contrasts between Chicheŵa and English reciprocals. *Linguistic Inquiry* 25: 145–163.

Dalrymple, Mary, Kanazawa, Makoto, Kim, Yookyung, Mchombo, Sam & Peters, Stanley. 1998. Reciprocal expressions and the concept of reciprocity. *Linguistics and Philosophy* 21: 159–220. https://doi.org/10.1023/A:1005330227480

Davidson, Donald. 1967a. The Logical form of action sentences. In *The Logic of Decision and Action*, Nicholas Rescher (ed.), 81–95. Pittsburgh PA: University of Pittsburgh Press.

Davidson, Donald. 1967b, Causal relations. *Journal of Philosophy* 64: 691–703. https://doi.org/10.2307/2023853

Davidson, Donald. 1970. Mental events. In *Experience and Theory*, Lawrence Foster & Joe W. Swanson (eds), 79–102. London: Duckworth.

Delitzsch Friedrich. 1889. *Assyrian Grammar with Paradigms, Exercises, Glossary and Bibliography*. Berlin: H. Reuther.

Deo, Ashwini. 2009. Unifying the imperfective and the progressive: Partitions as quantificational domains. *Linguistics & Philosophy* 32: 475–521. https://doi.org/10.1007/s10988-010-9068-z

Deo, Ashwini. 2014. Formal semantics/pragmatics and language change. In *The Routledge Handbook of Historical Linguistics*, Claire Bowern & Bethwyn Evans (eds), 393–409. Routledge: Oxford.

Deo, Ashwini. 2015. Diachronic semantics. *Annual Review of Linguistics* 1: 179–197. https://doi.org/10.1146/annurev-linguist-030514-125100

De Smet, Hendrick. 2009. Analysing reanalysis. *Lingua* 119: 1728–1755. https://doi.org/10.1016/j.lingua.2009.03.001

De Smet. 2014. Does innovation need reanalysis? In *Usage-Based Approaches to Language Change* [Studies in Functional and Structural Linguistics 69], Evie Coussé & Ferdinand von Mengden (eds), 23–48. Amsterdam: John Benjamins.

den Dikken, Marcel. 2001. Pluringulars, pronouns and quirky agreement. *The Linguistic Review* 18: 19–41.

Dixon, Robert M. W. 2012. *Basic Linguistic Theory*, Vol. 3: ??, ?? *Further Grammatical Topics*. Oxford: OUP.

Doron, Edit. 2016. Introduction. In *Language Contact and the Development of Modern Hebrew*, 1–22. Leiden: Brill.

Doron, Edit & Heycock, Caroline. 1999. Filling and licensing multiple specifiers. In *Specifiers: Minimalist Approaches*, David Adger, Susan Pintzuk, Bernadette Plunkett & George Tsoulas (eds), 69–89. Oxford: OUP.

Doron, Edit & Heycock, Caroline. 2010. In support of broad subjects in Hebrew. *Lingua* 120: 1764–1776. https://doi.org/10.1016/j.lingua.2009.12.002

Doron, Edit & Rappaport Hovav, Malka. 2009. A unified approach to reflexivization in Semitic and Romance. *Brill's Annual of Afroasiatic Languages and Linguistics* 1: 75–105. https://doi.org/10.1163/187666309X12491131130503

Dougherty, Ray C. 1970. A grammar of coordinate conjoined structures, Part I. *Language* 46: 850–98.   https://doi.org/10.2307/412260

Dougherty, Ray C. 1974. The syntax and semantics of each other constructions. *Foundations of Language* 12: 1–47.

Driver, Godfrey R. 1925. *Grammar of the Colloquial Arabic of Syria and Palestine*. London: Probsthain & Co.

Eckardt, Regine. 2006. *Meaning Change in Grammaticalization: An Enquiry into Semantic Reanalysis*. Oxford: OUP.   https://doi.org/10.1093/acprof:oso/9780199262601.001.0001

Eckardt, Regine. 2010. Grammaticalization and semantic reanalysis. In *Semantics: An International Handbook of Natural Language Meaning*, Vol. 3, Klaus von Heusinger, Claudia Maienborn & Paul Portner (eds), 2675–2702. Berlin: Mouton de Gruyter.

Eckardt, Regine. 2011. Grammaticalization and Semantic Change. In Bernd Heine and Heiko Narrog (eds.), *The Handbook of Grammaticalization*, pp. 389–400. Oxford: Oxford University Press.

Eckhoff, Hanne Martine & Haug, Dag Trygve Truslew. 2015. Aspect and prefixation in Old Church Slavonic. *Diachronica* 32: 186- 230.   https://doi.org/10.1075/dia.32.2.02eck

Elbourne, Paul. 1999. Some correlations between semantic plurality and quantifier scope. In *The North East Linguistic Society* (NELS) 29, Nancy Hall, Masako Hirotani & Pius Tamanji (eds), 81–92. Amherst MA: GLSA.

Enfield, Nick J. 2011. Descriptions of reciprocal situation in Lao. In Evans et al. (eds), 129–147.

Erades, Peter A. 1950. Points of modern English Syntax XII. *English Studies* 31: 153–157. https://doi.org/10.1080/00138385008596849

Evans, Nicholas. 2008. Reciprocal constructions: Towards a structural typology. In König & Gast (eds), 33–103.

Evans, Nicholas, Gaby, Alice & Nordlinger, Rachel. 2007. Valency mismatches and the coding of reciprocity in Australian languages. *Linguistic Typology* 11: 541–597. https://doi.org/10.1515/LINGTY.2007.033

Evans, Nicholas, Gaby, Alice, Levinson, Stephen C. & Majid, Asifa (eds). 2011a. *Reciprocals and Semantic Typology* [Typological Studies in Languages 98]. Amsterdam: John Benjamins.

Evans, Nicholas, Gaby, Alice, Levinson, Stephen C. & Majid, Asifa. 2011b. Introduction: Reciprocals and semantic typology. In Evans et al. (eds), 1–28.   https://doi.org/10.1075/tsl.98

Everaert, Martin. 1990–1. Nominative anaphors in Icelandic: Morphology or syntax? In *Issues in Germanic Syntax*, Werner Abraham, Wim Kosmeijer & Eric Reuland (eds), 277–305. Berlin: Mouton de Gruyter.   https://doi.org/10.1515/9783110847277.277

Everaert, Martin. 1999. Types of anaphoric expressions: Reflexives and reciprocals. In Frajzyngier & Walker (eds), Vol.2, 63–83.

Everaert, Martin. 2008. Domain restrictions on reciprocal interpretation. In König & Volker (eds), 557–576.

Fabricius-Hansen, Cathrine. 2001. "Wi(e)der" and "Again(st)", In *Audiatur Vox Sapientiae. A Festschrift for Arnim von Stechow*, Caroline Féry & Wolfgang Sternefeld (eds), 101–130. Berlin: De Gruyter.

Fassberg, Steven. 1990. *Grammar of the Palestinian Targum Fragments from the Cairo Genizah*. Atlanta GA: Scholars Press.

Fassberg, Steven. 2010. *The Jewish Neo-Aramaic dialect of Challa*. Leiden: Brill.
https://doi.org/10.1163/ej.9789004176829.i-318

Fiengo, Robert & Lasnik, Howard. 1973. The logical structure of reciprocal sentences in English. *Foundations of Language* 9: 447–468.

Filip, Hana & Carlson, Gregory N. 2001. Distributivity strengthens reciprocity, collectivity weakens it. *Linguistics and Philosophy* 24: 417–466.
https://doi.org/10.1023/A:1010621109497

von Fintel, Kai. 1995. The formal semantics of grammaticalization. In *Proceedings of the 25th Annual Meeting of the North East Linguistic Society* 2, Jill N. Beckman (ed.), 175–198. Amherst MA: University of Massachusetts, Department of Linguistics.

von Fintel, Kai. 2000. Whatever. *Semantics and Linguistics Theory* 10: 27–39.
https://doi.org/10.3765/salt.v10io.3101

von Fintel, Kai. 2008. What is presupposition accommodation, again? *Philosophical Perspectives* 22: 137–170.  https://doi.org/10.1111/j.1520-8583.2008.00144.x

Fitzmyer, Joseph A. 1979. The phases of the Aramaic language. In *A Wandering Aramean*, 57–84. Chico CA: Scholars Press.

Fox, Danny. 2007. Free choice and the theory of scalar implicatures. In *Presupposition and Implicature in Compositional Semantics*, Penka Stateva & Uli Sauerland (eds), 71–120. Houndmills: Palgrave Macmillan.  https://doi.org/10.1057/9780230210752_4

Frajzyngier, Zygmunt. 1999. Coding of the reciprocal function: Two solutions. In Frajzyngier & Walker (eds), 179–194.

Frajzyngier, Zygmunt & Walker, Traci (eds). 1999. *Reciprocals: Form and Function*, 2 Vols [Typological Studies in Language 40–41]. Amsterdam: John Benjamins. (Walker, Traci originally published as Curl, Traci)

Frazer, Mary. 2017. Commentary on therapeutic (Qutāru). *Cuneiform Commentaries Project*, Eckhart Frahm, Enrique Jiménez, Mary Frazer & Klaus Wagensonner, 2013–2018. <https://ccp.yale.edu/P296515. DOI: 10079/v41nsdr> (7 march 2018).

Gaby, Alice. 2008. Distinguishing reciprocals from reflexives in Kuuk Thaayorre. In König & Gast (eds), 259–288.

Gelb, Ignace J. 1957. Notes on Von Soden's grammar of Akkadian. *Bibliotheca Orientalis* 12: 93–111.

Gelb, Ignace J., Benno. Landsberger, et al. 1956. *The Assyrian Dictionary*. Chicago: The Oriental Institute.

van Gelderen, Elly. 2011. *The linguistic Cycle. Language Change and the Language Faculty*. Oxford: OUP.  https://doi.org/10.1093/acprof:oso/9780199756056.001.0001

Geller, Markham J. 2010. *Ancient Babylonian Medicine: Theory and Practice*. Oxford: OUP.
https://doi.org/10.1002/9781444319996

Gendler Szabó, Zoltán. 2000. *Problems of Compositionality [PhD Dissertations]*. New York NY: Garland.

Gendler Szabó, Zoltán. 2001. Adjectives in context. In *Perspectives on Semantics, Pragmatics and Discourse. A Festschrift for Ferenc Kiefer* [Pragmatics & Beyond New Series 90], István Kenesei & Robert M. Harnish (eds), 119 -146. Amsterdam: John Benjamins.
https://doi.org/10.1075/pbns.90.12gen

Gillon, Brendan S. 1987. The readings of plural noun phrases in English. *Linguistics and Philosophy* 10: 199–219.  https://doi.org/10.1007/BF00584318

Givón, T. 2015. *The Diachrony of Grammar*. Amsterdam: John Benjamins.
https://doi.org/10.1075/z.192

Gleitman, Lila R. 1965. Coordinating conjunctions in English. *Language* 41: 260–293. https://doi.org/10.2307/411878

Glinert, Lewis. 1983. The reciprocal structure in Modern Hebrew. In *David Gross Anniversary Volume*, Kodesh Shlomo (ed.), 196–213. Jerusalem: Hamatmind. (in Hebrew)

Glinert, Lewis. 1989. *The Grammar of Modern Hebrew*. Cambridge: CUP.

Goldenberg, Gideon. 1991. 'Onself', 'one's own' and 'one another' in Amharic. In *Semitic Studies in Honor of Wolf Leslau*, Alan S. Kaye. (ed.), 531–549. Wiesbaden: Harrassowitz.

Greenblatt, Jared R. 2011. *The Jewish Neo-Aramaic Dialect of Amadya*. Leiden: Brill.

Grice, Paul. 1975. Logic and conversation. In *Syntax and Semantics, 3: Speech Acts*, Peter Cole & Jerry Morgan (eds). New York NY: Academic Press. (Reprinted in Grice, Paul. 1989. *Studies in the Way of Words*, 22–40. Cambridge MA: Harvard University Press.)

Groenendijk, Jeroen & Stokhof, Martin. 1984. Studies on the Semantics of Questions and the Pragmatics of Answers. *PhD dissertation*, University of Amsterdam.

Haas, Florian. 2010. *Reciprocity in English: Historical Development and Synchronic Structure*. London: Routledge.

Häberl, Charles G. 2009. *Neo-Mandaic dialect of Khorramshahr*. Wiesbaden: Harrassowitz.

Haberlandt, Karl & Bingham, Geoffrey. 1978. Verbs contribute to the coherence of brief narratives: Reading related and unrelated sentence triples. *Journal of Verbal Learning and Verbal Behavior* 17: 419–425. https://doi.org/10.1016/S0022-5371(78)90247-5

Hacquard, Valentine. 2010. On the event relativity of modal auxiliaries. *Natural Language Semantics* 18: 79–114. https://doi.org/10.1007/s11050-010-9056-4

Halevy, Rivka. 2010. Reciprocal constructions in Hebrew. In *Judaic Studies in Memory of Moriah Liebson*, Maman Ahron & Rivka Bliboim (eds), 265–286. Jerusalem: Hebrew University. (in Hebrew)

Halevy, Rivka. 2011a. The grammaticalization of bipartite reciprocal markers in Hebrew. *Hebrew Studies* 52: 7–18. https://doi.org/10.1353/hbr.2011.0003

Halevy, Rivka. 2011b. Reciprocal constructions between syntax and lexicon. *Leshonenu* 73: 401–422. (in Hebrew)

Harris, Alice C. & Campbell, Lyle. 1995. *Historical Syntax in Cross-linguistic Perspective*. Cambridge: CUP. https://doi.org/10.1017/CBO9780511620553

Haspelmath, Martin. 1997. *Indefinite Pronouns*. Oxford: OUP.

Haspelmath, Martin. 1999. Why is grammaticalization irreversible? *Linguistics* 37: 1043–1068. https://doi.org/10.1515/ling.37.6.1043

Haspelmath, Martin. 2004. On directionality in language change with particular reference to grammaticalization. In *Up and Down the Cline: The Nature of Grammaticalization* [Typological Studies in Language 59], Olga Fischer, Muriel Norde & Harry Perridon (eds), 17–44. Amsterdam: John Benjamins. https://doi.org/10.1075/tsl.59.03has

Haspelmath, Martin. 2007. Further remarks on reciprocal constructions. In *Nedjalkov* (ed.), 2087–2115.

Hasselbach, Rebecca. 2007. External plural markers in Semitic: A new assessment. In *Studies in Semitic and Afroasiatic Linguistics Presented to Gene B. Gragg* [SAOC 60], Cynthia L. Miller (ed.), 123–138. Chicago IL: The Oriental Institute.

Hecker, Karl. 1968. *Grammatik der Kültepe-Texte* [Analecta Orientalia 44]. Rome: Pontificium Institutum Biblicum.

Heim, Irene, Lasnik, Howard & May, Robert. 1991. Reciprocity and plurality. *Linguistic Inquiry* 22: 63–101.

Heine, Bernd. 1994. Grammaticalization as an explanatory parameter. In *Perspectives on Grammaticalization* [Current Issues in Linguistic Theory 109], William Pagliuca (ed.), 235–254. Amsterdam: John Benjamins.   https://doi.org/10.1075/cilt.109.08hei

Heine, Bernd. 1997. *Cognitive Foundations of Grammar*. Oxford: OUP.

Heine, Bernd. 1999, Polysemy involving reflexive and reciprocal markers in African languages. In Frajzyngier & Walker (eds), Vol.2, 1–30.

Heine, Bernd & Kuteva, Tania. 2002. *World Lexicon of Grammaticalization*. Cambridge: CUP. https://doi.org/10.1017/CBO9780511613463

Heine, Bernd, Claudi, Ulrike & Hünnemeyer, Friederike. 1991. *Grammaticalization: A Conceptual Framework*. Chicago IL: University of Chicago Press.

Heine, Bernd & Miyashita, Hiroyuki. 2008. The intersection between reflexives and reciprocals: A grammaticalization perspective. In König & Gast (eds), 169–2232.

Hetzron, Robert. 1972. *Ethiopian Semitic: Studies in Classification*. Manchester: Manchester University Press.

Hetzron, Robert. 1974. La division des langues sémitiques. *Actes du premier congrès international de linguistique sémitique et chamito-sémitque, Paris 16–19 juillet,* 1969, André Caquot & David Cohen (eds), 181–194. The Hague: Mouton. https://doi.org/10.1515/9783110879872-019

Hetzron, Robert. 1975. Genetic classification and Ethiopian Semitic. In *Hamito-Semitica*, James Bynon & Theodora Bynon (eds), 103–27. The Hague: Mouton. https://doi.org/10.1515/9783111356167.103

Hetzron, Robert. 1976. Two principles of genetic reconstruction. *Lingua* 38: 89–108. https://doi.org/10.1016/0024-3841(76)90074-7

Heycock, Caroline. 1993. Syntactic predication in Japanese. *Journal of East Asian Linguistics* 2: 167–211.   https://doi.org/10.1007/BF01732503

Heycock, Caroline & Doron, Edit. 2003. Categorical subjects. *Gengo Kenkyu* 123: 95–135.

Hicks, Glyn. 2009. *The Derivation of Anaphoric Relations* [Linguistik Aktuell/Linguistics Today 139]. Amsterdam: John Benjamins.   https://doi.org/10.1075/la.139

Higginbotham, James. 1981. Reciprocal interpretation. *Journal of Linguistic Research* 1: 97–117.

Himmelmann, Nikolaus. 2004. Lexicalization and grammaticization: Opposite or orthogonal? In *What Makes Grammaticalization?: A Look from its Fringes and its Components*, Walter Bisang, Nikolaus Himmelmann & Björn Wiemer (eds), 21–42. Berlin: De Gruyter.

Hinterwimmer, Stefan. 2015. A unified account of the properties of German demonstrative pronouns. In *The Proceedings of the Workshop on Pronominal Semantics at NELS* 40, Patrick Grosz, Pritty Patel-Grosz & Igor Yanovich (eds), 61–107. Amherst MA: GLSA.

Hirsch, Hans 1963. Die Inschriften der Könige von Agade. *Archiv für Orientforschung* 20: 1–82.

Hobbs, Jerry R. 1979. Coherence and coreference. *Cognitive Science* 3: 67–90. https://doi.org/10.1207/s15516709cog0301_4

Hopper, Paul J. & Traugott, Elizabeth C. 2003. *Grammaticalization*, 2nd edn. Cambridge: CUP. https://doi.org/10.1017/CBO9781139165525

Horn, Lawrence. 1984. Toward a new taxonomy for pragmatic inference: Q-based and R-based implicature. In *Meaning, Form and Use in Context* [GURT 1984], Deborah Schiffrin (ed.), 11–42. Washington DC: Georgetown University Press.

Horn, Lawrence. 1989. *A natural history of negation*. Chicago: The University of Chicago Press.

Horn, Lawrence. 1996. Exclusive company: 'Only' and the dynamics of vertical inference. *Journal of Semantics* 13: 1–40.   https://doi.org/10.1093/jos/13.1.1

Huehnergard, John & Rubin, Aaron. 2011. Phyla and waves: Models of classification. Semitic languages. In *Semitic Lanuages: An International Handbook*, Stefan Weninger, Geoffrey Khan, Michael P. Streck & Janet Watson (eds), 259-278. Berlin: De Gruyter Mouton. https://doi.org/10.1515/9783110251586.259

Hurst, Peter & Nordlinger, Rachel. 2011. Reciprocal constructions in English: Each other and beyond. In Evans et al. (eds), 75–89.

Inglese, Guglielmo. 2017. A synchronic and diachronic typology of Hittite reciprocal constructions. *Studies in Language* 41: 956–1006.   https://doi.org/10.1075/sl.17019.ing

Janda, Richard D. 2001. Beyond 'pathways' and 'unidirectionality': On the discontinuity of language transmission and the counterability of grammaticalization. *Language Sciences* 23: 265–340.   https://doi.org/10.1016/S0388-0001(00)00023-1

Jankowsky, Kurt R. 1972. The Neogrammarians: a re-evaluation of their place in the development of linguistic science. (*Janua Linguarum, series minor*, 116.) The Hague: Mouton.

Jastrow, Otto. 1988. *Der neuaramäische Dialekt von Hertevin (Provinz Siirt)*. Wiesbaden: Harrassowitz.

Jay, Jonathan. 2009. Reciprocal constructions in Biblical Hebrew. *GIALens: Electronic Notes Series* 3(1). <https://www.diu.edu/documents/gialens/Vol3-1/Jay-HebrewReciprocals.pdf>

Jespersen, Otto. 1949[1913]. *A Modern English Grammar on Historical Principles*, Part II, Vol. 1. Copenhagen: Munksgaard.

Joseph, Brian D. 2001. Is there such a thing as "grammaticalization?" *Language Sciences* 23: 163–186.   https://doi.org/10.1016/S0388-0001(00)00020-6

Joseph, Brian D. 2005. How accommodating of change is grammaticalization? The case of 'lateral shifts'. *Logos and Language* 6: 1–7.

Joüon, Paul & Muraoka, Takamitsu. 1991. *A Grammar of Biblical Hebrew*. Rome: Editrice Pontificio Istituto Biblico.

Kamp, Hans & Reyle, Uwe. 1993. *From Discourse to Logic: Introduction to Model Theoretic Semantics of Natural Language, Formal Logic and Discourse Representation Theory*. Dordrecht: Kluwer.

Kański, Zbigniew. 1987. Logical symmetry and natural language reciprocals. In *Proceedings of the 1987 Debrecen Symposium on Logic and Language*, 49–68. Budapest: Akadémiai Kiadó.

Karttunen, Lauri. 1974. Presupposition and linguistic context. *Theoretical Linguistics* 1: 181–193. https://doi.org/10.1515/thli.1974.1.1-3.181

Kaufman, Stephen A. 2013. Targum pseudo-Jonathan and late Jewish literary Aramaic. *Aramaic Studies* 11: 1–26.   https://doi.org/10.1163/17455227-13110104

Keenan, Janice M., Baillet, Susan D. & Brown, Polly. 1984. The effects of causal cohesion on comprehension and memory. *Journal of Verbal Learning and Verbal Behavior* 232: 115–126. https://doi.org/10.1016/S0022-5371(84)90082-3

Kehler, Andrew, Kertz, Laura, Rohde, Hannah & Elman, Jeffrey L. 2008. Coherence and coreference revisited. *Journal of Semantics* 25: 1–44.   https://doi.org/10.1093/jos/ffm018

Kemmer, Suzanne. 1993. *The Middle Voice: A Typological and Diachronic Study* [Typological Studies in Language 23]. Amsterdam: John Benjamins.   https://doi.org/10.1075/tsl.23

Khan, Geoffrey. 1999. *A Grammar of Neo-Aramaic: The Sialect of the Jews of Arbel*. Boston MA: Brill.   https://doi.org/10.1163/9789004305045

Khan, Geoffrey. 2002. *The Neo-Aramaic Dialect of Qaraqosh*. Leiden: Brill.
https://doi.org/10.1163/9789004348585

Khan, Geoffrey. 2004. *The Jewish Neo-Aramaic Dialect of Sulemaniyya and Ḥalabja*. Leiden: Brill.   https://doi.org/10.1163/9789047413585

Khan, Geoffrey. 2008a. The expression of definiteness in North-Eastern Neo-Aramaic dialects. In *Aramaic in its Historical Setting*, Holger Gzella & Margaretha L. Folmer (eds), 209–226. Wiesbaden: Harrassowitz.

Khan, Geoffrey. 2008b. *The Neo-Aramaic Dialect of Barwar*. Leiden: Brill. https://doi.org/10.1163/ej.9789004167650.i-2198

Khan, Geoffrey. 2016. Left dislocation in North-Eastern Neo-Aramaic dialects. *Stellenbosch Papers in Linguistics Plus* 50: 91–110. https://doi.org/10.5842/50-0-718

Kim, Yooking & Peters, Stanley. 1998. Semantic and pragmatic context-dependence: The case ofreciprocals. In *Barbosa, is the Best Good Enough? Optimality and Competition in Syntax*, Danny Fox Pilar, Paul Hagstrom, Martha McGinnis & David Pesetsky (eds), 221–248. Cambridge MA: The MIT Press.

Kiparsky, Paul & Condoravdi, Cleo. 2006. Tracking Jespersen's cycle. In *Proceedings of the 2nd International Conference of Modern Greek Dialects and Linguistic Theory*, Mark Janse, Brian D. Joseph & Angela Ralli (eds), 172–197. Mytilene: Doukas.

Kjellmer, Goran. 1982. Each other and one another: On the use of the English reciprocal pronouns. *English Studies* 63: 231–254. https://doi.org/10.1080/00138388208598178

Knjazev, Jurij P. 1998. Towards a typology of grammatical polysemy: Reflexive markers as markers of reciprocity. In *Typology of Verbal Categories*, Leonid Kulikov & Heinz Vater (eds), 185–93. Tübingen: Niemeyer. https://doi.org/10.1515/9783110913750.185

Knjazev, Jurij P. 2007. Reciprocal constructions in Russian. In Nedjalkov (ed.), 673–708. https://doi.org/10.1075/tsl.71.22knj

König, Ekkehard. 2011. Reciprocals and semantic typology: Some concluding remarks. In Evans et al. (eds), 327–339.

König, Ekkehard. 2017. Reciprocals. In *Oxford Bibliography in Linguistics*, <https://www.oxford-bibliographies.com/view/document/obo-9780199772810/obo-9780199772810-0209.xml> https://doi.org/10.1093/obo/9780199772810-0209

König, Ekkehard & Shigehiro Kokutani. 2006. Towards a typology of reciprocal constructions: Focus on German and Japanese. *Linguistics* 44: 271–302. https://doi.org/10.1515/LING.2006.010

König, Ekkehard & Gast, Volker (eds). 2008. *Reciprocals and Reflexives – Theoretical and Cross-linguistic Explorations* [Trends in Linguistics 192]. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110199147

König, Ekkehard & Gast, Volker. 2008a. Reciprocity and reflexivity – description, typology and theory. In König & Gast (eds), 1–31.

Koster, Jan. 1987. *Domains and Dynasties: The Radical Autonomy of Syntax*. Dordrecht: Foris. https://doi.org/10.1515/9783110808520

Kouwenberg, Norbertus J. C. 1997. *Gemination in the Akkadian Verb* [Studia Semitica Neerlandica 32]. Assen: Van Gorcum.

Kratzer, Angelika. 1981. The notional category of modality. In *Words, Worlds and Contexts*, Hans-Jürgen Eikmeyer & Hannes Rieser (eds), 38–74. Berlin: Walter de Gruyter.

Kratzer, Angelika. 1991. Modality. In *Semantics: An International Handbook of Contemporary Research*, Arnim von Stechow & Dieter Wunderlich (eds), 639–650. Berlin: Walter de Gruyter.

Kremers, Joost. 1997. How Arabs Speak to Each Other about Themselves: A Study of nafs and baḍ in Modern Standard Arabic. MA thesis, University of Nijmegen.

Krifka, Manfred. 1996. Pragmatic strengthening in plural predications and donkey sentences. *Semantics and Linguistic Theory (SALT)* 6: 136–153. https://doi.org/10.3765/salt.v6i0.2769

Križ, Manuel. 2015. *Aspects of Homogeneity in the Semantics of Natural Language*. PhD dissertation, University of Vienna.

Križ, Manuel. 2016. Homogeneity, non-maximality, and all. *Journal of Semantics* 33: 1–47. https://doi.org/10.1093/jos/ffv006

Kropotkin, Pëtr. 1902. *Mutual Aid: A Factor of Evolution*. London: Heinemann

Kruspe, Nicole. 2011. Reciprocal constructions in Mah Meri. In Evans et al. (eds), 149–162.

Kulikov, Leonid. 2007. Reciprocal constructions in Vedic. In *Nedjalkov* (ed.), 709–738.

Kuno, Susumu. 1973. *The Structure of the Japanese Language*. Cambridge MA: The MIT Press.

Kuperberg, Gina R., Paczynski, Martin & Ditman, Tali. 2011. Establishing causal coherence across sentences: An ERP study. *Journal of Cognitive Neuroscience* 23: 1230–1246. https://doi.org/10.1162/jocn.2010.21452

Kuroda, Sige-Yuki. 1986. Movement of noun phrases in Japanese. In *Issues in Japanese Linguistics*, Takashi Imai & Mamoru Saito (eds), 229–272. Dordrecht: Foris.

Kuryłowicz, Jerzy. 1975[1965]. The evolution of grammatical categories. In *Esquisses linguistiques II*, Jerzy Kuryłowicz (ed.), 38–54. München: Wilhelm Fink.

Kutscher, Edward Yechezkel. 1971. Aramaic. In *Encyclopedia Judaica*, Vol. 3, 259–287. New York NY: The Macmillan Company.

Kutscher, Edward Yechezkel. 1977. Aramaic, *Linguistics in South West Asia and North Africa* ]Current Trends in Linguistics 6[, 347–412. The Hague: Mouton. (=Kutscher E.Y. *Hebrew and Aramaic Studies*, Jerusalem 1977, 90–155.)

Kuular, Klara B. 2007. Reciprocals, sociatives, comitatives, and assistives in Tuvan. In *Nedjalkov* (ed.), 1163–1229.

Labov, William. 1972. *Sociolinguistic Patterns*. Philadelphia PA: University of Pennsylvania Press.

Lakoff, George & Peter, Stanley. 1966. Phrasal conjunction and symmetric predicates. In *Mathematical Linguistics and Automatic Translation Report* [NSF-27], VI/1–49. Cambridge MA: Harvard Computation Laboratory (reprinted in *Modern Studies in English*, David Reibel & Sanford A. Schane (eds), 113–142. Englewood Cliffs NJ: Prentice-Hall, 1969.)

Landau, Idan. 2006. Chain resolution in Hebrew V(P)-fronting. *Syntax* 9: 32–66. https://doi.org/10.1111/j.1467-9612.2006.00084.x

Langacker, Ronald W. 1977. Syntactic reanalysis. In *Mechanisms of Syntactic Change*, Charles N. Li (ed), 57–139. Austin TX: University of Texas Press.

Langendoen, D. Terence. 1978. The logic of reciprocity. *Linguistic Inquiry* 9: 177–197.

Lasersohn, Peter Nathan. 2012. Contextualism and compositionality. *Linguistics and Philosophy* 35: 171–189. https://doi.org/10.1007/s10988-012-9115-z

Lebeaux, David. 1983. A distributional difference between reciprocals and reflexives. *Linguistic Inquiry* 1: 723–728.

Lee, Yo-Seob. 2016. Description of the BH lexeme *el*: A Cognitive Approach. MA thesis, Stellenbosch University.

Lehmann, Christian. 1995. *Thoughts on Grammaticalization*. Munich: Lincom.

Leslau, Wolf. 2000. *Introductory Grammar of Amharic*. Wiesbaden: Harassowitz.

Levin, Magnus. 2001. *Agreement with collective nouns in English* [Lund Studies in English 103]. Lund: Lund University Press.

Levin, Magnus. 2006. Collective nouns and language change. *English Language and Linguistics* 10: 321–343. https://doi.org/10.1017/S1360674306001948

Levinson, Stephen C. 2000. *Presumptive Meanings: The Theory of Generalized Conversational Implicature*. Cambridge MA: The MIT Press.

Lewis, David. 1973. Causation. *Journal of Philosophy* 70: 556–567.
https://doi.org/10.2307/2025310

Lewis, David. 1979. Scorekeeping in a language game. *Journal of Philosophical Logic* 8: 339–359.
https://doi.org/10.1007/BF00258436

Li, Charles N. & Thompson, Sandra A. 1977. A Mechanism of the development of copula morphemes. In *Mechanism of Syntactic Change*, Charles N. Li (ed.), 419–444. Austin TX: University of Texas Press.

Lichtenberk, Frantisek. 1985. Multiple uses of reciprocal constructions. *Australian Journal of Linguistics* 5: 19–41.   https://doi.org/10.1080/07268608508599334

Lichtenberk, Frantisek. 1994. Reflexives and reciprocals. In *The encyclopedia of language and linguistics*, vol. 7, edited by R. E. Asher (editor-in-chief), 3504–3509. Oxford: Pergam

Lichtenberk, Frantisek. 1999. Reciprocals without reflexive. In Frajzyngier & Walker (eds), 31–62.

Lightfoot, David. 1999. *The Development of Language: Acquisition, Change and Evolution*. Oxford: Blackwell.

Lightfoot, David. 2006. *How New Languages Emerge*. Cambridge: CUP.
https://doi.org/10.1017/CBO9780511616204

Macdonell, Arthur. A. 1927. *A Sanskrit Grammar for Students*. Oxford: OUP.

Maclean, Arthur John. 1895. *Grammar of the Dialects of Vernacular Syriac as Spoken by the Eastern Syrians of Kurdistan, North-West Persia, and the Plain of Mosul with Notices of the Vernacular of the Jews of Azerbaijan and of Zakhu Near Mosul*. Cambridge: CUP.

Macuch, Rudolf. 1965. *Handbook of Classical and Modern Mandaic*. Berlin: De Gruyter.
https://doi.org/10.1515/9783110818727

Magri, Giorgio. 2014. An account for the homogeneity effects triggered by plural definites and conjunction based on double strengthening. In *Pragmatics, Semantics and the Case of Scalar Implicatures*, Salvatore Pistoia Reda (ed.), 99–145. Houndmills: Palgrave.

Majid, Asifa, Evans, Nicholas & Gaby, Alice. 2011. The semantics of reciprocal constructions across languages: A extensional approach. In Evans et al. (eds), 29–59.

Malamud, Sophia A. 2012. The meaning of plural definites: A decision-theoretic approach. *Semantics and Pragmatics* 5: 1–58.   https://doi.org/10.3765/sp.5.3

Mann, Willianm C. & Thompson, Sandra A. 1986. Relational propositions in discourse. *Discourse Processes* 9: 57–90.   https://doi.org/10.1080/01638538609544632

Marušič, Franc, Nevins, Andrew & Badecker, Bill. 2015. The grammars of conjunction agreement in Slovenian. *Syntax* 18: 39–77.   https://doi.org/10.1111/synt.12025

Maslova, Elena. 1999. Reciprocals and set construal. In Frajzyngier & Walker (eds), 161–178.

Maslova, Elena. 2007. Reciprocal and polyadic (remarkable reciprocals in Bantu). In Nedjalkov (ed.), 335–352.

Maslova, Elena. 2008. Reflexive encoding of reciprocity: Cross-linguistic and language-internal variation. In König & Gast (eds), 225–257.

Mari, Alda. 2014. Each other, asymmetry and reasonable futures. *Journal of Semantics* 31: 209–261.   https://doi.org/10.1093/jos/fft003

Mathesius, Vilém. 1928. On linguistic characterology with illustrations from Modern English. In *Acted du Premier Congrès International de Linguistes à La Haye*, 56–63. Leiden: W.A. Sijthoff.

Maul, Stefan M. 2009. Die Lesung der Rubra dù.dù.bi und kìd.kìd.bi. *Orientalia NS* 78: 69–80.

McDaniels, Todd. 2003. What's wrong with reanalysis? *Toronto Working Papers in Linguistics* 21: 81–88.

McGregor, William B. 1999. Reflexive and reciprocal constructions in Nyulnyulan languages. In Frajzyngier & Walker (eds), 85–122.

Méndez Dosuna, Julián. 1997. Fusion, fission and relevance in language change: De-univerbation in Greek morphology. *Studies in Language* 21: 577–612.
https://doi.org/10.1075/sl.21.3.05men

Merin, Artur. 2003. *Formal Semantic Theory and Diachronic Data: A Case Study in Grammaticalization* [Arbeitsbericht des Sonderforschungsbereich 340. No. 75). Stuttgart: University of Stuttgart. <http://www.semanticsarchive.net/Archive/jhjZDgzY/fstadd.pdf>

de Meyer, Leon. 1962. *L'accadien des Contrats de Suse*. Leiden: Brill.

Montague, Richard. 1970. Universal grammar. *Theoria* 36: 373–398.
https://doi.org/10.1111/j.1755-2567.1970.tb00434.x

Mor, Uri. 2015. *Judean Hebrew: the language of the Hebrew documents from Judea between the first and the second revolts*. Jerusalem: The Academy of The Hebrew Language.

Morag, Shelomo. 1988. *Vocalised Talmudic Manuscripts in the Cambridge Genizah Collections*, Vol. I. Cambridge: CUP.

Moshkovitz, Yechiel T. 1985. *Sēfer Yǝḥezkēl: Daʿat Mikrâ*. Jerusalem: The Rabbi Kook Institution Publishers.

Munn, Alan. 1999. First-conjunct agreement: Against a clausal analysis. *Linguistic Inquiry* 30: 643–668. https://doi.org/10.1162/002438999554246

Muraoka, Takamitsu. 2011. *A Grammar of Qumran Aramaic* [Ancient Near Eastern Studies Supplement Series 38]. Leuven: Peeters.

Murray, John D. 1997. Logical connectives and local coherence. In *Sources of Coherence in Reading*, Robert F. Lorch & Edward J. O'Brien (eds), 107–125. Hillsdale NJ: Lawrence Erlbaum Associates.

Murray, Sarah. 2008. Reflexivity and reciprocity with(out) underspecification. In *Proceedings of Sinn und Bedeutung* 12, Alte Grøn (ed.), 455–469. Oslo: University of Oslo.

Mutzafi, Hezy. 2004. *The Jewish Neo-Aramaic Dialect of Koy Sanjaq (Iraqi Kurdistan)*. Wiesbaden: Harrassowitz.

Mutzafi, Hezy. 2008. *The Jewish Neo-Aramaic Dialect of Betanure (province of Dihok)*. Wiesbaden: Harrassowitz.

Narrog, Heiko & Heine, Bernd. 2011. *Oxford Handbook of Grammaticalization*. Oxford: OUP.

Nedjalkov, Vladimir P. (ed.). 2007. *Reciprocal Constructions*, 5 Vols [Typological Studies in Language 71]. Amsterdam: John Benjamins. https://doi.org/10.1075/tsl.71

Nedjalkov, Vladimir P. 2007a. Overview of the research: Definitions of terms, framework, and related issues. In Nedjalkov (ed.) 3–114.

Nedjalkov, Vladimir P. 2007b. Encoding of the reciprocal meaning. In Nedjalkov (ed.), 147–208.

Nedjalkov, Vladimir P. 2007c. Polysemy of reciprocal markers. In Nedjalkov (ed.), 251–333.

Nedjalkov, Vladimir P. & Geniušienė, Emma Š. 2007. Questionnaire on reciprocals. In Nedjalkov (ed.), 379–434.

Nedjalkov, Igor & Nedjalkov, Vladimir P. 2007a. Reciprocal, sociative and competitive constructions in Karachay-Balkar. In Nedjalkov (ed.), 969–1019.
https://doi.org/10.1075/tsl.71.35ned

Nedjalkov, Igor & Nedjalkov, Vladimir. 2007b Reciprocals, sociatives, comitatives, and assistives in Yakut". In Nedjalkov (ed.), 1095–1161.

Neishtadt, Mila. 2015. The lexical component in the Aramaic substrate of Palestinian Arabic. In *Semitic Languages in Contact*, Aaron Michael Butts (ed.), 280–310. Leiden: Brill.
https://doi.org/10.1163/9789004300156_016

Newmeyer, Frederick. 2001. Deconstructing grammaticalization. *Language Sciences* 23: 187–229. https://doi.org/10.1016/S0388-0001(00)00021-8

Nöldeke, Thodore. 1875. *Mandäische Grammatik*. Halle: Waisenhaus.

Nöldeke, Thodore. 2001. *Compendious Syriac Grammar*, transl. by Peter T. Daniels. Winona Lake IN: Eisenbrauns.

Norde, Muriel. 2009. *Degrammaticalization*. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780199207923.001.0001

Partridge, Eric. 1957. *Usage and Abusage*, 5th edn. London: Hamish Hamilton.

Perlmutter, David M. 1972. A note on syntactic and semantic number in English. *Linguistic Inquiry* 3: 243–246.

Philip, Willian. 2000. Adult and child understanding of simple reciprocal sentences. *Language* 76: 1–27. https://doi.org/10.1353/lan.2000.0091

Pietroski, Paul M. 2015. Framing events variables. *Erkenntnis* 80: 31–60. https://doi.org/10.1007/s10670-014-9659-0

Plank, Frans. 2008. Thoughts on the origin, progress, and pronominal status of reciprocal forms in Germanic, occasioned by those of Bavarian. In König & Gast (eds), 347–373.

Poesio, Massimo. 1994. Ambiguity, underspecification, and discourse interpretation. In *International Workshop on Computational Semantics*, Harry Bunt, Reinhard Muskens & Gerrit Rentier (eds), 151–160. Tilburg: University of Tilburg.

Poortman, Eva B., Struiksma, Martin E., Kerem, Nir, Friedmann, Naama & Winter, Yoad. 2018. Reciprocal expressions and the maximal typicality hypothesis. *Glossa: A Journal of General Linguistics* 3: 1–30. https://doi.org/10.5334/gjgl.180

Potter, Simon. 1953. The expression of reciprocity. *English Studies* 34: 252–257. https://doi.org/10.1080/00138385308596904

Quirk, Randolph, Greenbaum, Sidney, Leech, Geoffrey & Svartvik, Jan. 1985. *Comprehensive Grammar of the English Language*. London: Longman.

Rabin, Chaim. 1958. The historical background of Qumran Hebrew. *Scripta Hierosolymitana* 4: 144–161.

Rabin, Chaim. 2000. Rabin, *The Development of the Syntax of Post-Biblical Hebrew* (*Studies in Semitic Languages and Linguistics*, 29), Leiden: Brill.

Rapold, Christian J. 2011. Semantics of Khoekhoe reciprocal constructions. In Evans et al. (eds), 61–74.

Rawlins, Kyle. 2015. Indifference and scalar inferences in free relatives. In *Epistemic Indefinites: Exploring Modality Beyond the Verbal Domain*, Luis Alonso-Ovalle & Paula Menéndez-Benito (eds), 267–288. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780199665297.003.0012

Reinhart, Tanya. 1995. *Interface Strategies*. Utrecht: OTS Working Papers in Linguistics.

Reinhart, Tanya & Siloni, Tal. 2005. The lexicon-syntax parameter: Reflexivization and other arity operations. *Linguistic Inquiry* 36: 389–436. https://doi.org/10.1162/0024389054396881

Rendsburg, Gary A. 1990. *Diglossia in Ancient Hebrew*. New Haven CT: American Oriental Society.

del Río Sánchez, Francisco. 2013. Influences of Aramaic on Dialectal Arabic. In *Archaism and Innovation in the Semitic Languages*, Juan Pedro Monferrer-Sala & Wilfred G. E. Watson (eds), 129–136. Córdoba: Oriens Academic.

Roberts, Craige. 1987. Modal Subordination, Anaphora, and Distributivity. *PhD dissertation*, University of Massachusetts at Amherst.

Roberts, Craige. 2012. Information structure in discourse: Towards an integrated formal theory of pragmatics. *Semantics and Pragmatics* 5: 1–69.   https://doi.org/10.3765/sp.5.6

Roberts, Ian. 2007. *Diachronic Syntax*. Oxford: OUP.

Roberts, Ian & Roussou, Anna. 2003. *Syntactic Change: A Minimalist Approach to Grammaticalization*. Cambridge: CUP.   https://doi.org/10.1017/CBO9780511486326

van Rooij, Robert & Schulz, Robert Katrin. 2007. Only: Meaning and implicatures. In *Questions in Dynamic Semantics*, Aloni Maria, Alastair Butler & Paul Dekker (eds), 193–223. London: Elsevier.

Rosch, Eleanor. 1973. On the internal structure of perceptual and semantic categories. In *Cognitive Development and the Acquisition of Language*, Timothy E. Moore (ed.), 111–144. New York NY: Academic Press.   https://doi.org/10.1016/B978-0-12-505850-6.50010-4

Rosch, Eleanor & Mervis, Carolyn B. 1975. Family resemblances: Studies in the internal structure of categories. *Cognitive Psychology* 7: 573–605.
https://doi.org/10.1016/0010-0285(75)90024-9

Rubin, Aaron D. 2005. *Studies in Semitic Grammaticalization* [Harvard Semitic Series 57]. Winona Lake IN: Eisenbrauns.

Rubin, Aaron D. 2008. The subgrouping of the Semitic languages. *Language and Linguistics Compass* 2: 79–102.   https://doi.org/10.1111/j.1749-818X.2007.00044.x

Rubin, Aaron D. 2010. *The Mehri Language of Oman*. Leiden: Brill.
https://doi.org/10.1163/9789004187627

Rudolph, Udo & Friedrich Försterling. 1997. The psychological causality implicit in verbs: A review. *Psychological Bulletin* 121: 192–218

Sabar, Yona. 2002. *A Jewish Neo-Aramaic Dictionary: Dialects of Amidya, Dihok, Nerwa and Zakho, northwestern Iraq; Based on Old and New Manuscripts, Oral and Written Bible Translations, Folkloric Texts, and Diverse Spoken Registers, with an Introduction to Grammar and Semantics, and an Index of Talmudic Words which have Reflexes in Jewish Neo-Aramaic*. Wiesbaden: Harrassowitz.

Sabato, Sivan & Winter, Yoad. 2012. Relational domains and the interpretation of reciprocals. *Linguistics and Philosophy* 35: 191–241.   https://doi.org/10.1007/s10988-012-9117-x

Salonen, Erkki. 1962. *Untersuchungen zur Schrift und Sprache des Altbabylonischen von Susa, mit Berücksichtigung der Mâlamir-Texte*. Helsinki: Societas Orientalis Fennica.

Sanders, Ted. 2005. Coherence, causality and cognitive complexity in discourse. In *Proceedings/ Actes SEM-05, First International Symposium on the Exploration and Modelling of Meaning*, 105–114. Biarritz.

Sanders, Ted. J. & Noordman, Leo G. 2000. The role of coherence relations and their linguistic markers in text processing. *Discourse Processes* 29: 37–60.
https://doi.org/10.1207/S15326950dp2901_3

Sapir, Edward. 1931. Southern Paiute, a Shoshonean language. *Texts of the Kaibab Paiutes and Uintah Utes. Southern Paiute Dictionary* [Proceedings of the American Academy of Arts and Sciences 65]. Boston MA: American Academy of Arts and Sciences.

Sauerland, Uli. 1998. Plurals, derived, and reciprocals. *The Interpretive Tract: MIT Working Papers in Linguistics* 25: 177–204.

Sauerland, Uli. 2004a. "A team," definitely. *Snippets* 9: 11–12.

Sauerland, Uli. 2004b. *A Comprehensive Semantics for Agreement*. Montreal: McGill.

Schwarzschild, Roger. 1996. *Pluralities*. Dordrecht: Kluwer.
https://doi.org/10.1007/978-94-017-2704-4

Segal, Erwin M., Duchan, Judith F. & Scott, Paula J. 1991. The role of interclausal connectives in narrative structuring: Evidence from adults' interpretations of simple stories. *Discourse Processes* 14: 27–54.  https://doi.org/10.1080/01638539109544773

Segal, Moses H. 1908. Mišnaic Hebrew and its relation to Biblical Hebrew and Aramaic. *Jewish Quarterly review* 20: 647–737.  https://doi.org/10.2307/1450862

Segal, Moses H. 1927. *Grammar of Mishnaic Hebrew*. Oxford: Clarendon.

Segal, Moses H. 1936 *Diqduq lešon ha-mišna*. Tel-Aviv: Devir.

Sharvit, Shimon. 2006. *Language and Style of Avoth through the Ages*. Beer-Sheva: Ben Gurion University of the Negev Press.

Sichel, Ivy. 2001. Studies in the Syntax of Features and Pronouns. *Phd dissertation*, CUNY.

Sichel, Ivy. 2008. Demonstrative pronouns and anaphora. In *Hebrew Theoretical Linguistics*, Galia Hatav (ed.), 279–307. Jerusalem: The Hebrew University Magnes Press.

Sichel, Ivy. 2009. New evidence for the structural realization of the implicit external argument in nominalizations. *Linguistic Inquiry* 40: 712–723.  https://doi.org/10.1162/ling.2009.40.4.712

Sichel, Ivy & Wiltschko, Martina. 2018. Demonstrative pronouns and the linguistic encoding of appraisal. In *WCCFL 36: Proceedings of the 36th West Coast Conference on Formal Linguistics*, William G. Bennett, Lindsay Hracs & Dennis Ryan (eds), 365–373. Sommerville MA: Cascadilla Proceedings Project.

Siloni, Tal. 2001. Reciprocal verbs. In *Proceedings of the Israeli Association of Theoretical Linguistics* 17, Yehuda N. Falk (ed.). Jerusalem: IATL.

Siloni, Tal. 2002. Active lexicon. *Theoretical Linguistics* 28: 383–400.

Siloni, Tal. 2008. On the Hitpa'el template. In *Theoretical Hebrew Linguistics*, Galia Hatav (ed.), 111–138. Jerusalem: The Hebrew University Magnes Press.

Siloni, Tal. 2012. Reciprocal verbs and symmetry. *Natural Language & Linguistic Theory* 30: 261–320.  https://doi.org/10.1007/s11049-011-9144-2

Sinha, Jasmin. 2000. *Der neuostaramäische Dialekt von Bēṣpän (Provinz Mardin, Südosttürkei): Eine grammatische Darstellung*. Wiesbaden: Harrassowitz.

Sitaridou, Ioanna. 2014. Modality, antiveridicality and complementation: The Romeyka infinitive as a negative polarity item. *Lingua* 148: 118–146. https://doi.org/10.1016/j.lingua.2014.05.017

Sivan, Reuven. 1979. *Leḳsiḳon le-shipur ha-lashon*, 3rd edn. Jerusalem: Devir.

Smith, Edward E., Shoben, Edward J. & Rips, Lance J. 1974. Structure and process in semantic memory: A featural model for semantic decisions. *Psychological Review* 81: 214–241. https://doi.org/10.1037/h0036351

Smith. Peter, W. 2017. The syntax of semantic agreement in English. *Journal of Linguistics* 53: 823–863.  https://doi.org/10.1017/S0022226716000360

Sobin, Nicholas. 1997. Agreement, default rules, and grammatical viruses. *Linguistic Inquiry* 28: 318–43.

Sokoloff, Michael. 2002. *A Dictionary of Jewish Babylonian Aramaic of the Talmudic and Geonic Periods*. Ramat-Gan: Bar Ilan University Press; Baltimore MD: The Johns Hopkins University Press.

Solstad, Torgrim & Bott, Oliver. 2017. Causality and causal reasoning in natural language. In *The Oxford Handbook of Causal Reasoning*, Michael R. Waldmann (ed.), 619–644. Oxford: OUP.

Spector, Benjamin. 2013. Homogeneity and plurals: From the strongest meaning hypothesis to supervaluations. In *Proceedings of Sinn und Bedeutung* 18, Urtzi Etxeberria, Anamaria Fălăus, Aritz Irurtzun & Bryan Leferman (eds). <https://semanticsarchive.net/sub2013/ProceedingsSuB18.pdf>

Spector Shirtz, Ilona. 2014. The Syntax of Non-verbal Predication in Modern Hebrew: Predicate Nominals, Pseudoclefts and Clefts. *PhD dissertation*, Hebrew University of Jerusalem.

Stadel, Christian. 2013. *Morphosyntax of Samaritan Aramaic*. Jerusalem: The Bialik Institute.

Stalnaker, Robert. 1973. Presuppositions. *Journal of Philosophical Logic* 2: 447–457. https://doi.org/10.1007/BF00262951

Stalnaker, Robert. 1978. Assertion. In *Pragmatics* [Syntax and Semantics ], Peter Cole (ed.), 315–332. New York NY: Academic Press.

Stalnaker, Robert. 1998. On the representation of context. *Journal of Logic, Language and Information* 7: 3–19. https://doi.org/10.1023/A:1008254815298

Stein, David E. S. 2008. The noun אִישׁ (ʾîš) in Biblical Hebrew: A term of affiliation. *Journal of Hebrew Scriptures* 8: 1–24. https://doi.org/10.5508/jhs.2008.v8.a1

Stuurman, Frits. 1987. Each other – one another: 'There will always prove to be a difference'. *English Studies* 68: 353–360. https://doi.org/10.1080/00138388708598526

Sulkala, Helena & Karjalainen, Merja. 1992. *Finnish*. London: Routledge.

Tadmor, Hayim. 1958. Historical implications of the correct rendering of Akkadian *dâku*. *Journal of Near Eastern Studies* 17: 129–141. https://doi.org/10.1086/371453

Talay, Shabo. 2008. *Die neuaramäischen Dialekte der Khabur-Assyrer in Nordostsyrien: Einführung, Phonologie und Morphologie*. Wiesbaden: Harrassowitz.

Testen, David. 1998. The derivational role of the Semitic N-Stem. *Zeitschrift für Assyriologie und Vorderasiatische Archäologie* 88: 127–145. https://doi.org/10.1515/zava.1998.88.1.127

Thackston, Wheeler M. 2006. *Kurmanji Kurdish: A Reference Grammar with Selected Readings*. Diyarbakir: Renas Media.

<https://sites.fas.harvard.edu/~iranian/Kurmanji/kurmanji_complete.pdf>

Thomason, Richmond H. 1990. Accommodation, meaning, and implicature: Interdisciplinary foundations for pragmatics. In *Intentions in Communication*, Philip Cohen, Jerry Morgan & Martha Pollack (eds), 325–363. Cambridge MA: The MIT Press.

Thráinsson, Höskuldur. 1979. *On Complementation in Icelandic*. New York NY: Garland.

Trabasso, Tom & van den Broek, Paul. 1985. Causal thinking and the representation of narrative events. *Journal of Memory and Language* 24: 612–630. https://doi.org/10.1016/0749-596X(85)90049-X

Traugott, Elizabeth C. & Heine, Bernd. 1991. Introduction. In *Approaches to Grammaticalization*, Vol I [Typological Studies in Language 19], Elizabeth C. Traugott & Bernd Heine (eds), 1–14. Amsterdam: John Benjamins.

Traugott, Elizabeth C. & Dasher, Richard. 2002. *Regularity in Semantic Change*. Cambridge: CUP.

Trivers, Robert L. 1971. The evolution of reciprocal altruism. *The Quarterly Review of Biology* 46: 35–57. https://doi.org/10.1086/406755

Vachek, Josef. 1966. *The Linguistic School of Prague: An Introduction to its Theory and Practice*. Bloomington IN: Indiana University Press.

Vezzosi, Letizia. 2010. Micro-process of grammaticalization: The case of Italian *l'un l'altro*. In *Grammaticalization: Current Views and Issues* [Studies in Language Companion Series 119], Katerina Stathi, Elke Gehweiler & Ekkehard König (eds), 343–372. Amsterdam: John Benjamins. https://doi.org/10.1075/slcs.119.18vez

Visser, Fredericus Theodorus. 1963. *An Historical Syntax of the English Language, Part 1: Syntactical Units with One Verb*. Leiden: Brill.

Voigt, Rainer. 2001. Semitische Verwandtschaftstermini. In *New Data and New Methods in Afroasiatic Linguistics: Robert Hetzron in Memoriam*, Andrzej Zaborski (ed.), 205–218. Wiesbaden: Harrassowitz.

Von Soden, Wolfram. 1931. Der hymnisch-epische Dialekt des Akkadischen. *Zeitschrift für Assyriologie und vorderasiatische Aarchäologie* 40: 163–227.

Von Soden, Wolfram. 1933. Der hymnisch-epische Dialekt des Akkadischen. *Zeitschrift für Assyriologie* 41: 90–183.

Von Soden, Wolfram. 1952. Grundriss der akkadischen Grammatik [GAG]. Rome: Pontificium Institutum Biblicum.

de Waal, Frans. 2005. How animals do business. *Scientific American* 292: 72–79. https://doi.org/10.1038/scientificamerican0405-72

Weinreich, Uriel, Labov, William & Herzog, Marvin I. 1968. Directions for historical linguistics. In *Empirical Foundations for a Theory of Language Change*, Winfred P. Lehmann & Yakov Malkiel (eds), 95–188. Austin TX: University of Texas Press.

Werner, Arnold. 1991. *Das Neuwestaramäische IV. Orale Literatur aus Maʿlūla* [Semitica Viva; Bd. 4/IV]. Wiesbaden: Harrasowitz.

Wierzbicka, Anna. 2009. Reciprocity: An NSM approach to linguistic typology and social universals. *Studies in Language* 33: 103–174.   https://doi.org/10.1075/sl.33.1.05wie

Willer-Gold, Jana, Arsenijević, Boban, Batinić, Mia, Čordalija Nermina, Kresić, Marijana, Leko, Nedžad, Marušič, Franc Lanko, Milićev, Tanja, Milićević, Nataša, Mitić, Ivana, Nevins, Andrew, Peti-Stantić, Anita, Stanković, Branimir, Šuligoj, Tina& Tušek, Jelena. 2016. Conjunct agreement and gender in South Slavic: From theory to experiments to theory. *Journal of Slavic Linguistics* 24: 187–224.   https://doi.org/10.1353/jsl.2016.0003

Williams, Edwin. 1991. Reciprocal scope. *Linguistic Inquiry* 22: 159–173.

Winter, Yoad. 2018. Symmetric predicates and the semantics of reciprocal alternations. *Semantic and Pragmatics* 11: 1–46.   https://doi.org/10.3765/sp.11.1

Zaliznjak, Anna A. & Shmelev, Aleksej D. 2007. Sociativity, conjoining, reciprocity and the Latin Prefix *com*-. In Nedjalkov (ed.), 209–229.

Zeijlstra, Hedzer Hugo. 2004. Sentential Negation and Negative Concord, PhD Dissertation, University of Amsterdam.

# Language index

# Subject index

This book provides a comprehensive treatment of the syntax and semantics of a single linguistic phenomenon – the NP-strategy for expressing reciprocity – in synchronic, diachronic, and typological perspectives. It challenges the assumption common in the typological, syntactic, and semantic literature, namely that so-called reciprocal constructions encode symmetric relations. Instead, they are analyzed as constructions encoding unspecified relations. In effect, it provides a new proposal for the truth-conditional semantics of these constructions. More broadly, this book introduces new ways of bringing together historical linguistics and formal semantics, demonstrating how, on the one hand, the inclusion of historical data concerning the sources of reciprocal constructions enriches their synchronic analysis; and how, on the other hand, an analysis of the syntax and the semantics of these constructions serves as a key for understanding their historical origins.

ISBN 978 90 272 0478 3

9 789027 204783

## John Benjamins Publishing Company