Title
There Once Was a Verb: The Predicative Core of Possessive and Nominalization Structures in American Sign Language

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Publication Date
2012

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA
Los Angeles

There Once Was a Verb:
The Predicative Core of Possessive and Nominalization Structures in American Sign Language

A dissertation submitted in partial satisfaction
of the requirements for the degree
Doctor of Philosophy in Linguistics

by

Natasha Renee Abner

2012

ABSTRACT OF THE DISSERTATION

There Once Was a Verb: The Predicative Core of Possessive and Nominalization Structures in American Sign Language

by

Natasha Renee Abner

Doctor of Philosophy in Linguistics

University of California, Los Angeles, 2012

Professor Hilda Koopman, Co-chair

Professor Edward Stabler, Co-chair

This dissertation presents two extensive case studies in the morpho-syntactic structure of American Sign Language (ASL) based on original fieldwork conducted with native, deaf signers.

The first case study focuses on the structure of attributive and predicative POSS possessives. Based on language-internal diagnostics, this study shows that the possessive marker, POSS, functions as a verbal predicate of possession, not as a DP-internal marker of the possessive relation. The structure and interpretation of predicative POSS possessives are reduced to the interaction of the verbal POSS structure with two functional components of the predicative domain: (i) locative structure and (ii) licensing positions of definite objects. Attributive POSS possessives are derived as prenominal reduced relative clause modifiers formed from this underlying predicative structure.

The second case study presented here addresses the structural uniformity and semantic ambiguity of two classes of deverbal nominals formed via reduplication in ASL: concrete object-denoting nominals and result-denoting nominals. Based on a morpho-semantic decomposition of verbal structure that is transparent in the surface form of verbal predicates in ASL, it is shown that nominalization via reduplication targets the lowest constituent of the verbal structure (VP_{Res}). Nominalization of VP_{Res} yields the class of result-denoting nominals, while concrete object-denoting nominals are derived as relative clause structures headed by a nominal argument that is introduced

by the classifier structure present in the relevant verbal forms.

The dissertation of Natasha Renee Abner is approved.

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2012

To my father and grandfather, who were here for the beginning but not the end;

my mother and grandmother, who have been there for everything;

my brother, who filled voids I didn't know existed;

&

Camp Looking Glass,

who made my heart explode.

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ACKNOWLEDGMENTS

It is the great sorrow of the linguist that in a moment such as this language becomes inadequate. Words can capture only a fragment of my appreciation for the individuals below, though I dare not claim that this is an exhaustive list.

First and foremost, I am deeply grateful to all of the signers who patiently shared their time and language with me. Without them, this research would not have been possible, and with them, this research became all the more stimulating on both an intellectual and personal level. So to Darren, Tommy, Jeff, Cindy, and Marla: if I had my way, I would thank you (not so two dimensionally) on every page. I am grateful also to other members of the Deaf community who have welcomed and supported me over the years, especially my Santa Monica ASL gang. Thank you, Jessmyne, for bringing us together and for so much more.

Second, to my advisers. Poet Robert Hass writes: *The idea, for example, that each particular erases the luminous clarity of a general idea.* For Hilda Koopman and Edward Stabler, each of whom are adept at digging deep into the details of language while maintaining an insightful and direct eye on 'big picture' issues, no such idea could ever ring true.

When I met Hilda, as prospective student at UCLA, it seemed that she was, linguistically speaking, out of my league. I am certain that this feeling is shared by others. I am not so certain that this feeling ever goes away. A consummate adviser and mentor, Hilda has mastered the delicate task of pushing you without pushing things on you, a play on verbal complexes she is sure to appreciate. Hilda challenges the very core of your assumptions about language, as both a speaker and a linguist, with a level of fascination that is infectious and a degree of knowledge and understanding that is awe-inspiring. As a researcher, Hilda has taught me to be in a constant state of analysis. As a fieldworker, Hilda has taught me to foster the linguist inside of consultants. As a person, Hilda has taught me that 'taking a break' does not mean 'working on something else'.

Working with Ed during my time at UCLA, I have learned that if you blink, he has already solved the problem and has moved on to finding either another, better solution or another, harder

problem to solve. I have not yet, unfortunately, learned how not to blink. Ed has a profound ability to read between the lines of research and pull out insights and connections I am not sure the researchers themselves were aware of, an ability my own work has benefited from during my tenure as his student. Ed once told me that he keeps a pen and paper next to his bed for ideas he gets in the middle of the night. We could all benefit from seeing the contents of that notepad. There is no doubt a plan for world peace in there somewhere.

Karen Emmorey joined my committee with the disclaimer that she is not a syntactician. I would disagree with this claim and, indeed, any claim of what Karen is not. Conversations with Karen have always refreshed and clarified my own thinking and her knowledge and curiosity are a scientific force to be reckoned with. Karen has made less daunting many aspects of this research and has fostered with grace and kindness my development as a sign language researcher.

Ed Keenan has been a sheer joy to have around—as a person, as a linguist, as a committee member, and as a teacher. Ed has allowed me to experience sign language with fresh eyes and has taught me the importance of identifying the crux of your proposal, independent of the framework in which it is presented.

Thanks are also owed to other faculty at UCLA: Dominique Sportiche, who, in bringing me to Paris, joining me in 20in20, giving me the keys to his car, singlehandedly inspiring my collaboration with Thomas Graf, and in providing never-ending and always stimulating discussion of just about anything, has gone way above and beyond the call of duty; Anoop Mahajan, who never minded when our discussions became a bit, shall we say, tumultuous and whose playful spirit has endeared me to the description of linguistic analyses as “good stories”; Pamela Munro, who served as my first adviser on all matters fieldwork related and taught me, among other things, the importance of a good context; Nina Hyams, who holds us together and has talked me off at least one ledge; and Robert Daland, who, it should be noted, is pretty much always smiling.

I cannot overestimate the intellectual and personal debt owed to the sign language research community: Diane Brentari, Susan Fischer, and Ronnie Wilbur, whose tenacity as researchers has been a constant source of support and inspiration; Carlo Geraci, Gaurav Mathur, and Josep Quer, who are careful and wise; Philippe Schlenker, who is my kindred spirit in sign language excitement

and welcomed me so kindly in Paris; the Sign Language Reading Group at UCSD, who provided such enjoyable and informative meetings; and any and all of my predecessors and contemporaries, who make this all come together.

Thank you also to my fellow graduate students at UCLA: the Russian contingent, Denis Paperno, Other-Natasha Korotkova, and Ivan Kapitonov, who are comrades in all sorts of hijinks, if not in nationality; Craig Sailor, who owns books, dyes his socks green, showers with his clothes on, eats hamburgers raw, works for a famous entomologist, adopts babies, gets adopted, votes for Mitt Romney (sorry, dude), and so on and so forth; Byron Ahn, who is himself; Robyn Orfitelli, who seems to be; Vincent Homer, who repaid me the favor of mandating a dissertation break (sorry about that awful movie); Thomas Graf, for whom I am willing to drink white wine; and Heather Burnett, who makes for raucous shopping and collaborating. But also to Jason Bishop, the paragon of last but not least. I don't know where to start and I would never be able to end. Maybe this is why everybody thought we were dating.

The inventory of my linguistic gratitude and appreciation would be inexcusably incomplete without mention of Sam Epstein and Acrisio Pires, who big banged my syntax love into existence and remain dear friends and colleagues. I owe them many a lobster macchiato.

I must also extend my deepest gratitude, for life, love, and support, to my friends and family. To Scott, who always comes to my rescue. To my father and grandfather, whose genetic code is all over my personality. To my grandmother, who put up with it. To Brandon, who I can no longer imagine life without. To my mother, for whom words are especially inadequate, though The Golden Girls did kind of nail it: *thank you for giving me life and thank you for making it great*. To my beloved brother, who shouted "Look at my foots, sissy!": you are everything I never dreamed of. I have been, and will continue to be, so lucky to watch you grow up. And to all the campers, counselors, and supporters of Camp Looking Glass: you are my very favorite favorite.

And, finally, because all significant achievements are in some degree indebted to a higher power, I must thank the great tradition of bourbon distillery in my old Kentucky home.

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Abner, Natasha. To appear. Got Me A *Plumb*, Gonna Get Me A Scale. *Proceedings of 47th Annual Meeting of the Chicago Linguistics Society*.

Abner, Natasha and Thomas Graf. 2012. Binding Complexity and the Status of Pronouns in English and ASL. Poster presented at Formal and Experimental Advances in Sign Language Theory. Warsaw, Poland.

Abner, Natasha. 2012. Getting Together a POSSe: The Primacy of Predication in ASL Possessives. Presented at Formal and Experimental Advances in Sign Language Theory. Warsaw, Poland.

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CHAPTER 1

The Issue at Hand

1.1 Introductory Remarks

This is an investigation of the generative operations responsible for the derivation of possessive (1) and nominalization (2) constructions in American Sign Language (ASL), the natural visuo-gestural language of the deaf in the United States.

(1) [$_{i}$BRUNO POSS$_{i}$ BOOK] ARRIVE[1]
A book of Bruno's arrived.

(2) $\overline{\text{IX}_2\ \text{FINISH HEAR ABOUT [VOTE-FOR.NMZ-RED] QM}_{\text{wg}}}^{\text{y/n}}$
Did you hear about the election?

A defining characteristic of generative systems, of which human language is perhaps our most familiar example, is the rule-governed creation of complex patterns from their sub-components. In elucidating this characteristic, it is almost immediately apparent what the analytic questions must be:

Q1: What are the properties of the complex patterns created by the system?

Q2: What are the properties of the sub-components of which these patterns are composed?

Q3: What are the properties of the rules of the system that generate the former from the latter?

The answers to these questions as they pertain to the linguistic analysis of human languages bring to the fore two additional questions that have underpinned much of modern linguistic research.

[1]The sign glossed here as BOOK is a nominalization of the verbal form OPEN-BOOK (cf. Chapter 3). The simplex nominal gloss BOOK is used for expository purposes only. A more detailed discussion of the conventions adopted here for the representation of sign language data is given in §1.2.2.3.

Q4: To what degree are the answers to these questions uniform across the class of human languages?

Q5: For each of the questions above, is there an overarching biological or cognitive explanation for the answers that present themselves?

Broadly construed, these are the questions that drive the research described herein, research that can be more narrowly construed as being concerned with the identification of the syntactic and semantic properties of nominal expressions in human language, and, moreover, the issue of why these properties differ systematically from those exhibited by expressions of other syntactic categories. A further component of the present research, one that confronts issues of both broad and narrow consequence, is its empirical focus on the linguistic analysis of a signed language. Linguistic analysis of signed languages provides the potential to identify what, abstractly, are the properties that should serve as answers to the questions above, independent of the secondary factors of how human language is produced and perceived.

1.1.1 The Great Divide: Nouns and Non-Nouns

The generalization that is of interest to the present research can be pre-theoretically summarized as follows: the expressions of human language can be categorized as nouns, which refer to things, or as non-nouns (verbs, prepositions, adjectives, etc.), which refer to properties that hold of things or to relations that hold between things. This categorical distinction, which surfaces in various guises as a fundamental design principle of the grammar (Hockett 1963, Jackendoff 2002, Kayne 2008), underlies the syntactic patterns exemplified by the phrasal paradigm of English below, adopting relatively traditional assumptions regarding constituency and labeling.

(3) a. $[_{NP}$ bagpipes]

b. $[_{VP}$ own $[_{NP}$ bagpipes]]

c. $[_{PP}$ with $[_{NP}$ bagpipes]]

d. $[[_{AP}$ nice] $[_{NP}$ bagpipes]]

As the pattern above suggests, the referential capacity of nominals (3a) is not dependent upon the local syntactic presence of additional expressions, a characteristic that is intrinsic to the traditional notion of nouns as lexical items associated with *criterion of identity* (Gupta 1980, Baker 2003). Conversely, the referential properties of other lexical expressions are dependent upon the presence of additional material in the local syntactic environment: the verb *own* in (3b) requires the presence of a direct object, just as the preposition *with* in (3c) requires the presence of its comitative complement, while the adjective *nice* in (3d) is only grammatical in the presence of something that it predicates of or modifies. What this pattern furthermore makes evident is the secondary characteristic suggested by the generalization above: nouns, in their capacity to refer to things, are the canonical expressions upon which other lexical items are dependent. Thus it is the nominal expression *bagpipes* that acts as the direct object of *own*, serves as comitative complement of *with*, and is modified by the adjective *nice*.

These observations bring us to the topic that is of theoretical interest to the present discussion. In human language, the role of nouns is to supply arguments to the functions defined by other lexical expressions. What seems to go along with this role is that the nouns themselves are not endowed with the capacity to take arguments of their own—that is, that the nominal expression *bagpipes* not only need not combine locally with other syntactic material but, moreover, cannot do so. That this trait is indeed fundamental to the very notion of nounhood is confirmed by the fact that in language after language, evidence of this dichotomy is attested. Though empirical and analytic details of this asymmetry are, as is usually the case, more complex than such a small paradigm can illustrate, this simple overview nevertheless serves as an appropriate introduction to one of the core issues of interest here: what is going on with argument structure inside of nominal expressions?

1.1.2 On Arguments, Argument Structure, and Properties of the Grammar

The generative system that gives rise to the properties above and thus provides answers to the research questions addressed here is one in which the computational operations are simple albeit far-reaching. The syntactic system of human language has at its disposal a minimal inventory of

structure-building operations (Chomsky 1995): external merger of two independent expressions of the language and internal merger (movement) of an expression to the root of the constituent that contains it. From these, and only these, operations the syntactic system, and only the syntactic system (Marantz 1997), derives complex expressions of the language, beginning with the minimal expressions of the lexicon and ending with the output phrases of the grammar. In order to understand the inner workings of such a system, we must first understand the nature of the expressions that are manipulated by the aforementioned operations. This necessitates an analytic focus on the appropriate structural decomposition of linguistic units that sometimes give the surface appearance of atomicity, as will become apparent in the discussion of 'verbal' argument structure below.

In order for such a system to be worthwhile, given that the role of the syntactic system is to generate linguistic structures that can be produced, perceived, and understood, it is necessary that the input and output of the syntactic operations be interpretable to the phonological and semantic components of the modular grammatical system. Though I do not take a stance on the stage(s) of the derivation that are spelled out to the interface components of the grammar, the framework adopted here does assume a strict 'lean interface' approach—a term inspired by Philippe Schlenker's recent work on 'lean semantics'—, wherein both phonological and semantic properties can be and are entirely determined from the syntactic structure (Koopman 2005a). This assumption is robustly supported by the linguistic properties of American Sign Language investigated here, wherein discrete components of the production and meaning are clearly identifiable in the surface forms of the language. Finally, in order for such a system to be principled, the application of syntactic operations must be motivated by the linguistic properties of the expressions manipulated. Thus, it is assumed here that merger and movement of constituents is driven by the need to satisfy the features of lexical or derived expressions, though for expository purposes the inventory of such features is often left implicit in the analyses developed here. One of the principle properties satisfied by the merger of linguistic expressions—and perhaps by movement as well (Hornstein 1999), though this issue has no direct bearing on the present investigation—is the introduction of arguments.

As it is used here, the term *argument* refers only to nominal constituents, including the modificational (e.g., adjectives) and functional material (e.g., number) that surfaces in the extended projection of the noun in the sense of Grimshaw (1991). While the presence and role of the DP

layer of the nominal constituent is addressed in Chapter 2, where evidence is presented that a DP is projected in ASL (§2.3.1.1), a null determiner language, it is inconsequential for the present analysis whether this DP layer is projected as part of the underlying argument nominal or is a derived structure (Sportiche 2005). What is of consequence in restricting the notion of argumenthood to nominal constituents is that oblique expressions are excluded. Thus the constituent *to the neighbor* in (4) is not considered here to be an argument, neither of the verb nor in general, though the nominal constituent *the neighbor* is.

(4) Bruno gave the bagpipes to the neighbor.

The status of *the neighbor* as an argument raises the complex issue of how and where arguments are structurally introduced. Following Koopman and Sportiche (1991), Kratzer (1996) and much subsequent research, the assumption made here is that the argument introduction lies predominantly in the purview of the sequence of functional heads that comprise the decomposed layers of verbal event structure, including preposition-like elements such as the *to* that introduces *the neighbor* above (Pylkkänen 2002). Given that these functional heads will take as their complement a projection of the verbal event structural, the configurational locus of argument introduction will be the specifier of these functional heads. At present, the analysis is not committed to the stronger assumption that all arguments are introduced by functional material (Borer 2004), thus allowing for the possibility that theme arguments may be introduced internal to the projection of the verbal root. Together, these assumptions capture the argument structural properties of the clausal domain. Regarding the argument structural properties of the nominal domain, here, too, arguments are introduced via functional architecture. Internal to nominal constituents, this functional architecture comes in one of two guises. Either it is the functional architecture of event structure (Larson 1998), which I assume to be imported from the clausal domain through the nominalization processes discussed below and focused on in Chapter 3, or it is the consequence of a functional head (*n*) that introduces the argument of relational or inherently possessed nouns. In line with the earlier discussion, however, the approach taken here does commit itself to the strong assumption that no arguments are introduced internal to the projection of the noun, an assumption that is by no

means uncontroversial given the traditional and still common analysis of constituents like *animal magnetism* in (5) as arguments of the nominal (*student*).

(5) Scheitz met a student of animal magnetism.

In light of this, the investigation herein may be viewed, in part, as an exploration of the analytic potential of a system in which assumptions such as those above are in place.

In many cases, aspects of the grammatical system and details of the structures investigated will be left open. In part, this is due to the incomplete nature of any scientific investigation. More notably, this is due to the relative ignorance of the field with respect to the linguistic properties of ASL. Thus, in lieu of positing incorrect generalizations, I err on the side of caution and posit only those generalizations that can be jointly motivated by the ASL data presently available and the analyses that are possible given the design of the grammatical system. This caution is exemplified in the analysis of possessive expressions (cf. §1.3), wherein an atomic verbal structure for the possessive marker POSS is posited in the absence of empirical evidence as to how this verbal structure should be further decomposed. In that analysis and elsewhere, such discretion is also evident in the underlying argument positions postulated. As discussed further in §1.2.1.2, ASL is a language with robust usage of constituent ellipsis, null arguments, and a high degree of word order flexibility. Moreover, it is a language that lacks case marking distinctions and for which positional diagnostics of reconstruction and cross-over effects have yet to be definitively established. Given these properties, the identification of underlying, intermediate, and surface positions of arguments, as well as other constituents of linguistic structure, is a delicate task. For present purposes, arguments are identified as overt nominal expressions that are grammatically required in a given syntactic configuration, excepting cases where apparent optionality can be attributed to syntactic environments that independently license null material. The position in which these arguments are assumed to be merged into the structure is identified, for the time being, as the lowest position in which the argument can surface overtly in the structure, with the standard caveats regarding the difficulty of aligning surface position with structural position. Though the analyses developed in accordance with these principled assumptions are coarse relative to those found (for other languages) else-

where in the literature, they make significant and abundant contributions to our understanding of the syntactic structure of ASL. Moreover, the analyses developed here provide a framework for uncovering further properties of the language, both with respect to the possessive and nominalization structures analyzed herein and in general.

1.1.3 The Import of Possessives and Nominalizations

The present empirical focus on possessive and nominalization constructions is motivated by the unique status of these constructions as potential sources of argument structure in the nominal domain, as suggested in the discussion above and further clarified here.

1.1.3.1 Possessors: Universality and Variability

The expression of possession in human language provides an unavoidable exception to the observation that nominal expressions are resistant to association with argument structural properties, for while there exist languages that have been argued to descriptively lack complement-taking nominals all together (Jayaseelan 1988)—and as such would provide an exceptionless illustration of the argument structural asymmetries discussed above—, there exists no language that lacks an attributive possession construction. All human languages make available to their users a structure whereby at least one argument-like constituent may be introduced internal to the nominal domain: the possessor. Moreover, crucial to developing our understanding of the range of structures found in human languages, the introduction of this possessor constituent is accomplished cross-linguistically through a diverse, though not unrestricted, array of grammatical mechanisms.

(6)
a.	a phrase final affix	(e.g. English *'s*)
b.	a word final affix	(e.g. German *s*, Arabic *i)*
c.	an inflectional (really fusional) ending	(Latin or Slavic genitive)
d.	phi-feature agreement with the noun	(Romance/German possessives)
e.	zero-realization	(Hebrew construct state)

(Longobardi 2001)

The syntactic configuration in which possessors are introduced sometimes mimic quite closely the 'direct' introduction of arguments in the clausal domain, as is the case with possessors marked by genitive case (6c) or possessors introduced without any overt possessive morphology (6e). What is of further interest given such patterns is that the interpretive possibilities associated with possessors extend beyond those that can be associated with verbal event structure (Milner 1978). Thus, while the genitive possessive *of Saturn* in (7a) and the '*s*-marked *Goya* (7a) can be aligned with the theme and agent argument roles of the verb *paint*, respectively, such alignment is not possible for the second '*s*-marked possessor *The Museo del Prado* introduced in (7c).

(7) a. painting of Saturn
b. Goya's painting of Saturn
c. The Museo del Prado's painting of Goya's of Saturn

The ownership interpretation of the possessor in (7c) is also not straightforwardly reducible to the possessive interpretation associated with relational nouns (e.g., *brother*, *top*). Such phenomena, in addition to further confirming the universality and variability of possessive expressions, illustrate that certain possessor interpretations are unique in being resistant to an analysis that appeals either to verbal origins or to functional material that introduces relational meanings in the nominal domain. Thus, to address the validity of the assumptions above, we can begin with addressing the structure and interpretation of possessives: what is going on with possessors inside of nominal expressions?

1.1.3.2 Nominalization: Verbs That Were

The patterns exhibited by derived nominal constituents are of key interest to the investigation of argument structure in the nominal domain due to the fact that nominalization constructions, by their very definition, are constructions headed by elements which, at some stage of the syntactic derivation, were associated with a non-nominal lexical category. Given that impoverishment in argument structure is argued to be a unique characteristic of nouns, the lexical categories from which nominalization constructions are derived are expected, in the general case, to be lexical categories

associated with argument structural properties. As was made explicit earlier, the assumption made here is that the argument structure present in nominal constituents may be imported from the argument structure associated with the clausal domain, and it is through such nominalization processes that this importation can take place. The imagery conjured here by the description of *imported* argument structure, it should be noted, is exactly that which is intended. All nominalization processes are analyzed here are syntactic processes; thus if event or verb-related argument structure surfaces in the nominal domain, it is because such argument structure was introduced in its canonical event structural position and was carried over to the nominal domain as a consequence of nominalization of a constituent containing this position. The secondary consequence of this is if there are arguments with event structural interpretations present in the nominal domain (cf. *paintings* above), it is safe, and moreover necessary, to assume that nominalization has applied.

To concretize this notion, consider the case of deverbal nominals—nominalization constructions with verbal origins. Though such constructions are endowed with syntactically derived nominal status, the constituents around which they are built are associated with the lexical category of verb, a lexical category that is robustly associated with rich argument structural properties in each of the world's languages. A natural line of inquiry in the derivation of nominals from these verbal origins, and one that has been the subject of significant linguistic research—see Alexiadou (2001), Borer (2005), Chomsky (1970) and Grimshaw (1990) among many others—, is the fate of the argument structure of verbs when those verbs are nominalized. Here, too, robust variation within and across languages has been attested. Focusing on a single case of deverbal nominalization in English, the data below illustrates that the optionally transitive verb *drive* (8a) may function as a nominal in the absence of any of its associated verbal arguments (8bi) or with either one or both of its verbal arguments in various syntactic guises (8bii)–(8biv).

(8) a. In *The Last Gentleman*, occasional amnesiac [Williston Bibb Barett—Bill—drives a Trav-L-Aire camper] from New York to Sante Fe in the employ of the Vaught family.

b. (i) The book discusses *driving* / *the drive*.

(ii) The book discusses *Bill's drive* / *Bill driving* / *Bill's driving*.

(iii) The book discusses *driving the Trav-L-Aire* / *the driving of the Trav-L-Aire*.

(iv) The book discusses *Bill driving the Trav-L-Aire* / *Bill's driving of the Trav-L-Aire*.

Therefore, an investigation of argument structural properties of the nominal domain can next proceed to the importation of these properties from the event structure associated with the verb: what is going on with argument structure in derived nominalizations?

1.1.4 The Interest of ASL

Finally, though claims of cross-linguistic significance and generality will be presented at many points in the course of the discussion that follows, the empirical focus of the present investigation will be further narrowed. This investigation will focus on the structure of possessive and nominalization constructions within a single language: ASL. As becomes almost immediately clear, however, in order to address issues of argument structure in possessives and nominalizations in ASL, there is much legwork to be done in figuring out the properties of these constructions.

The ASL data that is investigated herein, and, consequently, serves as the source of support for the analyses of possessives and nominalizations ultimately developed, is of both significant empirical and theoretical interest. That ASL is, broadly speaking, an appropriate linguistic domain for undertaking the investigations outlined above is confirmed by the existence in the language of both possessive (1) and derived nominal (2) constructions. Of further empirical consequence is the fact that the linguistic properties of signed languages, including ASL, remain vastly underdocumented in comparison to those of their spoken language counterparts, especially with regards to the formal analysis of these properties. Though significant advances have been made in recent years to amend the dearth of linguistic research on signed languages, it remains the case that a notable contribution of the present work is in furthering our understanding of the structure of language in the visuo-gestural modality.

In terms of the theoretical import of the data investigated here, while there is no a priori reason to assume modality specificity in the properties of lexical categories or in the structure of posses-

sive and nominalization constructions, it is nevertheless the case that our linguistic understanding of each of these topics has come entirely from the investigation of spoken languages. Thus, it is a worthwhile endeavor to investigate the extent to which our findings from spoken language can be replicated in languages that are signed. Moreover, as is true with the investigation of any novel empirical domain, exploration of these structures in ASL has the potential to reveal heretofore undocumented patterns and offer original insight into the generative system underlying human language. Finally, analysis of the argument structural properties of nominal expressions in ASL is of specific theoretical interest given that complex nominal expressions such as that in (8bii) have yet to be investigated in the language, while the additional complexities present in (8biii)–(8biv) appear, at first blush, to be absent. Indeed, even the commonplace *picture of* expressions used to investigate hierarchical relations cross-linguistically are expressed in ASL as full clausal constructions (author's fieldwork). Moreover, Fischer (1990) discusses evidence that clausal complements (e.g., *claim that*) are largely absent from the nominal domain in the language, while MacLaughlin (1997:23) goes so far as to conjecture:

> *"ASL does not seem to have thematic or adverbial adjectives, because ASL does not appear to have argument-taking nouns or deverbal nominals, which are generally associated with these types of adjectives (see Chapter 2)."*

While the latter claim will be done away with in Chapter 3, claims such as these nevertheless confirm that ASL serves as a prime candidate to investigate the hypothesis that the argument structure of nouns is fundamentally impoverished.

Having thus provided a general overview of the impetus behind the selection of topics investigated here and the grammatical model in which this investigation is framed, the remainder of this introductory chapter will be devoted to providing the necessary background to situate the discussion that follows. In §1.2, a descriptive overview of signed language, generally, and ASL, specifically, is provided so as to facilitate understanding of the data discussed throughout. Therein (§1.2.2.3), a detailed discussion of the conventions adopted here for the representation of ASL data is also provided. In the final sections, §1.3–§1.4, an overview of the analyses developed for possessive and nominalization constructions in ASL is presented.

1.2 On Speaking With the Hands and Hearing With the Eyes

The empirical core of the present research is a collection of novel fieldwork data that is used to illuminate the grammatical properties of possessive and nominalization constructions in ASL. To facilitate understanding of these data and their analytic import, the reader is provided here with the necessary background information on the linguistic properties of ASL (§1.2.1), both with respect to its status as a language of the visuo-gestural modality (§1.2.1.1) and to the historical and typological descriptors that are relevant to any language-specific study (§1.2.1.2). A brief description of the fieldwork methodologies used in the course of the present research is provided at the end of this discussion (§1.2.2).

1.2.1 Linguistic Properties of (American) Sign Language

Our understanding of signed languages as linguistic systems is generally traced back to the research of William Stokoe and colleagues in the 1960s (Stokoe 1960, Stokoe et al. 1965), who presented evidence that the manual gestures produced by signers exhibit properties of sub-lexical structure on a par with the phonetic features used in the analysis of spoken language segments. Since this groundbreaking observation, research on signed languages has converged, with few exceptions (Liddell 2003), on the conclusion that signed languages exhibit structural patterns that parallel, at every level of analysis, those documented in spoken languages.

From the aforementioned phonetic parameters that compose sign segments, signed languages have been shown to exhibit rhythmic organization corresponding to the level of the syllable (Wilbur 1990), with units of signed language production restricted by phonotactic well-formedness conditions (Brentari 1998) and subject to phonological processes that give rise to phonetic variation in output forms (Liddell and Johnson 1989). The organizational units of signed language systems, moreover, can be further classified as units that arbitrarily contribute to the structure of the system or as units that, composed of these arbitrary elements, are meaning-bearing (Klima and Bellugi 1979)—that is, signed language systems exhibit the duality of patterning thought central to the nature of human language (Hockett 1960). At the level of meaning-bearing units, the morphological and syntactic systems of signed languages display evidence of adherence to rule-governed

structure-building processes, processes that endow output morpho-syntactic structures with properties of hierarchy and constituency (Liddell 1980) and facilitate the mapping from the structures created by the system to the semantic interpretation of these structures (Davidson et al. 2011). Finally, experimental evidence reveals that children exposed to signed languages from birth acquire these languages naturally along an acquisitional time course that matches that of spoken language development (Newport and Meier 1985) and that psychological and neurological processing of signed languages by adult native users exhibits robust similarities, in both production and perception, to comparable processes in spoken language (Emmorey 2002).

Two conclusions can be drawn from these diverse research endeavors. First, despite the obvious difference in the biological systems used for production and perception, signed languages exhibit structural and cognitive properties comparable to those of spoken languages. Second, given overwhelming evidence of the structural parallel between signed and spoken languages, the cognitive underpinnings of the human language system are not intrinsically contingent upon the mechanisms of production and perception.

Nevertheless, though it is without effect on the overarching architectural properties of the system, it remains true that signed languages and spoken languages differ in how users produce and perceive them, and just as one could discuss the modality-specific effects of speech, such as pitch of voice, it is necessary to precede the linguistic analysis of ASL with a discussion of the modality-specific effects of sign on linguistic structure. This is the subject of §1.2.1.1, where I review the components of production involved in signed languages and certain grammatical properties that are unique to visuo-gestural languages. Following this, §1.2.1.2 returns to subject of properties that signed languages exhibit in common with spoken languages, providing an inventory the typological characterizations appropriate for ASL. Both of these sections are intended to provide the reader with the familiarity necessary to understand and contextualize the data presented in the remainder of this work, though neither do justice to the domain of linguistic research on ASL and other signed languages; for additional information the reader is referred to Sandler and Lillo-Martin (2006).

1.2.1.1 Components of Signed Languages

The linguistic stream of signed languages can be divided into two communicative channels: the manual channel, referring to the movements of the hands as well as the extended motoric system of muscles and joints that control these articulators, and the non-manual channel, referring to the static or non-static gestures of the face and body that co-occur with manual articulations. As illustration of the components of these communicative channels, consider the WH-question in (9) and the corresponding video stills provided in Figure 1.1.

(9)
br wh
VOTE OBAMA WHO
Who is it that voted for Obama?

Figure 1.1: Sequence of ASL signs in Example (9).

The signer begins the utterance with the production of the ASL sign VOTE, a sign that, while iconically linked to the image of casting an election ballot, as will be discussed further in Chapter 3, can be described by the arbitrary phonetic and phonological properties of its manual articulation. In this and other signs, these manual components can be described according to the configuration, location, and movement of the hands during the production of the sign. As the signer pictured is right-handed, the manual components of his signing are principally produced with his right ('dominant') hand, with the left ('non-dominant') hand playing a secondary or subordinate role to the dominant hand. In terms of the descriptors above, the configuration of the dominant hand in the production of VOTE involves contact between the tip of the thumb and index finger, with the remaining fingers extended outward from the palm. This configuration is conventionally described as the F-handshape, a term that originates in descriptions of the handshapes of the fingerspelled

alphabet (Figure 1.2) used for the representation of English words in ASL signing.[2] It should be noted, however, that the hand configurations of ASL extend beyond this 26 shape inventory and frequently, as is evidenced by the bend in the extended fingers in the production of VOTE pictured, vary in phonetic detail from these 'target' handshapes.

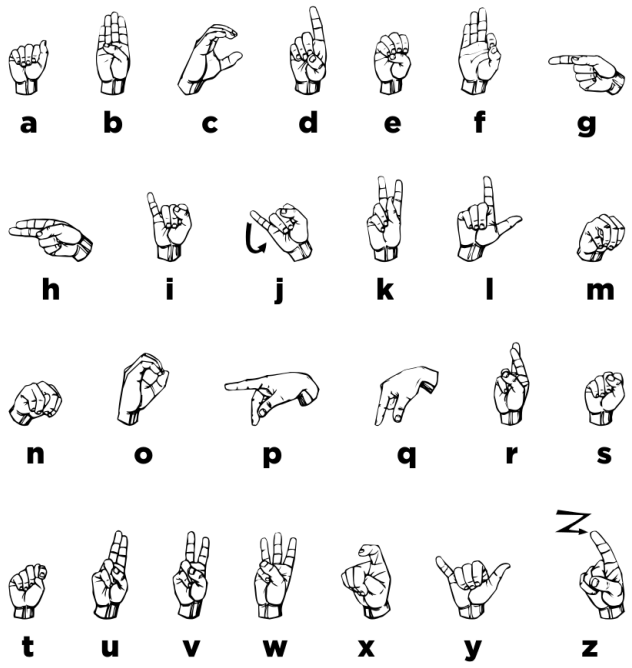


Figure 1.2: Handshapes of the ASL fingerspelling alphabet.

Two details are relevant for an adequate articulatory description of the location of the sign VOTE. First, the sign is produced in what is referred to as 'neutral signing space', the area of signing space that is in front of the signer and occupies in its height span the region of space corresponding to the signer's torso. Second, the sign is produced with movement toward and contact with the non-dominant hand, which can also be described in terms of an F-handshape configuration. Thus, the non-dominant hand serves as the locational 'base hand' of the sign. These location properties distinguish VOTE from each of the two signs in the remainder of the utterance. Neither the name sign OBAMA nor the WH-sign WHO incorporate the non-dominant hand in their articulation, and while the name sign OBAMA is also produced in neutral signing space, the WH-

[2]The image of the ASL fingerspelling alphabet was generated using a freely available font created by David Rakowski and is licensed under a Creative Commons Attribution-ShareAlike 3.0 Unported License. The author thanks Jonathan Keane for making this image available.

sign WHO is produced at the signer's chin.

Finally, the manual component of signed language articulation that is the most difficult to illustrate given the static limitations of the representations above is the movement of the hands. The movement components of signed language can be described either as movements of the hands along trajectories in signing space ('path' or 'external' movement) or as joint movements of the wrist and fingers that do not necessarily change the location of the hands in signing space ('internal' movement). Both types of movement are used in the sequence of signs described here. As noted in the description of its location, the sign VOTE involves a downward path movement of the dominant hand, a movement whose endpoint is the contact of the tips of the thumb and index finger with the non-dominant hand. Conversely, the WH-sign WHO is produced at a static location on the signers chin but with internal up-and-down or curling movement of the extended index finger.

While these manual components are what is primarily brought to mind when one references signed languages, the non-manual gestures of the face and body are equally significant in a description of signed language production. The non-manual components of signing play a role in both the grammatical processes and the prosodic structuring of signed languages. Two grammatical non-manual markers can be identified in the articulation of the example in (9): the raising of the eyebrows (_br) over the sequence VOTE OBAMA and the squinting of the eyes and furrowing of the brows that co-occurs with the sign WHO (_wh). The first of these non-manual markers identifies the initial sequence as serving a topic-like function in the utterance, while the second is required for the grammatical expression of WH-questions in ASL. In addition to these grammatical functions, the non-manual components of signing also serve to indicate properties of prominence and phrasing in the prosodic structure of the utterance. In the example above, the change of facial expression and a slight rightward shift of the torso mark an intonational boundary between the signs OBAMA and WHO, while a forward lean of the torso and a thrusting movement of the head mark the prosodic prominence of the focus associated with sentence-final WH-elements in ASL (Abner 2011, Churng 2011).

While the gestural details, and the meanings associated with them, of individual languages vary, these manual and non-manual components are universally applicable to the description of signed languages, just as the articulations of the vocal tract are universally applicable to the description of

spoken languages. A second aspect of signing that appears to be universal to the languages of this modality is the syntactic and semantic import of signing space. In addition to potentially serving as the location parameter of individual signs, signing space also mediates varied and complex aspects of the sentence and discourse structure of signed languages. As illustration of this aspect of sign language structure, consider the example given in (10) and the corresponding video stills in Figure 1.3.

(10) WALL $_{i}$BOY CL:4$_{i,\text{“humans-standing-along-wall”}}$ EACH IX$_{i,\text{pl-dist}}$
HAVE CUTE GIRL $_{i}$ACROSS-FROM$_{j}$ CL:4$_{j,\text{“humans-standing-along-wall”}}$
There are boys standing along the wall; each one of them has a cute girl standing along the wall across from him.

Figure 1.3: Sequence of ASL signs in Example (10).

In this example, the signer characterizes a situation that might occur at a junior high school dance: all of the boys stand along one wall, across from the girls who stand along the other wall. What is relevant for present purposes is how the signer uses space in the linguistic structure of his description of this example. Note first that the spatial structure of the utterance mimics the actual spatial layout of the situation described. The portion of the utterance referring to the boys is positioned at the contralateral edge of signing space, where contralateral refers to the side opposite the signer's dominant hand. Conversely, the portion of the utterance referring to the girls is positioned at the ipsilateral edge of signing space. Moreover, these spatial properties are very clearly incorporated into individual spatial descriptors of the utterance, such as the orientation and alignment of the sign WALL and the movement across signing space of the predicate ACROSS-FROM. Finally, the distributive plural pronominal, IX$_{\text{i,pl-dist}}$ achieves its referential meaning (the boys) through spatial

deixis toward their contralateral location in signing space.

Though undeniably iconic, these and comparable uses of space are part of the rule-governed grammatical systems of signed languages. As testimony to its linguistic status, the spatial structure of signed languages is acquired by children in an incremental and error-prone process (Lillo-Martin and Bellugi 1985) and is susceptible to linguistic impairment in the signing of patients with aphasia (Poizner and Kegl 1993). Furthermore, while the structured use of space is a general and universal property of signed languages, the details of spatial structure—including how, when, and for what semantic purpose it is used—vary across the world's signed languages (Engberg-Pedersen 1993, Perniss 2007, Perniss and Zeshan 2008). These observations, in addition to those made above, confirm that signed languages, though influenced by the iconicity that is more readily available in the visual (versus auditory) system, are nevertheless linked to the same cognitive language system that underlies spoken languages.

1.2.1.2 Descriptive Overview of American Sign Language

Having thus discussed the linguistic properties that appear unique and universal to languages of the visuo-gestural modality, I shall now turn to the linguistic properties that are specific to the signed language investigated here, American Sign Language (ASL), the signed language of the deaf in the United States. Though the bulk of this discussion will focus on the typological descriptors that are familiar from linguistic research on spoken languages, there is an exceptional property of ASL that has yet to be mentioned here: the accuracy and specificity with which its historical origins can be identified. Signed languages emerge only in the context of a community that needs them for communicative purposes, a need that is most commonly the result of a significant portion of the population being unable to hear or understand spoken language. In the United States, this context was created in 1817 with the opening of the American Asylum for Deaf-mutes in Hartford, Connecticut. Now the American School for the Deaf, it is the oldest and first longstanding school for the deaf in the United States and its opening fostered the development of the Deaf community and the language they share today.[3]

[3]The capitalization of Deaf is used here to distinguish deafness as a biological identifier from Deafness as a social or cultural identifier.

The historical discussion at this point would be remiss without mentioning three additional factors that influenced the language that emerged in Hartford. First, one of the co-founders of the school, Laurent Clerc, was a deaf French man educated at the school for the deaf in Paris, where he was later a teacher. Clerc left Paris to assist with the founding of the school in the United States, bringing with him to Hartford the signs used in the Paris school. Second, a portion of the deaf students enrolled came to Hartford from Martha's Vineyard, an isolated and endogamous island community with a high rate of hereditary deafness. The students from Martha's Vineyard brought with them the signed language that had been developing on the island for a number of years. Finally, though they were not fully developed languages, the students at Hartford also brought with them any of the home sign systems that they had previously used for communication. Thus, the language developed in Hartford—and whose continued development has given rise to ASL as it is known today—was influenced by these linguistic sources.

As it is used today, ASL can be classified as a subject-verb-object (SVO) language (Fischer 1975), albeit one with a significant degree of word order flexibility and robust usage of null arguments. Subject, object, and locative arguments may be indicated spatially in the verbal forms of the language, a use of space that parallels in function, if not in form, the role of verbal agreement markers in spoken language. This use of space, the details of which are so complex and debated as to spark controversy regarding its very status as an 'agreement' system (Liddell 2000), is relevant to the structural analysis of both possessives and nominalizations in ASL and, as such, will be addressed in each of the studies presented here.

In addition to the spatial indication of their argument structure, verbal forms may also be marked for aspectual properties of the event (Fischer 1973), though neither tense nor aspect marking is required for grammaticality. Functional elements of the clausal domain, such as modals or negation, variably surface at the left edge of the verb phrase or the right edge of the sentence, corresponding with as yet underexplored interpretive variability (Petronio 1993, Wood 1999). Nonverbal predicates, as will be discussed further in reference to the predicate nominal analysis of possessives, are marked by neither a copula nor other predicate marker, though see Wilbur (1996), Wilbur and Patschke (1999), and Abner (In prep) for a more detailed perspective on copular structures in ASL. Finally, pertinent to the exploration of nominal structure undertaken here, no oblig-

atory determiner-like element exists in the language, a topic that will also be returned to in later discussion.

This cursory overview should provide the typological background necessary to understand the empirical patterns presented and investigated here, and additional properties of the language will be introduced and explored as they become relevant. Before continuing to the practical matters of research, however, it warrants noting that the brevity of the present section arises not so much from the desires of the author as from the ignorance of the field. Though it is one of the more well-researched signed languages, it nevertheless remains the case that we know very little about the linguistic structure of ASL. The present work contributes to that not being the case in the future.

1.2.2 Practical Matters of Sign Language Research

The previous two sections provided the linguistic background necessary to support understanding of the empirical patterns investigated here. Equally important for contextualizing these empirical patterns, however, is a discussion of the methodologies used in the data collection and documentation process. Though informed and careful elicitation methodology is an integral component of all fieldwork-driven research, there are some methodological details and challenges that are unique to the domain of sign language research and these are the focus of the discussion below. For a more detailed discussion of general issues confronting fieldwork-based research in signed languages, please see Crasborn (2005) and Fischer (2009).

1.2.2.1 Consultant Selection

The type of empirical investigation undertaken here appeals to patterns of grammaticality and interpretation manifested by the users of a language to inform linguistic analysis of the language under investigation. It is a given in this type of fieldwork-driven research that the relevant users of the language are those individuals who are native users of the language. The notion of the native user is an idealized one, complicated in reality by a myriad of social factors that influence the language practices and the linguistic experience of speech communities. However, one criterion that is typically enforced is exposure to the language from birth. With respect to the use of signed

languages in deaf communities, an array of complex genetic and sociological factors give rise to a situation in which many deaf individuals are not, therefore, native users of any signed language. Prelingual deafness—the type of deafness that prevents normal acquisition of spoken language—is genetically recessive and may also arise as a consequence of medical conditions that occur after birth. As a consequence of these etiological factors, many deaf individuals—estimates place the number anywhere from 90–95% of the deaf population—have hearing parents, who are unlikely to be familiar with signed language.[4] Moreover, variability in the social and educational services provided to deaf children and a history of oppression of Deaf communities means that many of these deaf children will not be given early exposure to signed language. Thus, in selecting native users of signed language for purposes of fieldwork research, the 5–10% of deaf individuals with deaf parents provide the ideal source. This is the case for four of the five consultants who participated in the present study. The remaining consultant, who participated in only a single elicitation session, was enrolled in a deaf school and given exposure to signed language at an early age. Detailed demographic information regarding the consultants who participated in this study, compiled from a questionnaire given at the outset of the research, is provided in Table 1.1.

Consultant:	A	B	C	D	E
Age	52	48	55	24	26
Gender	F	M	F	M	M
Hearing Status	Deaf	Deaf	Deaf	Deaf	Deaf
Primary Daily Language	ASL	ASL	ASL	ASL	ASL
Parental Hearing Status	Deaf	Hearing	Deaf	Deaf	Deaf
Age of ASL Exposure	Birth	2 years	Birth	Birth	Birth
Education	Some college	AA	BA	BA	BA

Table 1.1: Linguistic and demographic background of ASL consultants.

1.2.2.2 Methods of Data Collection and Analysis

Fieldwork sessions were conducted one-on-one or with pairs of signers in consultants' homes or in public places of their choosing using a variety of elicitation tasks that are discussed in further

[4]The converse of this is that many deaf individuals give birth to hearing children who, given the likely exposure to signed language provided by their deaf parents, go on to become bilingual in both spoken and signed languages. The language development and linguistic practices of this population of 'bimodal bilinguals' has been the topic of much interesting research in recent years (Emmorey et al. 2005). Due to complex factors of language competence and dominance, the present research focuses only on the signed language used by native deaf signers.

detail as they become relevant to the data presented. Consultants were instructed to sign examples to themselves or their conversational partner several times prior to providing judgements of grammaticality or semantic felicity. Conversations between consultants and the researcher during these meetings were conducted entirely in ASL. Recorded data was collected using either a Sony HDR-HC7 or a Sony HD FlipCam digital camcorder and were edited using the freely available software programs Kino (video) and GIMP (photo).

1.2.2.3 Data Representation

An overview of the glossing conventions adopted here for the representation of ASL data is provided in Table 1.2 and a video repository of data examples, per consultant waiver, will be made available by the author. Data from research sources is always cited using the transcription and translation provided in the original source.

Capitalized glosses of English signs frequently mask a great deal of morpho-syntactic complexity in the ASL form and where this becomes problematic I have introduced alternative glosses (PUT-BALLOT-IN-CONTAINER) in tandem with the traditional gloss (VOTE) of a given sign. Where English glosses are semantically ambiguous between multiple ASL signs (e.g., BEFORE), the gloss includes indicators of the appropriate ASL form (BEFORE-EAR vs. BEFORE-HAND). Because they are not subject to careful investigation here, non-manual markers are not included in the transcriptions except where relevant to the discussion at hand, but may be viewed via the video repository and are available in the author's fieldwork notes. English translations provided, agreed upon by consultants and the author, always err on the side of representing the meaning of the ASL sequence in context using the most natural English translation available and are occasionally presented with the symbol $\approx$ to indicate that the most natural English translations represents a notable departure from the ASL structure. Thus translations should not be taken as indicative of the morpho-syntactic properties of the ASL sequence they translate and one should remain aware of the linguistic distinction between ASL and English despite the dependence on English in representing ASL in written form. Efforts have also been made to use a consistent English translation for a given ASL form and the reasoning behind translations chosen will be discussed as the ASL forms are presented.

SIGN	Capitalized words used to English glosses for signs.
SIGN-SIGN	Hyphenated sequences used where multiple words are necessary to gloss the meaning of a given sign.
$_{fs}$SIGN, S-I-G-N	Fingerspelled loan signs; fingerspelling.
CL:1$_{\text{“descriptor”}}$	Classifier (CL) predicates; the numeral or letter following the colon indicates the classifier used and the contextual meaning is provided by the subscripted descriptor.
wh	Non-manual markings; scope of the line indicates spread of non-manual marking and letters at the end of the line indicate the type of non-manual marking used.
SIGN$_{\text{durative}}$	Verbal markers of event structure.
$_{i}$SIGN$_{2}$	Verbal agreement markings. Subscripted letters (*i,j,k*) indicate abstract references, while s subscripted numbers (*1,2* indicate first and second person reference).
IX$_{i}$	Pronominal reference, subscripts as above; also used with other referential forms (e.g., classifiers).
IX$_{\text{i,pl-arc}}$	Plural inflection of pronominal reference; also used in the verbal agreement system.
SIGN+	Sign repetition that cannot be attributed to morphological reduplication.
,	Intonational breaks in the sign utterance.
()	Surface optionality of manual or non-manual material.
$_{i}$NOUN/$_{i}$NAME	Semantic co-reference with spatial agreement markers used elsewhere in the sentence or discourse; not necessarily indicative of spatial positioning of the nominal.

Table 1.2: Transcription conventions for representation of ASL data.

1.3 Study #1: Expressions of Possession

The first of the studies presented here examines the structure of attributive and predicative possessive constructions in ASL (11)–(12), with a specific focus on the possessive constructions that are formed with the POSS sign: (11a) and (12b).

(11) Attributive Possession

a. Attributive POSS
$_{i}$BRUNO POSS$_{i}$ BOOK
POSS$_{i}$ $_{i}$BRUNO BOOK
A book of Bruno's

b. APOSTROPHE-S Possessives
BRUNO APOSTROPHE-S BOOK
A book of Bruno's

c. JUXTAPOSITION
BRUNO BOOK
A book of Bruno's

(12) Predicative Possession

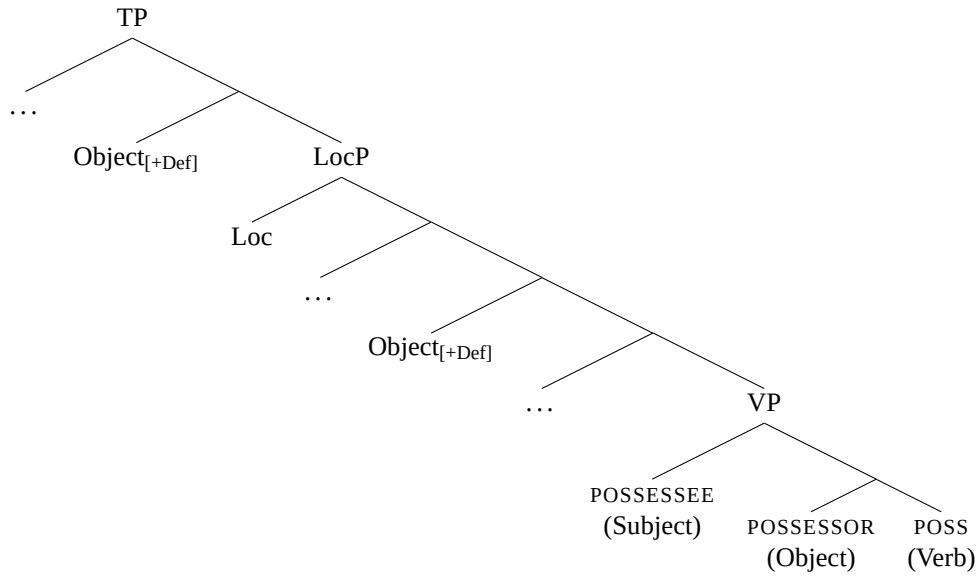
a. Verbs of Possession
BRUNO HAVE BOOK
Bruno has a/the book.

b. Predicative POSS
IX$_{i}$ $_{i}$BOOK POSS$_{j}$ $_{j}$BRUNO
This book belongs to Bruno.

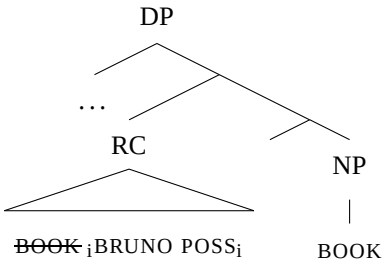
I begin with the observation that traditional descriptions and analyses of POSS as a possessive pronoun or determiner are at odds with the properties of POSS identified here: POSS fails to exhibit the quantificational properties that are expected under a pronominal or determiner analysis.

Based on an array of language-internal tests, I motivate an analysis in which POSS functions not as a DP-internal marker of possession but as a verbal predicate of possession, on a par with other possessive verbs like HAVE. The syntactic analysis developed accounts for how attributive and predicative uses of POSS are derived from this underlying verbal structure. In the case of predicative POSS, POSS functions as a verbal predicate that combines with functional locative structure of the predicative domain, giving rise to a "strict possession" interpretation of the predicative structure. In the case of attributive POSS, independent evidence is presented to illustrate that the structure functions as reduced relative clause modifier of the possessee noun. Moreover, the locus of relativization in the predicative structure (13) is shown to determine both the (definite/indefinite) interpretation of the possessor and the relational interpretation of the possessive meaning indicated by POSS.

(13)



(14)



This study addresses the general issues above, showing that a supposed instance of argument introduction internal to a nominal constituent—the possessor argument—has its origins elsewhere in the grammar—in this case, the verbal domain.

1.4 Study #2: Nominalization via Reduplication

The second study focuses on the NOMINALIZING REDUPLICATION (.NMZ-RED) process in ASL, a reduplication process that derives concrete object-denoting (15) (Supalla and Newport 1978) and result-denoting (16) deverbal nominals.

(15) a. (i) [$_{V}$ MOVE-IN-AIR-BY-PLANE]

to fly

(ii) [$_{Nmz}$ MOVE-IN-AIR-BY-PLANE.NMZ-RED]

airplane (‘a/the thing for moving in air by plane’)

b. (i) [$_{V}$ STAPLE-WITH-STAPLER]

to staple

(ii) [$_{Nmz}$ STAPLE-WITH-STAPLER.NMZ-RED]

stapler (‘a/the thing for stapling with a stapler’)

(16) a. (i) [$_{V}$ ACCEPT]

to accept

(ii) [$_{Nmz}$ ACCEPT.NMZ-RED]

acceptance (‘a/the result of accepting’)

b. (i) [$_{V}$ DEVELOP]

to develop

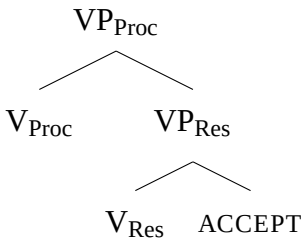
(ii) [$_{Nmz}$ DEVELOP.NMZ-RED]

development (‘a/the result of developing’)

The investigation and analysis hinges on two observations that lie at the interface between morpho-syntax, phonology, and semantics. One, the event structure of accomplishment predicates (Vendler 1967) in ASL (cf. Figure 1.4) can be morpho-semantically decomposed into two discrete phonological components (Wilbur 2003, 2010): a spatial path movement that corresponds to the process portion of the event and a phonological change (e.g., handshape closure) that corresponds to the event telos. These discrete components can be morpho-syntactically represented in a decomposed verbal structure along the lines of that proposed in Ramchand (2008).

Figure 1.4: The verbal sign ACCEPT.

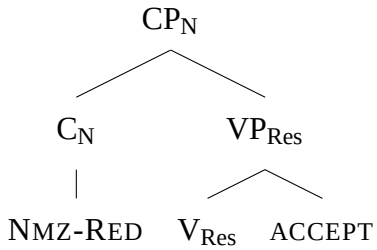
(17)



Under NOMINALIZING REDUPLICATION, however, only the phonological change corresponding to the event telos is preserved (Figure 1.5). The analysis proposed argues that NOMINALIZING REDUPLICATION, analyzed here as the morpho-phonological exponence of a nominalizing C_N, nominalizes only the result component of the event structure, yielding the expected result interpretation of the derived nominal (18). Thus NOMINALIZING REDUPLICATION is a so-called 'full reduplication' process, albeit one that targets only a sub-constituent of the verbal structure.

Figure 1.5: The nominalized sign ACCEPT.NMZ-RED.

(18)



Two, excepting the abstract/concrete ambiguity of certain result-denoting nominals (e.g., PLAN.NMZ-RED), concrete object-denoting interpretations of NOMINALIZING REDUPLICATION arise only in the presence of a verbal classifier, evident in the CL:ILY handshape used in the production of the verbal form in Figure 1.6. The analysis takes seriously this correspondence between verbal form and nominal interpretation, arguing that concrete object-denoting nominals (Figure 1.7) are the consequence of relativizing a null nominal argument introduced by the verbal classifier (19), an approach that builds on the analysis of classifiers developed in Benedicto and Brentari (2004) and

is made straightforwardly possible via the classification of NOMINALIZING REDUPLICATION as a nominalizing C_N head.

Figure 1.6: The verbal sign MOVE-IN-AIR-BY-PLANE.

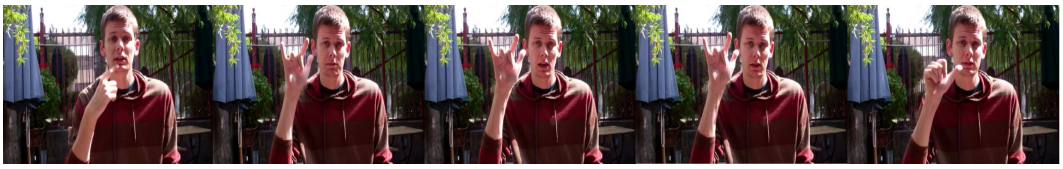
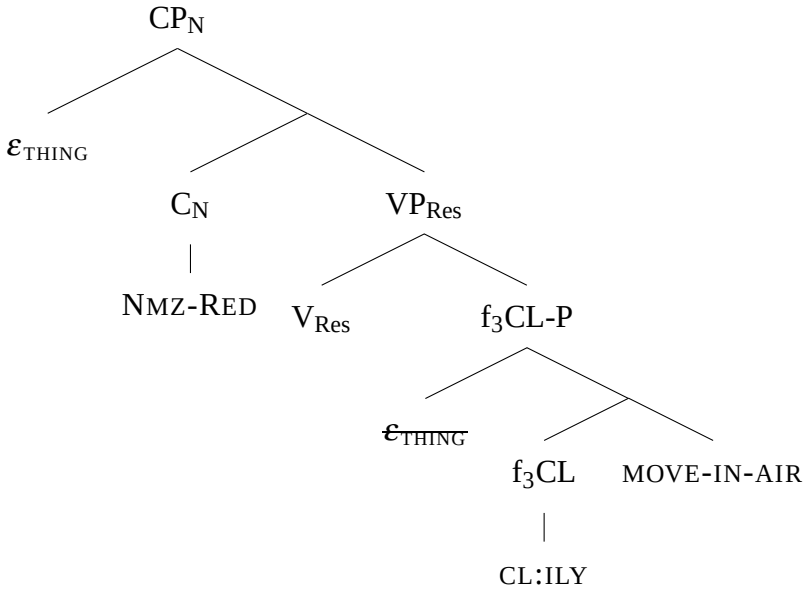


Figure 1.7: The nominalized sign MOVE-IN-AIR-BY-PLANE.NMZ-RED.

(19)



Because the classifier is part of the lowest constituent of verbal structure, the argument it introduces functions is a licit target for relativization of the small VP_{Res} structure nominalized via NOMINALIZING REDUPLICATION. Furthermore, due to the low nominalization target of NOMINALIZING REDUPLICATION, the analysis explains the empirical finding that the nominals so derived are devoid of virtually any verbal structure, including verbal argument structure introduced outside the VP_{Res} projection.

CHAPTER 2

To Have, In Hand: Possessive Constructions

2.1 When Nouns Collide: Possessive Expressions

In his seminal work on the expression of possession in English, Barker (1995) notes the following as evidence of the centrality of possession in the syntax and semantics of human language:

> *On the front page of today's New York Times, for instance, I counted 23 instances of the possessive construction, distributed in such a way that one out of five sentences contained at least one possessive. As a second kind of example, children acquire the possessive early in the two-word stage, so that by the age of 2 possessives can account for up to twenty percent of a child's productions.* (Barker 1995:1)

Thus, to understand the structure of possession is to understand the structure of an expression that is pervasive in the output of the adult grammar and is of the first to emerge in the grammar of the child. While no token counts are to be found in the discussion that follows—though one may refer to Jackson (1984) for evidence of the early emergence of possession in the acquisition of ASL—, the goal of the present chapter is to understand the structure of possessive expressions in ASL. As noted in the introductory remarks, the selection of possession as a topic of investigation here is motivated by the potential of this construction to offer insight into the structure of the nominal domain. However, the conclusion ultimately drawn here is that an understanding of possessive expressions in ASL is crucially dependent upon an understanding of the properties of verbal expressions in the language, for it will be shown that a common means of expressing possession in ASL—the POSS sign—has as its origin a verbal predication structure that enters the nominal domain only through a process of relative clause formation. To set the stage for the arguments presented, I begin with a

brief discussion of the components common to descriptions and analyses of possession in human language.

2.1.1 Duality of Patterning in Analysis and Description of Possessives

Two approaches feature prominently in both descriptive and analytic research on the meaning and form of possessive and genitive expressions in natural language. The first focuses on the structural properties of these expressions and the nature of the relation between possession and the syntax of the nominal and predicative domains. The second focuses on the interpretative properties of possessive expressions and the nature of the relation between the syntax and semantics of possession. Though there is clear overlap between them, each of these approaches will be discussed separately and in turn below, with special attention drawn to how these domains of distinction are relevant for the case of ASL possessives investigated here.

2.1.1.1 Nominal vs. Predicative Properties of Possessives

Descriptions of possessive structures draw a traditional distinction between possessive expressions that are *attributive* and those that are *predicative*. Attributive possession refers to the expression of a possessive relation that is expressed internal to a nominal constituent (1a), with the attributive possessives retaining the distributional properties of non-possessive nominals (1b)–(1c).

(1) a. [Bruno's bagpipes]
b. Scheitz likes [Bruno's bagpipes] / [the bagpipes].
c. *Eva thinks [Bruno's bagpipes] / [the bagpipes].

Predicative possession, on the other hand, refers to the expression of a possessive relation in the sentential domain (2a), yielding structures that display the distributional properties of other predicative or sentential expressions (2b)–(2c).

(2) a. [Those bagpipes belong to Bruno].
b. *Scheitz likes [those bagpipes belong to Bruno].

c. Eva thinks [those bagpipes belong to Bruno].

These patterns seem rather straightforwardly to suggest the existence of at least two distinct structural origins of possession in the grammar of human languages, one in the nominal (DP) domain and one in the predicative (VP) domain. Indeed, this is the analysis found in traditional accounts of such patterns (Abney 1987, Szabolcsi 1984). However, the division is not so clear as these initial patterns suggest, as there is also abundant morpho-syntactic overlap between the attributive and predicative structures. In English, for example, the *'s* marker of attributive possessives is also found in copular predicative possessives (3).

(3) a. [Those bagpipes are Bruno's].
b. *Scheitz likes [those bagpipes are Bruno's].
c. Eva thinks think [those bagpipes are Bruno's].

In the other direction, comitative prepositions of the predicative domain are commonly used for the expression of attributive possession in English (3), a pattern that has also been documented for Icelandic (Levinson 2011).

(4) a. Eva danced [with Bruno].
b. Eva fell in love with Bruno, [the man with bagpipes].

Such structural overlap is also robustly attested in the possessive patterns of ASL, where the same marker of possession, POSS, surfaces in both attributive (5a) and predicative (5b) possessive constructions, examples which also serve to illustrate the *an X of Y's* (attributive) and *X belongs to Y* (predicative) translations that will be used for POSS structures in the present discussion.

(5) a. [$_{\text{Attr-poss i}}$JOHN POSS$_{\text{i}}$ BOOK] ARRIVE
A book of John's arrived.

b. IX$_1$ THINK [$_{\text{Pred-poss}}$ BOOK POSS$_{\text{i}}$ $_{\text{i}}$JOHN]
I think the book belongs to John.

This more complex reality has been the subject of significant research on the structure of possessive expressions (Freeze 1992, Kayne 1994, den Dikken 2006), much of which focuses on three key issues. One, to what extent is morpho-syntactic structure shared across attributive and predicative constructions? Two, to what extent does morpho-syntactic structure exhibit inter- and intra-language variability, across not only the classes of attributive and predicative possession but also within a single class (cf. *'s* (1a)) versus *with* (4b) possessives in English)? Three, to what extent is morpho-syntactic structure of attributive and predicative possessives shared with other nominal and predicative structures? These are some of the issues that will be focused on in the discussion below.

2.1.1.2 Structural vs. Interpretive Properties of Possessives

Semantic analyses of possession (cf. a.o., Partee 1983/1997, Barker 1995) are primarily concerned with two aspects of their interpretation: the interpretation of the possessive relation and the quantificational properties (definiteness) of the possessive structure and its components. Before turning to the issue of the structural alignment of these properties, I shall first address the interpretive details that are relevant in each of these domains.

The invariant semantic function of possessive structures is to encode a relation, the possessive relation, between the possessor and the possessor. The actual possessive relation encoded in possessive structures is, however, variant. Some classic distinctions observed in the research literature on possession include: alienable versus inalienable possession (6), temporary versus permanent possession (7), and abstract versus concrete possession (8).

(6) a. The monster's leg (that he pulled off an enemy in a fight)
b. The monster's leg (that is part of his body)

(7) a. Bruno's taxi (that he took to the airport)
b. Bruno's taxi (that he drives for a living)

(8) a. Joseph Merrick's growth (since childhood)
b. Joseph Merrick's growth (that a number of doctors examined)

Though such distinctions are murky, at best, and exhibit a large degree of overlap, the possessive relations exemplified above all exhibit a certain degree of uniformity. In each case, the possessive relation has been argued either to be reducible to some extended conceptual notion of 'ownership' or 'control over' (6)–(7) or to be provided in the semantics of the relational possessee noun (8).

More surprising is that possessive structures can be used to encode relations that are not so easily construed as in this way and, moreover, that such uses of possessives are relatively unexceptional. This broader use of possessives is illustrated by the interpretive variability documented below for the English possessive *Bruno's picture*. Given appropriate contextual support, any of the relations (R) described in (9a)–(9e)—ordered roughly in terms of how 'possession-like' they are—are permissible interpretations of the relation holding between *Bruno* and *picture* in *Bruno's picture*.

(9) Bruno's picture

a. ✓He purchased it to decorate the trailer. ($R_{ownership}$)

b. ✓He took it with his camera. ($R_{authorship}$)

c. ✓It's the picture of him used in his *New York Times* obituary. ($R_{depiction/theme}$)

d. ✓He was talking about it earlier. ($R_{talked\ about}$)

e. ✓He's standing next to it, waiting for Scheitz. (R_{nearby})

The interpretation of the relation encoded in the possessive structure is relevant to the analysis of possessives in ASL given empirical evidence that they are less permissive on this front, disallowing not only the depiction/theme possessive relation of (10c) but also the contextually supported possessive relation of (10d).

(10) $_{i}$CRAIG POSS$_{i}$ PICTURE
A picture of Craig's

a. ✓He purchased it to decorate the trailer. ($R_{ownership}$)

b. ✓He took it with his camera. ($R_{authorship}$)

c. #It's the picture of him used in his *New York Times* obituary. ($R_{depiction/theme}$)

d. #He was talking about it earlier. ($R_{\text{talked about}}$)

Investigation of the quantificational properties of possessives may focus either on the definiteness of the possessive structure in its entirety (11) or of its sub-components (12). Here, too, interesting patterns emerge in the possessive domain of ASL (13).

(11) a. There is a chicken in the final scene.
b. There is some guy's chicken in the final scene.
c. *There is Herzog's chicken in the final scene.

(12) a. (i) Eva and Bruno have a/the trailer.
(ii) ?*A/the trailer belongs to Eva and Bruno.
b. The bagpipe's of ?*a/the neighbor's

(13) BRUNO HAVE DOG
Bruno has a/the dog

✓So you should not stay at his house if you are allergic.
✓That is why the dog is not here right now.

Finally, investigation of the semantic properties of possessives, if it is to be adequate, must address the fact that both the quantificational properties of possessives and the interpretation of the possessive relation are structure-dependent. Thus, while it is the quantificational force of the pre-nominal possessor in English that determines the quantificational force of the possessive structure itself (cf. (11b) vs. (11c)), this is not the case if the possessor occurs post-nominally (14).

(14) There is a/*the friend of Bruno's in the final scene.

Furthermore, as compared with the POSS structure in (10), possessive relations expressed via juxtaposition of the possessor and possessor in ASL permits a more flexible interpretation of the possessive relation (15), a pattern that parallels, somewhat, the relational distinction commonly found between possessive structures and genitive relations.

(15) CRAIG PICTURE
A picture of Craig('s)

✓He purchased it to decorate the trailer.
✓He took it with his camera.
#It's the picture of him used in his *New York Times* obituary.

The analysis of ASL possessives presented here takes into account these and other interpretive patterns as well as the structural properties to which they are sensitive.

2.1.2 Chapter Overview

The present chapter focuses on the analysis of attributive and predicative possessives marked by the POSS sign in ASL, though the structural and interpretive properties of other types of possessive expressions in the language are also be addressed. Thus, to complement the general linguistic overview provided above, the chapter begins (§2.2) with a descriptive overview of the variety of possessive structures used in ASL. As is noted in these descriptive remarks, the POSS sign has been traditionally classified as a possessive pronoun in ASL. This classification of POSS is defended formally in the analysis of ASL DP structure presented in MacLaughlin (1997) and affiliated publications (cf. Neidle et al. 2000), where it is argued that POSS is a possessive determiner that gains pronoun status through nominal ellipsis of the possessee or possessor. In §2.3, I evaluate DP-internal analyses of this type and show that they are untenable for POSS structures given that (i) attributive POSS does not exhibit the interpretive properties expected of a determiner or pronoun and (ii) predicative POSS does not exhibit structural or interpretive properties of attributive POSS.

Because DP-internal analyses of POSS offer only a predicate nominal analysis of predicative POSS, this latter observation presents an insurmountable challenge to analyses seeking to derive both attributive and predicative POSS from a uniform DP-internal source. What nevertheless remains true is that the presence of POSS in both attributive and predicative possessives strongly suggests structural overlap between these possessive constructions. Due to the documented challenges facing an analysis that derives attributive and predicative POSS constructions from a shared DP-internal source, the analysis developed here instead derives attributive and predicative POSS constructions from a shared predicative source. Thus, the crux of the present analysis is that POSS

uniformly enters the derivation as a marker of predicative possession.

The development of the analysis begins in §2.4, where I show that there is compelling language-internal reason to analyze POSS as a verbal predicate in ASL. Therein, I also discuss evidence that POSS parallels *belong*-type verbs of possession and explore the interaction of the POSS-VP with the functional structure of locative expressions, a structural detail that unifies POSS possessives with documented cross-linguistic patterns.

In §2.5, I turn to the analysis of attributive POSS constructions, arguing that they are introduced as reduced relative clause modifiers of the possessee. I will show that the reduced relative clause analysis is successful in capturing both the similarities and differences between attributive and predicative POSS constructions. A brief discussion of two additional possessive structures—JUXTAPOSITION and APOSTROPHE-S—is presented in §2.6, though many analytic details are left open. A summary of the chapter is provided in §2.7.

2.2 Descriptive Overview of ASL Possessives

In the present section I provide a descriptive overview of the patterns of possession in ASL, focusing in turn on the structures used for the expression of attributive (§2.2.1) and predicative (§2.2.2) possession. In this descriptive discussion, I largely abstract away from issues of analysis.

2.2.1 Attributive Possession

A common means of marking attributive possession in ASL is through the use of the possessive marker glossed here as POSS. In both traditional descriptions of the language (cf. e.g. Baker-Shenk and Cokely 1981) and contemporary typological discussions of ASL, POSS is classified as a possessive pronoun, a classification that has also receives formal support in the analysis of ASL DP structure presented in MacLaughlin (1997) and affiliated publications (cf. Neidle et al. 2000). The more neutral term 'possessive marker' is purposefully used in the descriptive remarks made here so as to disentangle the discussion from any preconceived analytic notions. As illustrated in Figure 2.1, POSS is produced with the B-handshape, though other details of its production vary depending

on, at least, the identity of the possessor. Second and third person possessors are indicated by palm orientation and movement toward an area of neutral signing space that is associated with an established (second or third person) discourse referent, with the area of signing space being that occupied by the interlocutor in the case of a second person possessor. For first person possessors, POSS is produced with movement toward the upper chest region of the signer, potentially making contact with the signer's body.

Figure 2.1: Production of POSS with second/third (L) and first (R) person possessors.

The spatial agreement that POSS exhibits with the possessor may also be modified so as to encode the plurality of the possessor argument. Two such modifications are possible: the addition of an arc-like movement in space is used to indicate collective plurality of the possessor (≈ "theirs/yours.pl" Figure 2.2) while successive movements toward a sequence of discrete spatial loci indicates distributive plurality of the possessor (≈ "each of theirs/yours.pl", Figure 2.3).[1] Though the difference between these two forms is difficult to capture in still images—and is oftentimes neutralized in fluent speech—, the fluid arc-like movement across signing space of the collective plural marker in Figure 2.2 can be inferred from the fact that no still image of the signer's hand can be captured from the video sequence. This is not the case for the successive movements of the distributive plural marker in Figure 2.3, each of which has an endpoint that can be captured as a still image.

Turning to word order patterns, attributive POSS constructions typically surface either in POSSESSOR-

[1] First person plural possessors are indicated not by an arc movement initiated at the signer's chest but rather through a suppletive form wherein first the thumb side of the B-shaped POSS hand makes contact with the ipsilateral side of the torso and then the pinky-side of the hand makes contact with the contralateral side of the torso by way of a small, outward arc movement in front of the signer's chest.

Figure 2.2: POSS inflected for collective plurality.

Figure 2.3: POSS inflected for distributive plurality.

POSS-POSSESSEE order (16a) or in POSS-POSSESSOR-POSSESSEE order (16b), though the latter is a more marked word order with distinct interpretive properties that will be discussed below.

(16) a. IX_i [$_j$CRAIG POSS_j $_i$BOOK] CL:B“long-book”
This book of Craig's is a long book.

b. IX_i [POSS_j $_j$CRAIG $_i$BOOK] CL:B“long-book”
This book of Craig's is a long book.

Deviations from these 'full' possessive structures are, however, commonly attested, as both the possessor and possessee can be omitted in the attributive POSS structure. These omissions, illustrated in (17), provide the likely origin of the possessive pronoun classification of POSS.[2]

[2]Empirical evidence has been presented as evidence of increased word order variability in these pronominal-like usages of the POSS morpheme (i)–(ii).

(i) COMPUTER POSS_1
'My computer'

(ii) POSS_1 COMPUTER POSS_1
'My computer'

(Chen Pichler and Hochgesang 2008)

These cases, however, will not be further addressed as instances of attributive possession, as there are syntactic and prosodic reasons to consider the post-nominal use of POSS in these and related constructions as cases of postnominal predicative modifiers. This would align the variation in pre- and post-nominal POSS with that of pre- and post-nominal adjectives in the language, as Padden (1988) and MacLaughlin (1997) have both analyzed post-nominal adjectives as essentially predicative in nature.

(17) a. $_{i}$KID WRITE [POSS$_{i,pl\text{-}arc}$ HOMEWORK]
The kids are doing their homework.

b. PREFER USE POSS$_{1}$
I prefer to use mine.

Additional word order patterns may also arise as a consequence of displacing the possessor to a topic-like position (18).

(18) tm2
JOHN$_{(i)}$, IX$_{pro_{1p}}$ MEET POSS$_{i}$ FRIEND$_{(j)}$ YESTERDAY
'As for John, I met his friend yesterday.'
(MacLaughlin 1997:236)[3]

Finally, there are two other structures used for the expression of attributive possession in ASL: JUXTAPOSITION and APOSTROPHE-S. As its name suggests, JUXTAPOSITION possessives involve juxtaposition of the possessor and possessee without any overt marker of possession. The juxtaposition strategy is preferred by some signers when expressing possession relations with relational nouns, such as part-whole relations or kinship relations, but is available with non-relational nouns as well.

(19) a. MOTHER SISTER
'Your mother'

b. MOTHER HOUSE
'Mother's house'
(Chen Pichler and Hochgesang 2008)

As is also rather clear from the name of the construction, APOSTROPHE-S possessives (20) are produced using an APOSTROPHE-S sign (Figure 2.4) that has been borrowed from Signed English.

(20) DOG APOSTROPHE-S HOUSE
A house of the dog's

[3]The 'tm2' non-manual marking associated with JOHN$_{(i)}$ in this example refers to a specific cluster of non-manual features—a large movement of the head backwards and to the side, raised eyebrows, and eyes wide open—that Aarons (1994) argues characterize base generated topics that shift the discourse topic, as distinguished from topics generated via movement and base generated topics that introduce new discourse topics. Failing to find distinct non-manual correlates of these topic types in the signers consulted, topicalization in my data is typically glossed only for the presence of brow raising.

Figure 2.4: The APOSTROPHE-S sign.

Originally a borrowing from Signed English, APOSTROPHE-S is now considered a grammaticalized part of "real ASL" for some signers. At present, I adopt the *an X of Y's* translation used for attributive POSS for both APOSTROPHE-S and JUXTAPOSITION possessives, though the relational and quantificational properties of these attributive structures are not analyzed in detail here.

2.2.2 Predicative Possession

Two broad strategies are possible for marking possessive relations in the sentential domain of ASL. In the first, the language makes use of designated verbs whose lexical content expresses the possessive relation, such as HAVE. As the gloss suggests, HAVE functions much like the English *have*. An important distinction to bear in mind is that HAVE in ASL functions neither as an auxiliary nor a modal, a potential source of confusion that arises as a consequence of traditional glosses and the limitations inherent in the glossing process itself. Rather, HAVE always exhibits the behavior of a lexical predicate of possession.

(21) a. CRAIG HAVE DOG
Craig has a/the dog.

b. *SUE HAVE GO-TO STORE
(Intended:) Sue has to go to the store or Sue has gone to the store.

There is also a designated means for expressing negative possession—-that is, the situation that arises when the possessor does not possess any quantity of the possessee. In this construction, the possessive relation is expressed via juxtaposition of the possessor and possessee nominals, followed by the negative sign NONE.[4]

[4]Chen Pichler and Hochgesang identify NONE as a suppletive form of negative predicative possession; further discussion of its distribution and interpretation in ASL—not focused specifically on its use in negative possessives—is

(22) PRO_1 PAGER NONE
I don't have a pager. / I have no pager.

(Chen Pichler and Hochgesang 2008)

A second strategy for marking possessive relations in the sentential domain is through morpho-syntactic means that are also found in attributive possessive constructions. In ASL, this is evident for both POSS (23a) and APOSTROPHE-S (23b).

(23) a. BOOK $_i$JOHN $\text{POSS}_{i,+}$
This book is John's.

b. THAT_i JOHN APOSTROPHE-S $_i$BOOK
That's John's book

The predicative possessives in these data parallel DP-internal attributive possession in the relative order of the possessor (JOHN) and the possessive marker (POSS, APOSTROPHE-S). As such, predicative possessives of this type have the flavor of an attributive possessive DP in predicate nominal position. An observation that will be important in the discussion that follows, however, is that, for POSS this is not the only means of forming a predicative possessive. The POSS marker can also surface in the main predicate position of a *belong*-alignment predicative possessive, a structure not addressed in previous analyses of ASL possessives.

(24) BOOK POSS_i $_i$JOHN
The book belongs to John.

Furthermore, the movement of POSS in this structure, in addition to its 'default' encoding of the identity of the possessor, may also be modified so as to encode the identity of the possessee, a property noted in passing by Baker-Shenk and Cokely (1981). In this case, the production of POSS begins not at a neutral location in front of the signer's chest but rather at the location in signing space associated with the possessee. From this initial location associated with the possessee, POSS then moves across signing space to the location associated with the possessor. As will be discussed below, this possessee-possessor movement sequence parallels properties of transitive spatial verb

presented in Wood (1999).

agreement in ASL and is only possible when POSS is used predicatively.

Figure 2.5: Movement of POSS from contralateral location of the possessee to ipsilateral location of the possessor.

Such patterns—patterns that are not exhibited by possessive pronouns, determiners, or genitive marking cross-linguistically—will be used as part of the motivation of the verbal analysis of POSS pursued here.

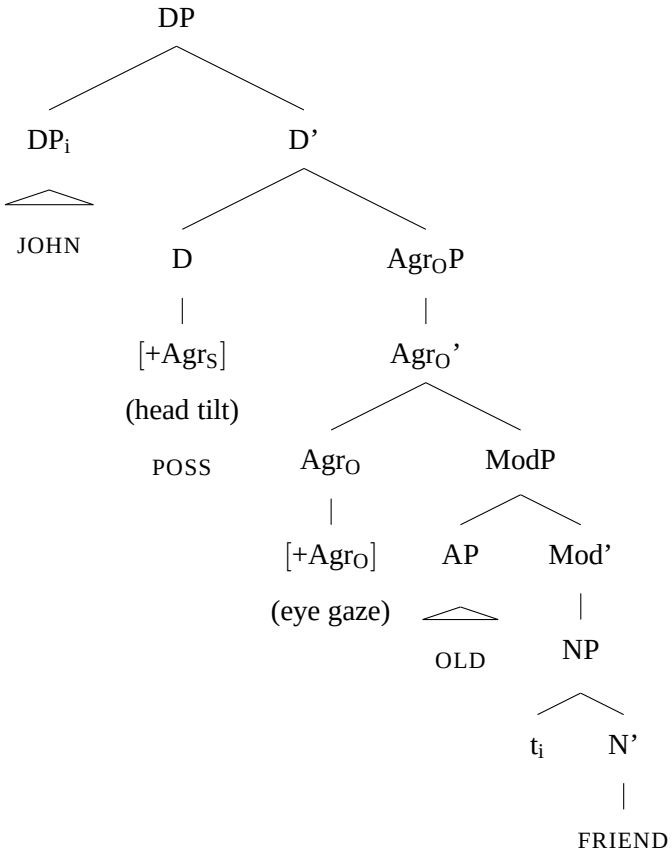
2.3 DP Analysis of ASL Possessives

As discussed above, analyses of possession can be schematized in several ways, varying according to the structural means by which the possessor argument is introduced and the semantic interpretation of its relation to the possessee nominal. In her 1997 dissertation on the structure of the determiner phrase in ASL, MacLaughlin presents an analysis of ASL possessives that exemplifies approaches wherein the possessor is introduced as an argument of the nominal and the possessive morphology is introduced as part of the extended functional structure of the DP. Hers—the only existing formal analysis of possession in ASL—is the DP analysis of POSS focused on here. It should be noted, however, that the bulk of the arguments presented here are problematic for any DP-internal analysis of POSS, especially DP-internal analyses that classify POSS as anything pronominal-like (including determiners).

The analysis MacLaughlin provides for (attributive) possessive constructions in ASL bears much in common with the standard analysis of English-style prenominal possessives (cf. Szabolcsi 1984, Abney 1987). The analysis has two key components. First, the possessive marker POSS is

analyzed as a manifestation of the determiner head. Second, the possessor is merged into the specifier of the NP projection of the possessee nominal, from which it undergoes A-movement to Spec-DP for case licensing reasons. The structure MacLaughlin posits for the ASL possessive DP is provided in (25). In the present discussion, I set aside issues such as head tilt and eye gaze, which MacLaughlin, following Bahan (1996), analyzes as the non-manual realization of agreement features in ASL.

(25)



(MacLaughlin 1997)

What is furthermore crucial for MacLaughlin's analysis that this is the only structural origin for POSS. Thus, predicative POSS constructions such as those in (24) can only be derived as instances of possessive predicate nominals (26).

(26) BOOK ε"$_{is}$" [$_{Pred\text{-}Nominal}$ POSS$_i$ $_i$JOHN ~~BOOK~~]
The book belongs to John.
Predicate Nominal Analysis: ≈ The book is John's ~~book~~.

The problems facing this aspect of the analysis—and, again, any analysis positing a DP-internal source for POSS–are addressed below.

2.3.1 The Possessive Marker

MacLaughlin's analysis of POSS as a definite determiner is couched in her broader analysis of the structure of the determiner phrase in ASL. This analysis argues that the prenominal indexical sign (IX, Figure 2.6) sometimes found in nominal expressions in ASL (27) functions as a definite determiner, albeit one whose use is optional.

(27) JOHN LOVE [IX_i WOMAN]$_{DP}$
John loves the/that woman. (MacLaughlin 1997)

Figure 2.6: The IX sign (third person referent).

Before addressing whether or not POSS should be endowed with determiner status, I first evaluate the determiner status of this IX sign. Given that prenominal IX is obligatory neither for argumenthood (vs. predicatehood) nor for a definite interpretation and, moreover, that it is interchangeably used to translate both the definite determiner and demonstratives in English, the conclusion will be that the determiner analysis of this indexical sign is not appropriate. On these and other grounds the same conclusion will also be drawn about the POSS sign.

2.3.1.1 Excursus: The Status of D in ASL

The IX sign is produced with an extended index finger and movement toward the abstract or real world location associated with its referent, orientating toward the signer or interlocutor(s) in the case of first or second person referents. Distributionally, nominal expressions co-occurring with this prenominal index are associated with a definite interpretation (27), an interpretation which is, moreover, obligatory (28).

(28) *JOHN LOOK-FOR [IX_i MAN $]_{DP}$ FIX GARAGE
John is looking for a man to fix the garage.[5]

(MacLaughlin 1997)

MacLaughlin thus concludes that the prenominal index functions as a definite determiner in ASL and, as such, is positioned in the D-head of the DP projection. For purposes of evaluation, this analysis can be logically teased apart into two separate claims:

C1: Pre-nominal IX encodes definiteness.

C2: Pre-nominal IX is a determiner.

While it is true that nominals marked by the prenominal index must be interpreted as definites, it is by no means the case that IX is required for a definite interpretation. Rather, the language freely allows bare nominals to appear in argument position with either an indefinite or definite interpretation.

(29) CRAIG HAVE DOG
Craig has a/the dog.

Therefore, the definite interpretation of a nominal is not dependent on the presence of IX. If prenominal IX does encode definiteness, then the grammar of the ASL user must contain at least the simplified lexical entries in (30).

[5]The '*' used in MacLaughlin's transcription would conventionally indicate ungrammaticality, but the example is more adequately described as grammatical, albeit not with the intended (indefinite) interpretation ('#').

(30) /IX/: the associated nominal referent is definite

/ɛ/: the associated nominal referent is definite

This requires that the language user posit the existence of homophonous functional items that perform the same role in the syntactic system and are interchangeable without any apparent phonological conditioning. Moreover, the language user must posit the existence of phonologically overt material that has the same interpretive effect as phonologically null material, an analysis that is problematic from a learning perspective and has been specifically argued to be an impossibility for the determiner system of any human language (Crisma 1997). A more appropriate analysis is one in which definiteness is a syntactic dependency or condition of use for the pre-nominal IX, whose function is instead much more parallel to that of a demonstrative.[6]

To evaluate the second claim—that prenominal IX is a determiner (D head) in ASL—, we need first to identify the role of the determiner in human language, a precursory task that is itself quite complicated. In the present discussion, I will assume the traditional approach wherein the determiner is responsible for licensing the noun's appearance in argument position, as proposed by, among others, Longobardi (1994). This follows from the assumption that the base denotation of a noun is that of a predicate. Thus, the determiner functions to turn the predicate-denoting noun into an argument-denoting expression. Cross-linguistically, support for this stance is found in the obligatory appearance of determiners when nouns are found in argument (31b) versus predicate (31a) position.

(31) a. *Gianni è amico di Maria.*
Gianni is friend of Maria

b. *Ho incontrato *(un/il) grande amico di Maria ieri.*
I met (a/the) great friend of Maria yesterday

(Longobardi 1994:612)

[6]It is worth noting that this idea is not, strictly speaking, counter to MacLaughlin's semantic arguments. Though MacLaughlin analyzes the prenominal index as a definite determiner, her semantic conclusions as to its role and distribution are that the sign "expresses definiteness" or is "associated with definiteness". The ultimate message of the argument made here is, thus, that the pre-nominal index can have these semantic properties without functioning as a D head.

If, however, the determiner is responsible for licensing the noun in argument position, then (29) above provides clear evidence against the determiner analysis of prenominal IX. The licit appearance of bare nominals in argument position in ASL shows that it is not prenominal IX that licenses them in this position.

Before thus concluding that the pre-nominal index does not have determiner status, let me first briefly address the fundamental assumption upon which this line of argumentation rests: the required presence of a determiner in an argument-denoting nominal. Though this role of the determiner is relatively straightforward in the languages that have determiners, the function and projection of the DP are much more unclear in the languages with an absence of overt determiners. Are the argumental nominal expressions of such languages headed by silent determiners or is there something about the language that allows some lower projection in the nominal domain to function as argument? Chierchia (1998) argues that both possibilities are typologically attested and that this, too, can be explained by the predicate- or argument-denoting status of nominals. The thrust of Chierchia's argument is that Longobardi (and others) were right to claim that the determiner is responsible for turning a predicate-denoting noun into an argument-denoting expression but were wrong to assume that all nouns are predicate-denoting. He instead argues that the predicate- or argument-denoting status of the noun is part of the parameterization of language. If the language has parameterized its nouns as argument-denoting, no determiner projection is syntactically necessary.

A natural question that arises based on these findings concerns the base denotation of nouns in ASL. Is the bare nominal in (29) bare because nouns in ASL are argument-denoting and require no determiner or is it bare because nouns in ASL are predicate-denoting and the language uses null determiners to license them in argument position? Fortunately, Chierchia provides syntactic tests for distinguishing these possibilities, based on his proposal that argument-denoting nouns, in the languages that have them, refer to kinds (versus individuals). Because of this kind reference, argument-denoting nouns behave like mass nouns: they are resistant to number marking and require classifiers in order to combine with numerals. Thus, languages with argument-denoting nouns will exhibit the syntactic properties in (32).

(32) NP[+arg,-pred] languages

a. Generalized bare arguments

b. The extension of all nouns is mass

c. No PL

d. Generalized classifier system (Chierchia 1998:354)

While research has not explicitly addressed the count/mass distinction in the ASL nominal system, there is nevertheless evidence that nouns in the language do not uniformly exhibit the behavior of mass nouns. First, though the language makes use of a complex classifier system in both the nominal (33) and verbal domains, argument nouns can combine with numerals without mediation by a classifier (34).

(33) IX_1 BUY THREE CL:C“loaf” CL:C“loaf” CL:C“loaf” BREAD
I bought three loaves of bread.

(34) PIG HAVE TWO BROWN LEG
The pig has two brown legs.

Second, though no obligatory singular/plural distinction exists in the language, nouns can be marked for dual plurality (Supalla and Newport 1978).

(35) FORBID SIT TWO SIT.NMZ-$\text{RED}_{\text{pl-dual}}$, MUST PICK ONE
It is forbidden to sit in two chairs, you must pick one.

Therefore, ASL does not pattern with the class of languages whose nouns refer to kinds and it can be concluded that bare arguments in ASL are associated with a DP layer, albeit one that is phonologically empty.[7]

[7] Comparable conclusions are also reached by Bernath (2009) with respect to the NP/DP analysis of bare arguments developed in Bošković (2008).

2.3.1.2 The Status of POSS as D

The above discussion provides the groundwork for evaluating the claim more relevant to the present inquiry: POSS functions as a (possessive) definite determiner. In support of this claim, MacLaughlin identifies a number of similarities between POSS and the prenominal IX that she analyzes as a definite determiner and glosses as IX_{det} (36). As will become clear in the course of the discussion below, these behavior descriptors are either inadequate or need not be the result of POSS functioning as a definite determiner.

(36) a. Both the possessive marker and the definite determiner IX_{det} can function as pronouns, with no following nominal material.

b. Both signs may be omitted.

c. Semantically, both are associated with a uniqueness presupposition.

d. The possessive marker and the definite determiner are in complementary distribution.

e. Both signs express agreement manually, by pointing to the location in space that is associated with the relevant referent.

(MacLaughlin 1997:241–242)

PRONOMINAL FUNCTION (36a). The pronominal function of IX_{DET} and POSS is illustrated in (37).

(37) $IX_{pl\text{-}arc}$ WRITE $POSS_{pl\text{-}arc}$ HOMEWORK
They are doing their homework.

This argument, however, rests on the assumption that the D-layer alone is responsible for generating argumental pro-forms in language. Such an assumption that is called into question by analyses such as that of Koopman (1999) and Déchaine and Wiltschko (2002), who argue that virtually any functional projection of the DP can serve as the overt exponence of a pro-form. Thus, while IX_{DET} and POSS do function as pronominals, this function does not necessarily correlate with either of them being a determiner in their non-pronominal uses. As I will argue later, the pronominal behav-

ior of POSS can be independently explained by null argument licensing properties of ASL verbs Lillo Martin (1991). This straightforwardly explains the predicative use of POSS (24), a structure that is rendered quite exotic under a determiner analysis.

OMISSABILITY (36b). The key argument of the previous section was that the optionality ("omissability") of the prenominal index presents a significant theoretical challenge for the determiner analysis. Thus, the optionality ("omissability") of the POSS marker—that is, the grammaticality of JUXTAPOSITION as an attributive possessive structure in ASL—also fails to constitute a strong argument in favor of the determiner analysis of POSS. There is, however, a more significant issue facing the argument from omissability: the semantic interpretation of attributive JUXTAPOSITION possessives in ASL does not match that of attributive POSS possessives. As MacLaughlin herself acknowledges, the JUXTAPOSITION structure is preferred in the context of inalienable body part possession. Moreover, alienable possession marked by JUXTAPOSITION allows for a more flexible interpretation of the possessive relation than that marked by POSS:

(38) a. $_{i}$JOHN POSS$_{i}$ BOOK
A book of John's

✓A book that John owns
#A book that John gave as a gift to someone

b. $_{i}$JOHN BOOK
A book of John's

✓A book that John owns
✓A book that John gave as a gift to someone

UNIQUENESS PRESUPPOSITION (36c). The notion that POSS-marked possessives carry a uniqueness presupposition is the most problematic of MacLaughlin's observations. This claim is based on the idea that definiteness is inherent to possessive constructions, yielding a uniqueness presupposition associated with these constructions. While MacLaughlin discusses evidence from Barker (1995) in favor of this conclusion for English possessives, she presents no independent evidence to defend this conclusion for ASL. Once such independent evidence is sought, it becomes clear that POSS constructions in ASL are not associated with a uniqueness presupposition.

Consider the context illustrated in Figure 2.7. As presented to consultants, Figure 2.7 represents a collection of books owned by John. In reference to this context, signers judge the sentence in (39), using the predicative adjective GREEN to be felicitous. This felicity judgement that is only possible if POSS constructions do not carry a uniqueness presupposition, as the sequence TWO BOOK does not uniquely identify John's books in this context. As further evidence of this, compare the felicitous status of the POSS construction with the infelicitous status of the prenominal *'s* possessive in English in this context (40), a construction that does carry a uniqueness presupposition.

Figure 2.7: Illustration of an elicitation context used to diagnose the absence of a uniqueness presupposition in attributive POSS structures.

(39) [$_{i}$JOHN POSS$_{i}$ TWO BOOK] GREEN UNDERSTAND-CONJ THREE BLUE
Two books of John's are green, but three are blue.

(40) #John's two books are green.

COMPLEMENTARY DISTRIBUTION WITH IX$_{det}$ (36d). Evidence for the complementarity of the prenominal IX and POSS is presented in (41).

(41) *IX$_{pro_{ip}}$ MEET [IX$_{det_{j}}$ TEACHER$_{(i)}$ POSS$_{i}$ FRIEND$_{(j)}$]$_{DP}$ YESTERDAY

(MacLaughlin 1997)

Given the above arguments against the determiner analysis of prenominal IX, this complementarity no longer suffices to establish the determiner status of POSS. Moreover, independent of this, formal (Giorgi and Longobardi 1991) and typological (Haspelmath 1999) research strongly suggest that complementarity between possessive markers and articles is not a de facto pattern in language, nor can it be attributed to these materials vying for the same structural position. Haspelmath, for example, inventories many languages in which such complementarity does not hold as well as many languages in which such complementarity is attested even though possessive morphology lacks any article-like properties. Thus, care must be taken when drawing conclusions from patterns of complementarity.

MANUAL AGREEMENT (36e). Finally, MacLaughlin argues that POSS is a definite determiner because both it and the prenominal index can express manual agreement—that is, both signs appeal to spatial distinctions to indicate reference. As with complementarity, care must be taken when using the spatial properties of signed languages to draw syntactic conclusions. Space is an overarching organizational property of signed languages and the use of spatial distinctions for encoding referential properties is attested in an array of categories in ASL. Thus, the fact that both IX and POSS use spatial loci to indicate reference does not in and of itself provide evidence of their structural similarity. In the analysis below, a more detailed investigation of the spatial properties of POSS reveals that they pattern with the verbal agreement system in ASL.

2.3.2 The Possessor

As a generalization of the VP-internal subject hypothesis (Fukui and Speas 1986, Kuroda 1988, Koopman and Sportiche 1991), the possessor phrase in MacLaughlin's analysis originates in the Spec-NP position of the possessee nominal, moving thereafter to a Spec-DP position for (abstract) case-licensing reasons. The argument status of the possessor is drawn into question given the restricted interpretation of the possessive relation in the POSS structure, an interpretive pattern that is typical of 'modificational' not 'argumental' possessors (cf. Partee and Borschev 2003).

(42) CRAIG POSS$_i$ PICTURE

✓A picture Craig took
✓A picture Craig purchased
#A picture of Craig

Furthermore, there are instances of POSS possessives in which the possessor phrase surfaces in a position following POSS (43).

(43) POSS$_i$ $_i$CRAIG COMPUTER BREAK
Craig's computer broke.

This option, first of all, illustrates that movement of the possessor is not obligatory, as one would expect of movement motivated for case licensing. More importantly, however, in the post-POSS construction, the possessor phrase obligatorily precedes a numeral quantifier (44), suggesting that the underlying position of the possessor is not internal to the NP projection of the possessee.

(44) a. POSS$_i$ $_i$CRAIG THREE COMPUTER BREAK
Craig's three computers broke.

b. ?*POSS$_i$ THREE $_i$CRAIG COMPUTER BREAK
Craig's three computers broke

2.3.3 Predicate Nominal Origins of Predicative POSS

Finally, any DP-internal analysis of POSS, including that of MacLaughlin, must confront the problem of predicative POSS constructions.

(45) BOOK POSS$_i$ $_i$BRUNO
The book belongs to Bruno.

If POSS originates in the functional structure of the DP, then the only means of accounting for predicative POSS in such an analysis is to posit that it is an instance of a possessive predicate nominal construction (46).

(46) BOOK ε“$_{is}$” [$_{Pred\text{-}Nominal}$ POSS$_i$ $_i$BRUNO ~~BOOK~~]

The insurmountable challenge faced by such an analysis, however, is that predicative POSS exhibits behaviors distinct from attributive POSS and this is entirely at odds with a predicate nominal analysis. These distinctions are discussed below.

2.3.3.1 Semantic Differences

Paralleling a pattern documented in other languages (cf. Partee and Borschev 2003), the relation between the possessee and the possessor in the predicative POSS construction is more restricted than that in the attributive POSS construction. Thus, while attributive POSS exhibits a degree of flexibility in terms of the possessive relations it can express (47), only a strict subset of these relations can be expressed by the predicative POSS structure (48).

(47) [$_i$MONSTER POSS$_i$ $_{fs}$LEG/COLLAR] COLOR GREEN
A leg/collar of the monster's (✓inalienable / ✓alienable) is green.

(48) GREEN $_{fs}$LEG [POSS$_i$ $_i$MONSTER]
A/the green leg belongs to the monster.

#A leg of the monster is green
✓A leg in the monster's pile of legs is green

As expected, given contextual support—provided here through the use of the possessor MONSTER—, the fingerspelled noun $_{fs}$LEG in ASL may refer either to a part of one's body (alienable possession) or to the (potentially detached) body part of another individual (inalienable possession), interpretations which are both allowed in the attributive POSS construction. In the predicative POSS construction, however, only the alienable interpretation is allowed, forcing $_{fs}$LEG to refer to the body part of another individual that the monster has in its possession.

Restrictions on the possessive relation in the predicative POSS construction are also evident outside the domain of (in)alienability. In contrast to the attributive possessive with BOOK in (49), for example, which allows both an author and owner interpretation of the possessor BRUNO, the predicative POSS possessive in (50) allows for only an owner interpretation of the possessor, a

restriction which sometimes renders infelicitous the very use of the predicative POSS structure (51).

(49) [$_i$BRUNO POSS$_i$ BOOK] COLOR GREEN
A book of Bruno's (✓ that he owns / ✓ that he wrote) is green.

(50) POSS$_1$ BOOK FOR CLASS POSS$_i$ $_i$BRUNO
My book for class belongs to Bruno.

✓I borrowed it from him
#He wrote it

(51) #POSS$_1$ BOOK FOR CLASS POSS$_i$ $_i$MARK-TWAIN
My book for class belongs to Mark Twain.

2.3.3.2 Word Order

Variation in word order between POSS and the overt possessor is exhibited in both attributive and predicative POSS constructions (52).

(52) a. Attributive POSS

$_i$BRUNO POSS$_i$ BOOK
POSS$_i$ $_i$BRUNO BOOK
A book of Bruno's

b. Predicative POSS

BOOK $_i$BRUNO POSS$_i$
BOOK POSS$_i$ $_i$BRUNO
The book belongs to Bruno.

However, word order variation in these two constructions is not subject to the same conditions. As illustrated in (53), though an indefinite possessor is licit in both attributive and predicative POSS constructions, its appearance in the attributive POSS construction is only licit in pre-POSS position.

(53) **Context:** A teacher's edition copy of a Wisconsin history textbook was left in the library.

a. Attributive POSS

(i) IX$_i$ FIND [$_j$TEACHER POSS$_j$ BOOK]
He found some teacher's book.

(ii) *IX$_i$ FIND [POSS$_j$ $_j$TEACHER BOOK]
He found some teacher's book.

b. Predicative POSS

BOOK [POSS$_j$ $_j$TEACHER] (BUT NOT-KNOW WHO)
The book belongs to some teacher (but I don't know which one).

Thus, the definiteness of the overt possessor affects the word order possibilities of the two constructions differently. This difference provides crucial evidence that the predicative POSS construction in (53b) cannot be derived via predicate nominal formation from the attributive construction in (53aii), as the latter is simply not a grammatical output of the language.

2.3.3.3 WH-Possessors

The second morphosyntactic difference between attributive and predicative POSS possessives concerns the availability of WH-possessors. As illustrated by the contrast in (54), WH-possessors are ungrammatical in attributive POSS possessives.[8]

(54) a. $_i$JOHN POSS$_i$ MOTHER VOLUNTEER TWO-WEEK-FUTURE
John's mother will volunteer two weeks from now.

b. *$_i$WHO POSS$_i$ MOTHER VOLUNTEER TWO-WEEK-FUTURE[9]
Whose mother will volunteer two weeks from now?

This restriction cannot be an extension of the indefiniteness restriction discussed above, as WH-possessors are ungrammatical in both the pre- and post-POSS position of attributive POSS possessives (55), nor can it be aligned with some general restriction against WH-possessors in attributive constructions, as WH-possessors are grammatical in both JUXTAPOSITION and APOSTROPHE-S

[8]The judgements given here, though different from those reported in the analysis of ASL WH-questions presented in Neidle et al. (2000), were uniform across four different consultants and independently confirmed with several other signers of ASL. I leave for future research the origin of this variation.

[9]The examples presented here uniformly use WH-*in situ* word order; for various perspectives on structural variation in ASL WH-questions, see Petronio and Lillo-Martin (1997), Churng (2011), Neidle et al. (2000), Abner (2011) and references therein.

constructions (56).

(55) a. *IX$_i$ [$_j$WHO POSS$_j$ $_i$BOOK]
Whose book is that?

b. *IX$_i$ [POSS$_j$ $_j$WHO $_i$BOOK]
Whose book is that?

(56) a. ?[WHO MOTHER] VOLUNTEER TWO-WEEK-FUTURE[10]
Whose mother will volunteer two weeks from now?

b. [WHO APOSTROPHE-S MOTHER] VOLUNTEER TWO-WEEK-FUTURE
Whose mother will volunteer two weeks from now?

c. WHO PENCIL IX$_i$
Whose pencil is that?

Furthermore, the observed restriction against WH-possessors cannot be a general restriction obtaining between POSS and the possessor, as WH-possessors are grammatical in predicative POSS constructions, both preceding and following POSS (57), albeit with a difference in interpretation that corresponds to the definiteness of the WH-possessor. The more definite, d-linked WH-interpretation arises in the pre-POSS position of the predicative structure, while the more indefinite interpretation occurs in the post-POSS position, a pattern discussed further in §2.4.3.

(57) a. IX$_i$ $_i$BOOK [POSS$_j$ $_j$WHO]
Who does that book belong to?

b. IX$_i$ $_i$BOOK [$_j$WHO POSS$_j$]
Who (out of a specific group of people) does that book belong to?

2.3.3.4 Spatial Inflection

Finally, while both attributive and predicative possessives, by their very possessive nature, denote a relation between the possessee and possessor, only the predicative use of POSS can encode this relation spatially. As represented by the introduction of the initial subscript (*i*) in the transcription of $_i$POSS$_j$ in (58) and illustrated by the video stills in Figure 2.5 above, predicative POSS can move

[10]The degraded grammaticality in this example seems best explained as prescriptive dispreference that sometimes emerges as a consequence of comparison with possessives overtly marked by POSS or APOSTROPHE-S.

between two discrete spatial loci: that associated with the possessee (*i*) and that associated with the possessor (*j*), as was noted earlier in §2.2.

(58) $IX_i\ {}_iBOOK\ {}_{(i)}POSS_j\ {}_jCRAIG$
The book belongs to Craig.

Thus, though it need not obligatorily do so—indicated here by parentheses around the initial subscript—predicative POSS may identify spatially both of the arguments that stand in its possessive relation. This transitive spatial inflection is not available in attributive POSS constructions (59).

(59) $IX_i\ {}_iBOOK\ {}_jCRAIG\ {}_{(?*i)}POSS_j$ CHEMISTRY BOOK
The book is Craig's chemistry book.

That this is truly a morpho-syntactic effect and not the consequence of phonological assimilation between the spatial locus of the possessee and POSS is supported by the data below, where transitive spatial inflection of predicative POSS is shown to be possible not only when POSS is phonologically separated from the possessee (60a) but also when no overt possessee or possessor is present (60b).

(60) a. ${}_iDOG$ REAL $_{(i)}POSS_j\ {}_j$ BRUNO
The dog really belongs to Bruno.

b. (i) $\overline{IX_i\ {}_iBOOK\ CL{:}B_{i,\text{“stack-of-books”}}\ [\ {}_{(i)}POSS_j\ {}_jBRUNO\ ]}$ y/n
Does that stack of books belong to Bruno?

(ii) $\overline{YES,\ ({}_iBOOK)\ {}_{(i)}POSS_j\ ({}_jBRUNO)}$ nodding
Yes, it does.

Moreover, it is this morpho-syntactic property that allows the predicative POSS construction to wear its appropriate analysis on its proverbial sleeve, for while ASL, like other mature sign languages, makes robust use of space for grammatical purposes, this relational use of space—the meaningful movement between discrete spatial loci—is uniquely a characteristic of verbs in the

language (Figure 2.8).

Figure 2.8: Movement of $_{j}$GIFT-TO$_{i}$ from ipsilateral locus of IX$_{j}$ to contralateral locus of $_{i}$GIRL.

2.3.4 Interim Summary

The discussion to this point has presented a general overview of POSS constructions in ASL (§2.2) and has documented the challenges faced when attempting an analysis of POSS as a DP-internal marker of possessive structures. Though several of the early arguments presented were levied specifically against the details of the analysis pursued by MacLaughlin, the latter comparison between predicative and attributive POSS constructions reveals that the challenges faced are not specific to the details of analysis. Rather, structural and interpretive distinctions between attributive and predicative POSS constructions present significant challenges to any analysis which attempts to derive them from a uniformly DP-internal source. In the following section, I defend the alternative analysis proposed here, that POSS is a verbal predicate. As will be shown, this alternative analysis receives robust independent support from a comparison of the morpho-syntactic behaviors of POSS with those of other standard issue verbal predicates in ASL. Nevertheless, the verbal predicate analysis also allows for a parsimonious explanation of the morpho-syntactic appearance of POSS in both attributive and predicative possessive constructions, as instances of attributive POSS possessives are derived via reduced relative clause formation. This modified perspective on the derivational relationship between attributive and predicative POSS possessives has the added benefit of explaining why and how the two structures do sometimes pattern differently. To facilitate evaluation of the present proposal as well as comparison between it and the DP analysis, properties of POSS constructions thus far documented and an evaluation of the DP analysis is presented in Table 2.1.

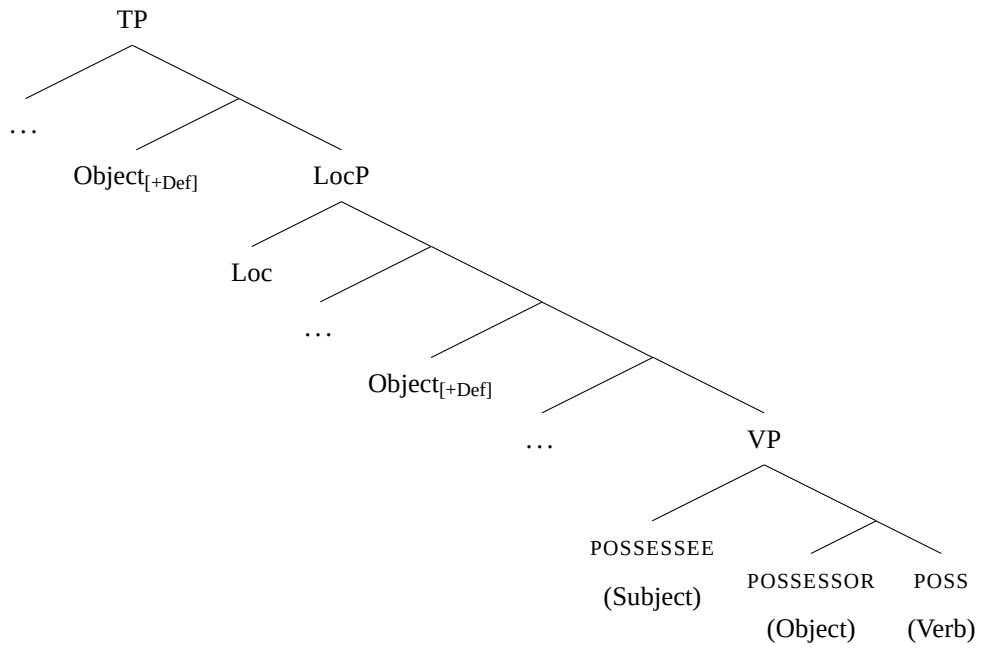
	DP Analysis
Attributive POSS	DP Possessive
Quantificational Variability	No
Interpretive Restrictions	Unclear
Word Order & Definiteness	Unclear
*WH-possessors	No
*Transitive Agreement	No
Predicative POSS	Predicate Nominal
(Stricter) Interpretive Restrictions	Unclear
Word Order & Definiteness	Unclear
✓WH-possessors	No
✓Transitive Agreement	No

Table 2.1: Evaluation of DP Analysis with respect to POSS properties documented.

2.4 Getting Together a POSS-VP: Analysis of Predicative POSS

The present section develops the structure of the verbal analysis of POSS, an analysis that allows POSS to impose the selectional restrictions which give rise to its across-the-board interpretive restrictions (vs. e.g., JUXTAPOSITION), beginning with distributional evidence in §2.4.1 that POSS functions as a verbal predicate in ASL. Building on this, §2.4.2 presents evidence that POSS is a *belong*-type verb of possession, taking the possessor as object and the possessee as subject. In §2.4.3, two additional structural details are introduced to account for the documented word order variation effects and the restricted interpretation of predicative POSS discussed above in §2.3.3. First, paralleling cross-linguistic patterns, it is proposed that the functional structure that embeds the POSS VP makes available higher positions for definite objects. Second, building on language internal patterns of locative predicates, it is argued that this functional structure also contains locative material, which, upon composing with POSS, results in the more restricted interpretations documented in predicative POSS construction. The complete analysis of the predicative POSS structure is schematized below. The structure in (61) uses a traditional VP structure as proxy for the more fine-grained decompositions discussed in the following Chapter, as details of the verbal decomposition are not relevant to the observations made here nor available given the present data.

(61)



2.4.1 POSS As Verb

Distributional properties of predicative POSS mirror those of canonical verbal predicates in ASL. The default position of predicative POSS is the sentence-medial position expected in this typically SVO language (62) and the predicative POSS construction itself is compatible with an array of adverbial modifiers (63), including members of the class of manner adverbials that are expressed in ASL through mouth gestures concurrent with the manual production of the verb (63b).

(62) $_{i}$DOG KICK$_{j}$ / $_{(i)}$POSS$_{j}$ $_{j}$BRUNO
The dog kicked / belongs to Bruno.

(63) a. $_{i}$DOG OFTEN-PALM/REAL [$_{(i)}$POSS$_{j}$ $_{j}$BRUNO]
The dog often/really belongs to Bruno.

b. $_{i}$DOG [$\overset{\text{adv-mm}}{\overline{\ _{(i)}\text{POSS}_{j}\ _{j}\text{BRUNO}\ }}$]
The dog enjoys belonging to Bruno.

Moreover, as is found with verbal predicates in the language, predicative POSS is compatible with expressions of modality, tense, and aspect (64)—albeit restrictions that may arise as a consequence of the stativity of POSS (cf. Rathmann 2005), as in (64c)—and can serve as an embedded comple-

ment in both finite and non-finite environments (65). Furthermore, these combinatoric possibilities distinguish predicative POSS from genuine cases of predicate nominals in ASL (66).

(64) a. $_{i}$BOOK WILL [$_{(i)}$POSS$_{j}$ $_{j}$BRUNO]
The book will belong to Bruno.

b. $_{i}$BOOK [$_{(i)}$POSS$_{j}$ $_{j}$BRUNO] CAN
The book could belong to Bruno.

c. (i) *$_{i}$DOG $_{(i)}$POSS$_{j}$ $_{j}$BRUNO FINISH
The dog belonged to Bruno.

(ii) BRUNO DANCE / *KNOW HISTORY FINISH
Bruno danced/knew history

(65) a. $_{i}$DOG WANT [$_{(i)}$POSS$_{j}$ $_{j}$BRUNO]
The dog wants to belong to Bruno.

b. IX$_{i}$ THINK $_{j}$BOOK [$_{(j)}$POSS$_{k}$ $_{k}$BRUNO]
He thinks the book belongs to Bruno.

(66) $_{i}$BRUNO SELF-IX$_{i}$ DOCTOR FINISH
Bruno was a doctor.

Finally, POSS can serve as a fragment answer to a polar question (67), which, as observed by Padden (1988), is a characteristic of the syntactic distribution of verbs in ASL (68).

(67) a. y/n
IX$_{i}$ $_{i}$BOOK CL:B$_{i,\text{“stack-of-books”}}$ [$_{(i)}$POSS$_{j}$ $_{j}$CRAIG]
Do those books belong to Craig?

b. nodding
YES, [$_{(i)}$POSS$_{j}$]
Yes, they do.

(68) a. q
$_{2}$INDEX KNOW $_{i}$INDEX WOMAN
Do you know the woman?

b. hn
YES, KNOW
Yes, I do. (Padden 1988)

Conjointly with sharing their positional distribution, POSS also exhibits the morphological traits of verbs in ASL. This is evident in the compatibility of the POSS sign with two forms of morphological reduplication, each of which are transcribed below using the .RED(UPLICANT) convention familiar from descriptions of reduplication in spoken languages. The first of these involves reduplication of the spatial path movement of the verb (69a), as discussed by Fischer (1973) and Rathmann (2005). This path reduplication process results in a habitual interpretation, yielding in the case of POSS a construction that is commonly used in descriptions of an individual's character (69b), as first noted by Baker-Shenk and Cokely (1981).

(69) a. IX_{i} [INFORM.RED-HABITUAL$_{\text{j}}$] ABOUT PRESIDENT PLAN
He has a habit of informing [him] about the president's plans.[11]

b. $\text{TEASE}_{\text{pl-dist}}$ [POSS.RED-HABITUAL$_{\text{j}}$ $_{\text{j}}$CRAIG]
Teasing everyone is Craig's nature.

The second process of morphological reduplication compatible with POSS is the process of NOMINALIZING REDUPLICATION that is the focus of the next chapter. NOMINALIZING REDUPLICATION, initially discussed in Supalla and Newport (1978), reduplicates only a sub-part of the verbal form and its output displays rapid, reduced repetition with increased muscular tension of the articulators. Used in the formation of derived nominals in ASL, the process of NOMINALIZING REDUPLICATION is compatible with POSS, a pattern that may, based on the discussion of the following chapter, provide future insight into the decomposition of POSS.

(70) POSS.NMZ-RED $\longrightarrow$ POSSESSION

Finally, as was discussed above, POSS can exhibit spatial agreement with both the possessee and the possessor, a process that is parallel to regular transitive spatial agreement found on verbs in ASL.[12]

[11] Bracketing of [*him*] is used here to represent the null object of the ASL sentence.

[12] The term 'regular transitive spatial agreement' is used here to distinguish POSS from the class of so-called backwards verbs (e.g., INVITE) in ASL and other signed languages, wherein the base word order of the sentence remains unaffected (SUBJECT-VERB-OBJECT for ASL) but the spatial agreement on the verbal predicate is 'backwards': $_{\text{object-marker}}\text{VERB}_{\text{subject-marker}}$.

(71) IX$_i$ $_i$BOOK $_{(i)}$POSS$_j$ $_j$CRAIG
The book belongs to Craig.

(72) IX$_i$ $_i$HELP$_1$ NOT-YET START
He hasn't started helping me yet.

The ability to move between two discrete spatial locations is uniquely a property of the spatial behaviors of verbs in ASL. Adjectives, for example, may optionally be produced in the spatial location associated with the nominal they modify, but this, again, is only production in a single spatial location. Moreover, this spatial 'agreement' with adjectives is an entirely optional process, unlike the spatial agreement of POSS which must be obligatorily present for at least the possessor, a property that, as made clear below, also aligns POSS with verbs. Comparably, nouns in ASL can also be associated with a spatial location but, like adjectives, only a single spatial location. Moreover, nouns in ASL are the 'proprietors', so to speak, of their spatial location—that is, nouns head the referents associated with the spatial location. This, too, is quite unlike the spatial properties of POSS (and other verbs), which are obligatorily co-extensional with the spatial location of other items (their arguments). Thus, there is robust evidence for analyzing POSS as a verbal predicate in ASL, and the focus can now shift to a more detailed exploration of the verbal predicate structures headed by POSS.

2.4.2 *Belong*-Alignment: Possessor as Object

The proposal that POSS patterns, in terms of its argument structure, with *belong*-type verbs of possession also finds its support in the morpho-syntactic properties of POSS and the possessor and possessee whose possessive relation it mediates. Beyond the ability to appear in the sentence-initial canonical subject position of ASL, a position in which it precedes modals, tense markers, and pre-verbal adverbials, the possessee can be targeted for both subject raising (73a) and subject control (73b).

(73) a. VEGETABLE TEND-TO [POSS.RED-HABITUAL$_i$ $_i$CRAIG]
Vegetables tend to belong to Craig.

b. $_{i}$DOG WANT [$_{(i)}$POSS$_{j}$ $_{j}$BRUNO]
The dog wants to belong to Bruno.

Second, paralleling patterns observed for subject (74a) versus object (74b) agreement (Padden 1988) in ASL, spatial agreement with the possessee is optional, while spatial agreement with the possessor is obligatory (75).

(74) a. WOMAN $_{0}$GIVE$_{1}$ NEWSPAPER
The woman gave me a newspaper.

b. *WOMAN $_{i}$GIVE$_{0}$ $_{1}$INDEX BOOK
The woman gave me a book. (Padden 1988)

(75) IX$_{i}$ $_{i}$BOOK $_{(i)}$POSS$_{j}$ $_{j}$CRAIG
The book belongs to Craig.

Thus, like an object, the possessor obligatorily triggers agreement on POSS. Moreover, like a subject, the possessee only optionally triggers this agreement inflection. Furthermore, spatial agreement with the possessee is unavailable in the presence of other verbal inflections, such as the habitual marker of (73a), a pattern of markedness that also aligns possessee agreement with subject agreement (Padden 1988).

Third, comparable to what has been documented for object agreement, though not subject agreement, in ASL (Mathur 2000, Benedicto and Brentari 2004), the movement properties of spatial agreement with the possessor may inflect to encode dual, collective, and distributive plurality (76).

(76) a. BOOK POSS$_{j\text{-}k,pl\text{-}dual}$ $_{j}$JOHN AND $_{k}$CRAIG
The book belongs to John and Craig.

b. TWO-OF-THEM$_{j\text{-}k}$, BOOK POSS$_{j\text{-}k,pl\text{-}arc}$
The two of them, the book belongs to them.

c. EACH $_{i}$STUDENT POSS$_{i,pl\text{-}dist}$ $_{j}$BOOK CL:C$_{j}$,"thin book"
Each student's book is a thin book.

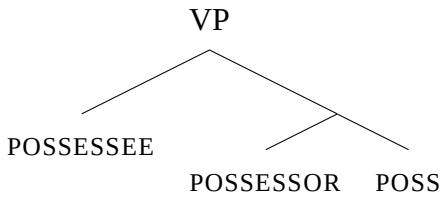
Moreover, plural inflection of POSS exhibits morpho-phonological restrictions peculiar to those of object inflection. As documented in (77a), pronominal forms can also be marked for dual, distributive, and collective plurality. Pronominal marking of collective plurality, however, includes two allomorphs of the collective plural: an arc-like movement and a circular movement. While both POSS and verbal object agreement markers can encode collective plurality via the arc-like plural marking, they both share the trait of being ungrammatical with the collective plural marker realized through circular movement, as documented in (77b)–(77c), a restriction that cannot be explained on phonological grounds alone.

(77)

a.	$IX_{pl\text{-}dual}$	$IX_{pl\text{-}dist}$	$IX_{pl\text{-}arc}$	$IX_{pl\text{-}cir}$
b.	$POSS_{pl\text{-}dual}$	$POSS_{pl\text{-}dist}$	$POSS_{pl\text{-}arc}$	$*POSS_{pl\text{-}cir}$
c.	$GIFT\text{-}TO_{pl\text{-}dual}$	$GIFT\text{-}TO_{pl\text{-}dist}$	$GIFT\text{-}TO_{pl\text{-}arc}$	$*GIFT\text{-}TO_{pl\text{-}cir}$

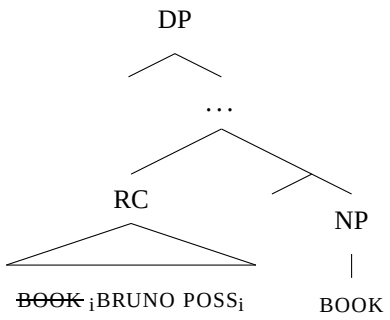
The availability of transitive spatial agreement on POSS provides general support for the verbal predicate analysis of POSS proposed here. However, it is the details of morpho-syntactic patterns and morpho-phonological exponence that support the specific verbal predicate analysis of POSS developed here: POSS patterns with *belong*-type verbs of possession, wherein the possessor patterns like a verbal object (internal argument) and the possessee patterns like a verbal subject.

(78)



In addition to its categorical support from the behaviors of verbal predicates in ASL, the verbal analysis of POSS provides a straightforward explanation for the appearance of POSS in attributive possessive constructions: attributive POSS can be introduced as a prenominal, reduced restrictive relative clause. Not only is this a cross-linguistically common means of introducing verbal modifiers in the nominal domain, it is an analysis that is well-supported in ASL, as will be discussed further in §2.3.

(79)



Several details of this relative clause structure are dependent upon the issues addressed in the next section: the components of the extended predicational domain that underly certain as yet unexplained properties of predicative POSS.

2.4.3 POSS VP and Its Neighbors

Patterns thus far discussed provide extensive language-internal support for the verbal analysis of POSS, though the base verbal structure of (78) remains as yet incapable of accounting for several details. The most surface apparent of these is the POSS-POSSESSOR order that is typical of the predicative POSS construction and, superficially, at odds with the base generated order of the underlying verbal structure. Furthermore, the core verbal structure above does not yet provide a means of syntactically encoding the patterns emerging with (in)definite possessors in predicative POSS: post-POSS possessors may be definite or indefinite, while the pre-POSS position appears to be restricted to definite possessors.

(80) a. IX$_i$ $_i$BOOK [POSS$_j$ $_j$WHO]
Who does that book belong to?

b. IX$_i$ $_i$BOOK [$_j$WHO POSS$_j$]
Who (out of a specific group of people) does that book belong to?

There remains also the issue of explaining why the possessive relation in predicative POSS structures (81) exhibits increased interpretive restrictions (cf. §2.3.3.1).

(81) a. GREEN $_{fs}$LEG [POSS$_i$ $_i$MONSTER]
The green leg belongs to the monster.

#A leg of the monster is green (inalienable possession)
✓A leg in the monster's pile of legs is green (alienable possession)

b. BOOK POSS$_i$ $_i$BRUNO
The book belongs to Bruno.

#Bruno wrote it (authorship)
✓The book belongs to Bruno and I borrowed it (ownership)

These patterns, and the data that illustrate them, are the focus of the present section, wherein the structural complexities of (61) are discussed and defended. Additional defense of these structural components will be found in the details of the attributive relative clause structure, where it becomes clear that the structural components necessary to account for the patterns of predicative POSS also capture the patterns of the attributive POSS construction, even where the behaviors of these two structures diverge.

2.4.3.1 The Locative Neighbor: Restricting POSS

As described above, the possessive relations possible in predicative POSS constructions form a proper subset of those possible in attributive POSS constructions. Comparable patterns have documented in other languages (Partee and Borschev 2003, Yang 2005) and, despite variation in the details of the structures studied, a clear and robust generalization nevertheless emerges: one class of possessive structures (here, attributive POSS) permits a more flexible interpretation of the possessive relation, while another allows only a "strict possession" interpretation. Following the discussion at the outset of this chapter, the flexible interpretation of the possessive relation can be construed conceptually as an extension of the "ownership" or "control over" relation. The "strict possession" restriction, thus, refers to the refers to the requirement that the possessive relation lie within or, at least, closer to the more canonical conceptual notion of "possession".

Given that the "strict possession" restriction emerges only in certain structural environments (here, predicative POSS), it is clear that the restriction is a structure-dependent one. In certain purely semantic approaches to possession (Barker 1995, Partee 1987, Partee and Borschev 2003),

this dependency is encoded as a matter of brute force listing of the structural environments that give rise to "strict possession". The problems facing such an analysis lie not only in its ultimate failure to provide an explanatory or predictive account of the structures exhibiting the "strict possession" effect but also in the fact that positing such an analysis is tantamount to positing lexical ambiguity of the possessive marker (82).

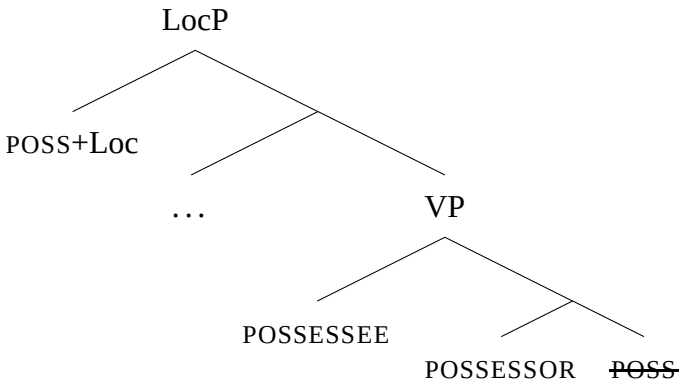
(82) a. $[_{\text{Attributive}}\ \text{POSS}_{\text{R-'flexible'}}\ ]$

b. $[_{\text{Predicative}}\ \text{POSS}_{\text{R-'strict'}}\ ]$

As such, an analysis of this type undermines the very goal of providing a parsimonious account of the morpho-syntactic overlap between attributive and predicative POSS constructions. Therefore, this shall not be the approach defended here.

Rather, building on the verbal analysis of POSS developed thus far, the approach defended at present derives the "strict possession" restriction as a consequence of the predicational environment into which the verbal POSS structure is introduced. Specifically, once the verbal POSS structure has been built, it is embedded as the complement to a locative predicate, the result of which is a 'reigning in' of the possessive relation denoted by POSS itself (82).[13]

(83)



The semantic contribution of the locative predicate is the natural one, that the possessee is 'lo-

[13]Though presented here as an instance of head movement of POSS to LocP, the present analysis does not hinge on this being the structural means by which the POSS-Loc relation is established. As such, the structure presented here in (83) and in the subsequent discussion may be viewed as a schematic of the structural configuration that gives rise to "strict possession" interpretations of predicative POSS.

cated at' the possessor. In combination with the possessive relation contributed by POSS itself (POSS+LOCATED AT), the semantics of "strict possession" emerge in the predicative POSS structure. In §2.5.2, relativization prior to the merger of this locative predicate will be held accountable for the absence of the "strict possession" restriction in attributive POSS structures. Moreover, it is the presence (or absence) of the locative predicate and its subsequent structural merger with POSS that can account for the default POSS-POSSESSOR and POSSESSOR-POSS word order patterns of predicative and attributive POSS structures, respectively.

Beyond capturing the structural and interpretive properties of POSS possessives, the locative predicate in (83) also provides a locus of unification between POSS possessives in ASL and the locative possessive structures common in other languages (Benveniste 1966, Freeze 1992). More compelling, however, is that the locative predicate in (83) is independently evident in the grammar of ASL, both within and beyond the domain of possessives. In a proposal that has been adopted by much subsequent research, Kegl 1976 argues that incorporation of locative structure underlies the class of predicates known as 'spatial verbs' (84) in the ASL literature, predicates which, like POSS, exhibit word order flexibility between the object and the verb (Liddell 1980, Chen Pichler 2001).

(84) a. $_1$INDEX $_i$WALK$_j$
I walked from here to there.

b. $_1$INDEX $_j$WALK$_k$
I walked from there to there.

c. $_1$INDEX $_j$WALK$_i$
I walked from there to here. (Padden 1988)

Independent support for the locative nature of POSS predicates is also found in the domain of WH-questions. Though it is possible to question the possessor of a POSS predicate using the argumental WH-word WHO, the data in (85) reveal that POSS predicates also serve as felicitous responses to locative WHERE questions in ASL.

(85) a. wh
AIRPLANE WHERE
Where is the airplane?

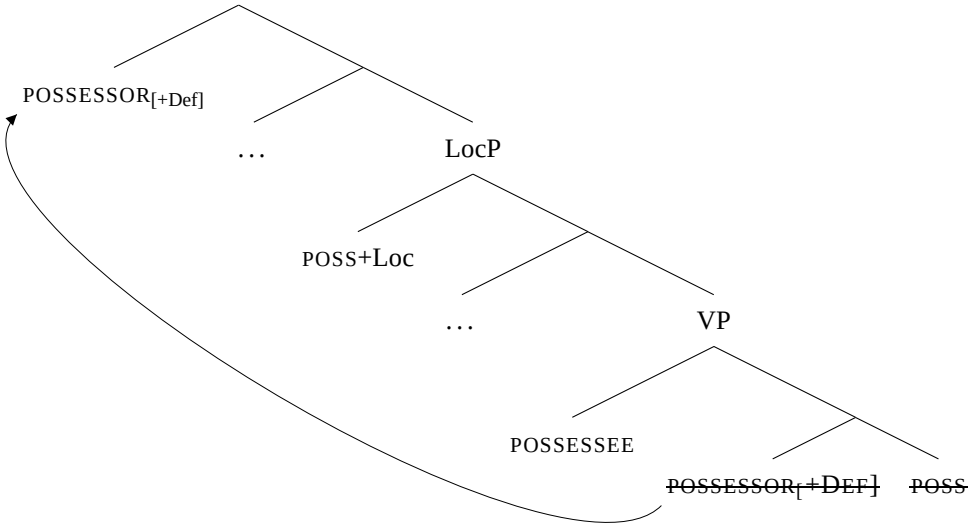
b. POSS_i $_i$BOY
It's the boy's/with the boy/at the boy.

Thus, the locative predicate that embeds predicative POSS is not only structurally well-motivated but captures semantic patterns beyond the "strict possession" restriction.

2.4.3.2 The Definite Neighbor(s): Restricting the POSSESSOR

Though the structure and distribution of definite nominals in ASL is and shall remain a topic warranting further investigation, the POSS data above, in conjunction with the ASL word order variation Fischer (1990) analyzes as low topicalization, nevertheless suggests that nominal distribution in ASL parallels a cross-linguistically robust pattern: definite nominals are displaced to structural positions higher than those occupied by indefinite nominals. In terms of surface patterns, this displacement (86) underlies the definite interpretation associated with possessors appearing in the pre-POSS (pre-V) position, as indicated by the obligatorily D-linked interpretation of the WH-possessor in (87).

(86)



(87) IX_i $_i$BOOK [$_j$WHO POSS_j]
Who (out of a specific group of people) does that book belong to?

What remains to be accounted for, however, is that while the pre-POSS position is obligatorily associated with a definite interpretation of the possessor, the possessor following POSS may be

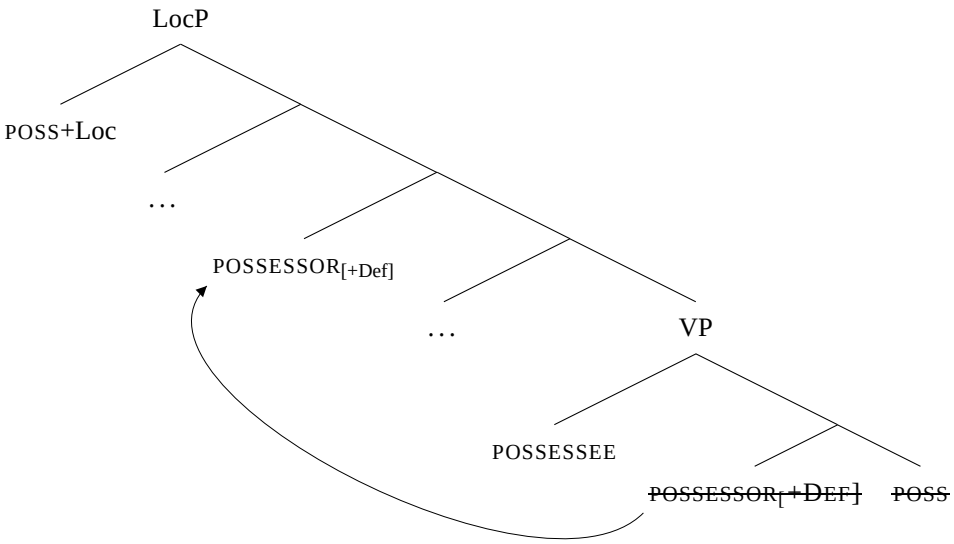
definite (88b) or indefinite (88a), as is generally true of post-verbal objects in ASL.

(88) a. BOOK POSS$_i$ $_i$TEACHER
The book belongs to a teacher.

b. BOOK POSS$_i$ $_i$BRUNO
The book belongs to Bruno.

Rather than positing ambiguity in the positional interpretation of the post-verbal domain, the present analysis attributes the appearance of definite possessors following POSS to the existence of a second position targeted by definite objects that is lower in the verbal domain (89). At present, I do not pursue the all together natural, and cross-linguistically supported, extension of this structural proposal, wherein all arguments surface overtly in positions distinct from those in which they were first merged, including indefinite objects. Note, however, that the analytic claims made here do not rest on the *in situ* status of the internal argument.

(89)



The movement of the definite possessor, *qua* a definite object, to this position—movement that is, given our current inventory of diagnostics—does not affect its post-POSS (post-verbal) position, thus accounting for the (in)definite ambiguity of the post-verbal domain. Moreover, the existence of these distinct structural targets for definite possessors is necessitated not only by the patterns attested in the predicative POSS structure but also by those documented in attributive uses of POSS, as will be discussed in the following section. Before examining, in detail, the relative clause

structures underlying attributive POSS however, an interim summary of the POSS properties thus far captured by the verbal analysis is presented in Table 2.2.

	DP Analysis	**VP Analysis**
Attributive POSS	DP Possessive	Relative Clause
Quantificational Variability	No	[—]
Interpretive Restrictions	Unclear	Yes
Word Order & Definiteness	Unclear	[—]
*WH-possessors	No	[—]
*Transitive Agreement	No	[—]
Predicative POSS	Predicate Nominal	Verbal Predication
(Stricter) Interpretive Restrictions	Unclear	Yes
Word Order & Definiteness	Unclear	Yes
✓WH-possessors	No	Yes
✓Transitive Agreement	No	Yes

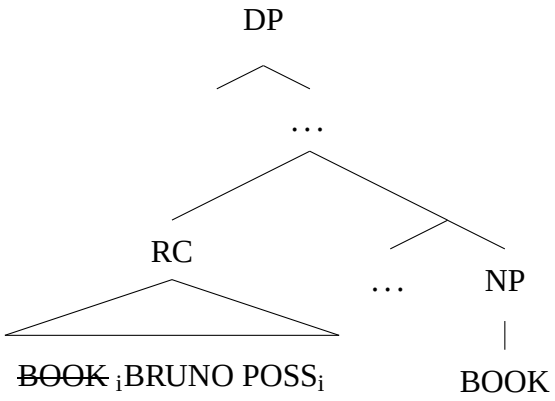
Table 2.2: First evaluation of VP Analysis with respect to POSS properties documented.

2.5 Making Predicates Attribute: Analysis of Attributive POSS

The verbal analysis of POSS defended above is well-motivated given the morpho-syntactic properties documented here, not least of which is the appearance of POSS in predicative constructions. This is the task of the present section is to detail how attributive POSS structures are derived from the underlying verbal predicate structure of predicative POSS via a process of reduced relative clause formation. For expository purposes, I adopt, without comment, an externally headed analysis of relative clauses and assume that reduced relative clauses such as those investigated here are introduced as prenominal modifiers and connected to the modified noun via matching, with the crucial observation being that the possessee follows any structural material internal to the attributive POSS relative. This approach, schematized in (90), is taken so as to make entirely transparent the components of the attributive POSS relative clause modifier. For the reduced subject relative clause structures underlying attributive POSS, however, a change in these analytic details (e.g., internal headedness, raising vs. matching) does not have any foreseeable effects on the observations

made here.[14]

(90)



2.5.1 Arguments for Relativization

Initial arguments in favor of the relative clause analysis of attributive POSS comes from the realm of theoretical parsimony. The relative clause analysis provides a means of accounting for the derivational relationship between the two uses of POSS and does so through appeal to the linguistically natural pattern of introducing verbal modifiers into the nominal domain through relative clause formation. In addition to these general arguments, however, there are several arguments from within the grammar of ASL to support the relative clause analysis of attributive POSS.

First, participial-like modifiers, which, though previously unexplored for ASL, are also derivable through relative clause formation, can appear pre-nominally just as attributive POSS does:

(91) [[DANCE] BOY], GIRL PUNCH[15]
The girl punched the dancing boy/boy that's dancing.

Second, the restriction against WH-possessors found only with the attributive POSS construction can be attributed to a Relative Clause Island Effect (92), as relative clauses do trigger *in situ* WH-

[14]The diagnostics proposed to distinguish between matching and raising (Brame 1968, Schachter 1973, Vergnaud 1974, Kayne 1994:cf. a.o.) depend on the interpretation of the relative clause head with respect to scope and reconstruction effects. Effects of this sort have yet to be identified in ASL and, as such, cannot be used here. Though see Lillo Martin (1991), Schlenker and Mathur (????) for evidence of crossover effects in ASL and Sportiche (2012) for a recent discussion of reconstruction effects within a proposal in which all relatives are formed by promotion.

[15]The repeated, atelic nature of DANCE (cf. Chapter 3) makes difficult any further morpho-syntactic analysis of its use as a pre-nominal modifier, though see Padden and Perlmutter (1987) and Brentari (1998) for a discussion of trill-like internal movements used to derive 'activity' nominals from atelic verbal forms.

island effects in ASL (see Abner (2011) and references therein).

(92) *IX$_i$ [$_{RC}$ $_j$WHO POSS$_j$] $_i$BOOK
Whose book is that?

Third, the relative clause structure of attributive POSS provides a straightforward account of the quantificational properties of attributive POSS discussed above. Because attributive POSS is introduced as a relative clause, it functions as an intersective modifier and, as such, does not determine the quantificational force of the nominal it modifiers. This explains the absence of a uniqueness presupposition in (93), discussed above, and the availability of both maximal and non-maximal interpretations of attributive POSS in (94), though derived maximality effects are discussed later.

(93) [$_i$JOHN POSS$_i$ TWO BOOK] GREEN UNDERSTAND-CONJ THREE BLUE
Two books of John's are green, but three are blue.

(94) $_i$CRAIG POSS$_i$ THREE COMPUTER BREAK
Three computers belonging to Craig broke.

✓Craig has three computers
✓Craig has more than three computers

Further evidence that attributive POSS functions as an intersective modifier and as such fails to determine the quantificational force of the attributive possessive structure comes from the domain of definiteness effects. The example in (95a) illustrates the ASL equivalent of a presentational-*there* sentence in English—the environment in which definiteness effects are most canonically observed. As documented in (95b), these HAVE sentences in ASL do parallel their English counterpart in being susceptible to definiteness effects. However, these definiteness effects do not arise with the attributive POSS construction in (95c), a structure that was independently suggested by a consultant as a means of 'fixing' the sentence in (95b).

(95) a. IX$_i$ $_i$GARDEN HAVE FLOWER
There are flowers in the garden.

b. *IX$_i$ $_i$GARDEN HAVE EACH GIRL
There is each girl in the garden.

c. IX$_i$ $_i$GARDEN HAVE EACH $_j$GIRL POSS$_{j,dist}$ SHOE
There are shoes of each girl in the garden.

Thus, the relative clause analysis of attributive POSS receives support from the distributional patterns of other relative clause modifiers in the language. Moreover, the relative clause analysis of attributive POSS accounts for the restriction on WH-possessors observed in this construction and provides an account of the quantificational interpretations that attributive POSS constructions receive. In the following section, the relative clause structure involved in the attributive POSS construction is addressed in more detail, providing a means of capturing the remaining properties of attributive POSS documented above.

2.5.2 Moving, Doubling, and Disappearing: The Reality of POSS Structures

Relativization unexceptionally derives attributive possessives of the POSSESSOR-POSS form and, in doing so, generates appropriate quantificational interpretations and rules out attributive uses of WH-possessors. Nevertheless, the relative clause structure schematized in (90) is, thus far, insufficient in terms of surface patterns generated and possessive interpretations distinguished. Under-generation of surface patterns is exemplified by the as yet unexplained appearance of 'pronominal' POSS (96) as well as those non-'pronominal' uses of attributive POSS that stray from the POSSESSOR-POSS form (97).

(96) POSS$_i$ BOOK
A book of his

(97) POSS$_i$ $_i$BRUNO BOOK
A book of Bruno's

Moreover, given the discussion in §2.4.3.1, the problem of under-generation is also evident in the failure to distinguish the 'owner' and 'author' interpretations of examples like those (96) and (97). These issues are resolved below by adopting a more sophisticated perspective on the relative clause structure and its interaction with other aspects of the VP and DP.

2.5.2.1 Pronominal POSS: Disappearance in the DP and VP

Descriptively, pronominal POSS structures arise when, instead of producing the 'full' attributive POSS structure (98a), the signer leaves unexpressed either the possessor (98b), the possessee (98c), or both (98d).

(98) a. $_{i}$BRUNO POSS$_{i}$ BOOK
A book of Bruno's

b. POSS$_{i}$ BOOK
A book of his

c. $_{i}$BRUNO POSS$_{i}$
A [thing] of Bruno's

d. POSS$_{i}$
His

Such patterns, as noted earlier, underly both the traditional description of POSS as a possessive pronoun as well as MacLaughlin's 1997 subsequent formal analysis of POSS as a possessive determiner. A DP-internal pronominal analysis of the structures in (4b)–(98d) is problematic for the otherwise parsimonious account of predicative and attributive POSS structures developed here. Within the grammar of ASL, however, there are independently-attested mechanisms that license unexpressed (null) nominal structure and these mechanisms provide a natural explanation for the pronominal-like behavior of the above construction, without recourse to other grammatical mechanisms for introducing POSS.

Focusing first on the null possessor structures in (98b) and (98d), recall that their structural core is that of a verbal predicate, headed by POSS, a transitive verb that can express its transitivity spatially. As discussed in Lillo-Martin (1986), the presence of spatial agreement on the verb is one means of licensing null arguments in ASL (99).

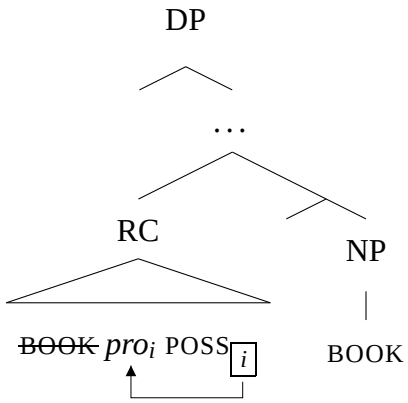
(99) a. Did John send Mary the paper?
(In which John has been established at *a* and Mary at *b*.)

b. $_{a}$JOHN KNOW-WELL PAPER FINISH $_{a}$GIVE$_{b}$
John$_i$ knows (he$_i$-) gave the paper to (-her). (Lillo-Martin 1986)

Thus, the presence of spatial agreement on POSS licenses the null possessor as a run-of-the-mill case of a null (object) argument, as represented in (100b) by the pro_i in the possessor position. The null status of the possessor, licensed internal to the verbal predicate structure of POSS, yields the observed surface pronominal patterns once this verbal predicate structure has been relativized to form the attributive POSS modifier.

(100) a. POSS_i BOOK
A book of his

b.



The licensing of null possessors internal to the predicative structure of POSS is also evident in predicative POSS constructions with null possessors (101).

(101) CRAIG BECOME-ANGRY$_{\text{intensive}}$, SAY
HORSE POSS_2, HORSE POSS_1 NOT
Craig got really angry and said "the horse is yours, not mine!"

Turning next to the null possessee structures in (98c)–(98d), note first that here, too, the verbal structure of POSS may play a role, as null possessee subjects are also licensed in predicative POSS constructions even when the possessee (subject) agreement marker is absent (102), as is obligatorily the case in attributive POSS.

(102) a. y/n
IX_i $_i$BOOK CL:B_i,"stack-of-books" POSS_j BRUNO
Does that stack of books belong to Bruno?

b. YES, POSS_j
Yes, it's his.

Given that a variety of prenominal modifiers in ASL license ellipsis of the nominal they modify, a DP-internal source for these null possessee constructions also exists. Nominal ellipsis constructions suggest themselves first in the research of Boster (1996), who discussed topicalized nominals and their *in-situ* quantificational modifiers (103).

(103) a.
t
✓BOOK I WANT THREE.
I want three books.

b.
t whq
✓BOOK YOU WANT WH-MANY
How many books do you want? (Boster 1996)

However, comparable null nominal structures are also available in the absence of topicalization and with non-quantificational modifiers. The null possessee in (98c)–(98d) may, then, arise as a result of nominal ellipsis licensed by prenominal modification by attributive POSS, on a par with other nominal ellipsis constructions.

(104) a.
$_{i}$BRUNO POSS$_{i}$ ε_{N}
A [thing] of Bruno's

b.
POSS$_{i}$ ε_{N}
His

These observations demonstrate the reducibility of 'pronominal' POSS structures to independent properties of the predicative (null argument licensing) and nominal (nominal ellipsis) domains. As such, not only do these 'pronominal' structures remain unexceptional under the verbal analysis of POSS, they can now be viewed as independent evidence of this analysis.

2.5.2.2 Loci of Relativization: Implications for Attributive POSS

Save for the above-mentioned role of verbal agreement in the licensing of null possessors, the detailed structure of predicative POSS has yet to be explored with respect to its implications for the relative clause structure underlying attributive POSS constructions. As such, the relative clause structures schematized thus far fail to distinguish, syntactically, the 'strict' and 'flexible' interpre-

tations of the attributive possession relation.

(105) a. $_{i}$BRUNO POSS$_{i}$ BOOK
A book of Bruno's

✓He owns it (owner)
✓He wrote it (author)

b. $_{i}$MONSTER POSS$_{i}$ ARM
An arm of the monster('s)

✓A part of his body (inalienable)
✓Bounty from his kills (alienable)

Moreover, the structures thus far examined fail to capture not only the availability of the POSS-POSSESSOR order (106b) but also the definiteness patterns of word order variation in the attributive structure.

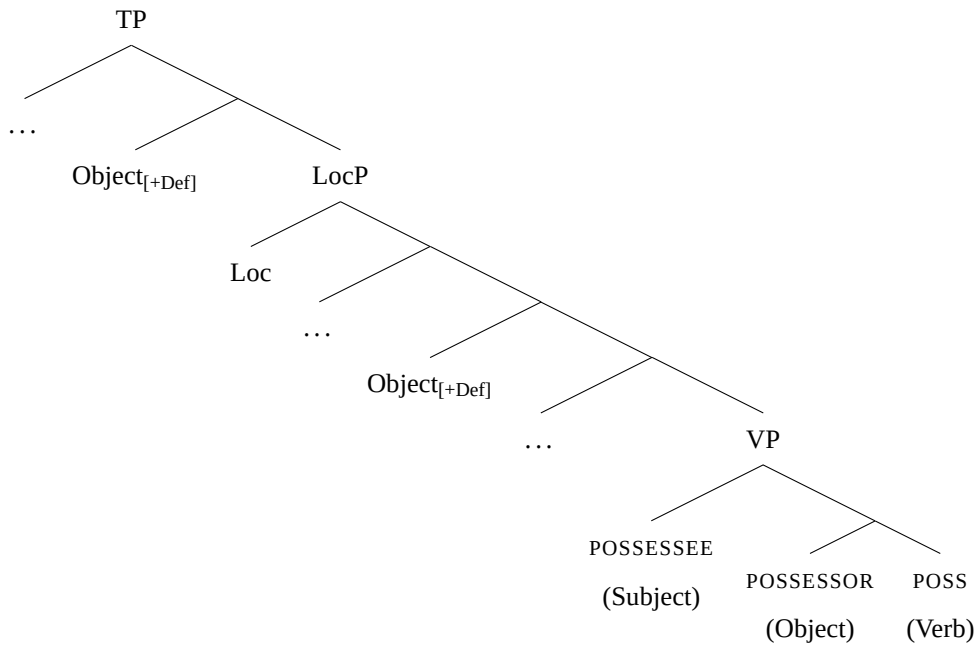
(106) a. $_{i}$TEACHER POSS$_{i}$ BOOK
A book of a/the teacher's

b. POSS$_{i}$ $_{i}$TEACHER BOOK
A book of #a/the teacher's

This, however, is not a shortcoming of the relative clause structure as such, but rather a consequence of the simplified structures appealed to thus far. Once the complexities of the predicative POSS construction are carried over to the attributive domain, as they invariably must be, the attributive patterns above follow straightforwardly. The proposal hinges on the following hypothesis:

(107) The size of the predicative POSS structure (108) targeted for attributive relativization can vary.

(108)



That is, relative clauses come in different sizes. As will become clear, by allowing the predicative structure relativized to vary, not only are the attributive POSS patterns accounted for, but they are accounted for via a remarkably direct mapping from predicative to attributive structures.[16] The presentation proceeds bottom up and, for presentational purposes, abstracts away from details of the nominal and clausal structure that are irrelevant for present purposes.

[16]The discussion here focuses only on the structural components identified in §2.4.3, leaving open the possibility that there are additional aspects of clausal structure—an inevitability given the current state of our knowledge of language, in general, and ASL, specifically—that are relevant to the analysis of attributive POSS. Suggestive evidence of one such aspect of clausal structure concerns the distribution of the sign glossed as BEFORE-EAR in (i)–(iii) below. Produced with a backwards sweeping motion at the ear, the sign is used as a marker of anteriority in the clausal domain (i)–(ii). What is relevant here is that the sign can also be used in attributive POSS constructions (iii) as a modifier of both the possessee and the possessive relation. The data, however, are inconclusive given that it is not yet clear if BEFORE-EAR can surface in other positions in the attributive POSS structure or if it is compatible with non-possessed nominals.

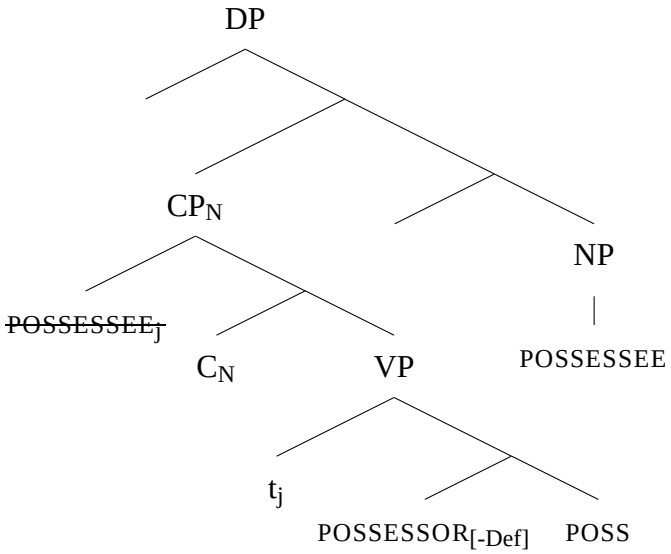
(i) BABY DOG BEFORE-EAR [POSS_i $_i$BRUNO] FINISH $_i\text{GIVE}_{\text{ND},j}$ $_j$CRAIG
The puppy used to belong to Bruno, but he gave it to Craig.

(ii) DOG BEFORE-EAR [BABY] NOW CL:BB“increase-in-size”
The dog was a puppy but now it's big.

(iii) [$_i$KING POSS_i BEFORE-EAR CASTLE]
A former castle of the king's
✓ Formerly a castle, though now just a pile of rubble
✓ Formerly the king's, though now belongs to someone else

Relativization at the 'bottom' of the predicative structure would target the verbal core of the POSS possessive.

(109)



= (110)

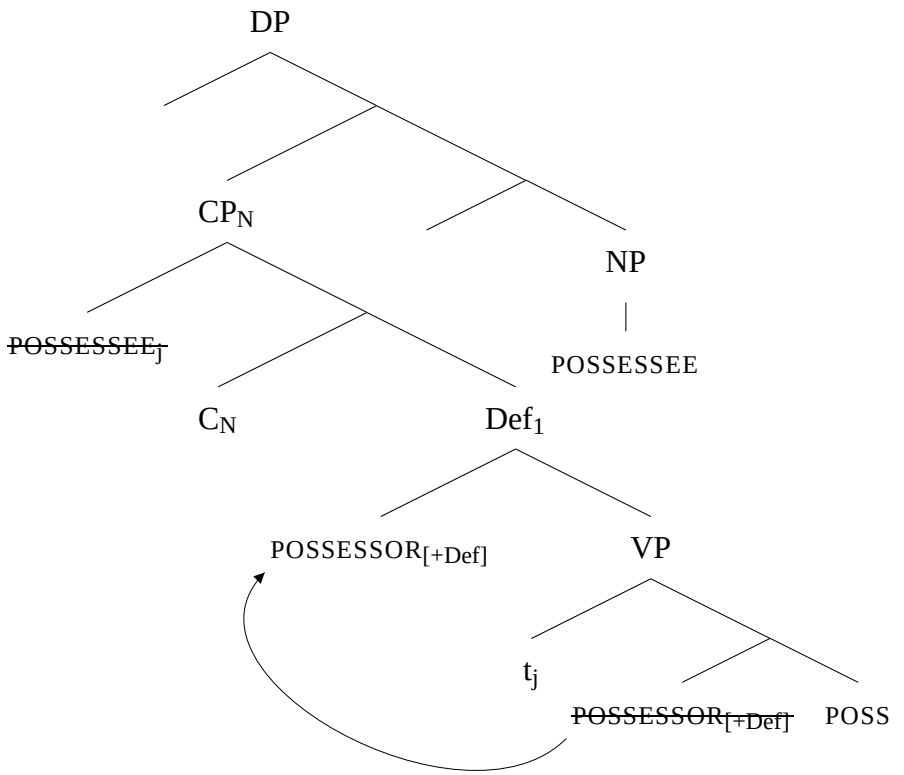
Given the pre-verbal merge site of the possessor, the POSSESSOR-POSS order is generated (110). Moreover, the possessive relation has not yet been restricted by the introduction of locative structure and so the interpretation is that of 'flexible' possession. Finally, because the verbal structure targeted does not yet contain a position for licensing definite objects, the possessor in this structure must be an indefinite.

(110) [$_{RC\text{-}VP\ i}$TEACHER$_{[-Def]}$ POSS$_i$] BOOK
A book of a teacher's

✓He owns it (owner)
✓He wrote it (author)

If, however, relativization targets a slightly larger structure, a definite possessor can be licensed, though the word order and interpretation of the attributive structure remain unaffected (112).

(111)



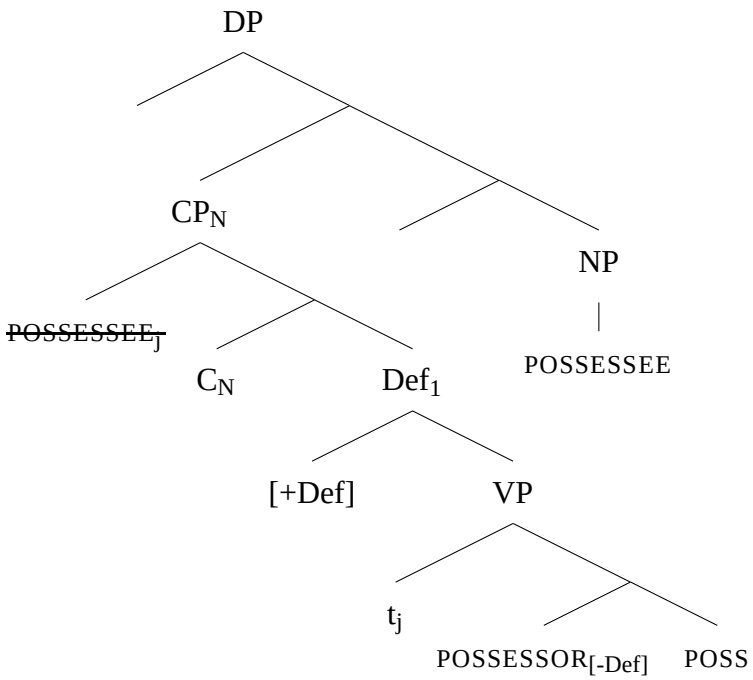
= (112)

(112) [$_{\text{RC-Def}_1}$ $_i$TEACHER$_{[+Def]}$ POSS$_i$] BOOK
A book of the teacher's

✓He owns it (owner)
✓He wrote it (author)

Given that nominals in ASL may be unmarked for definiteness, these patterns provide initial evidence for structural ambiguity underlying the attributive POSS construction. The surface forms in (110) and (112) are identical. The structures that generate them, however, are not, as was also argued above to be the case for indefinite and definite post-verbal possessors in the predicative POSS structure. Strictly speaking, this ambiguity is not a priori contingent on the size of the relative clause structure, as nothing prohibits relativization of the larger structure above albeit with an indefinite possessor (113). The predicative structure, in this case, will just not have a definite object to license.

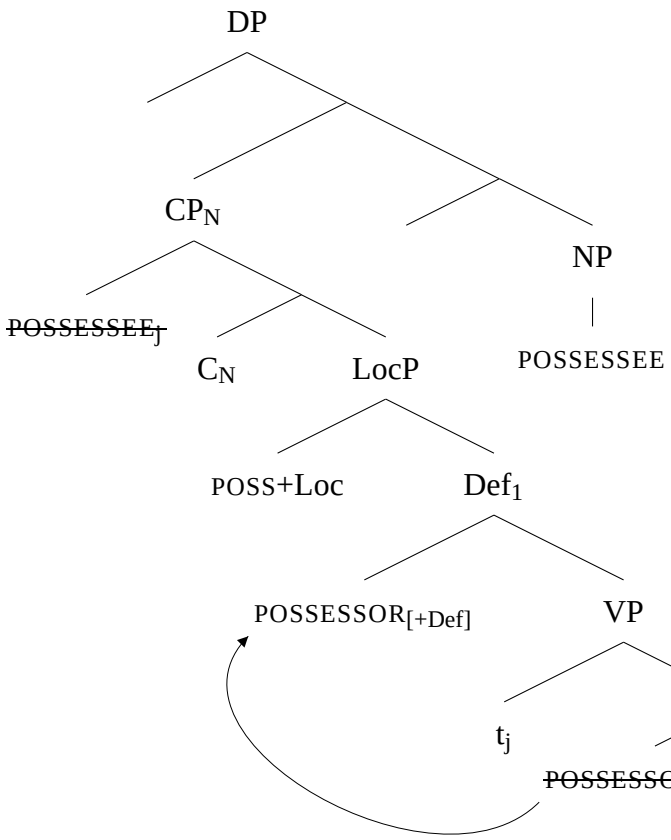
(113)



= (110)

Setting this issue aside, the next component of the predicative structure relevant is the locative projection responsible for restricting the possessive relation. Given the posited role of the locative projection in capturing the default POSS-POSSESSOR order of the predicative construction, relativization of the locative projection should also trigger this word order shift in the attributive structure (114).

(114)



= (115b)

As evidenced in (115b), this prediction is borne out: POSS-POSSESSOR order in the attributive construction is associated with the same "strict possession" requirement found in the predicative structure.

(115) a. [RC-Def$_1$ $_i$MARK-TWAIN POSS$_i$] BOOK
A book of Mark Twain's

✓I saw it at The Mark Twain Boyhood Home & Museum (ownership)
✓*Adventures of Huckleberry Finn* (authorship)

b. [RC-LocP POSS$_i$ $_i$MARK-TWAIN] BOOK
A book of Mark Twain's

✓I saw it at The Mark Twain Boyhood Home & Museum (ownership)
#*Adventures of Huckleberry Finn* (authorship)

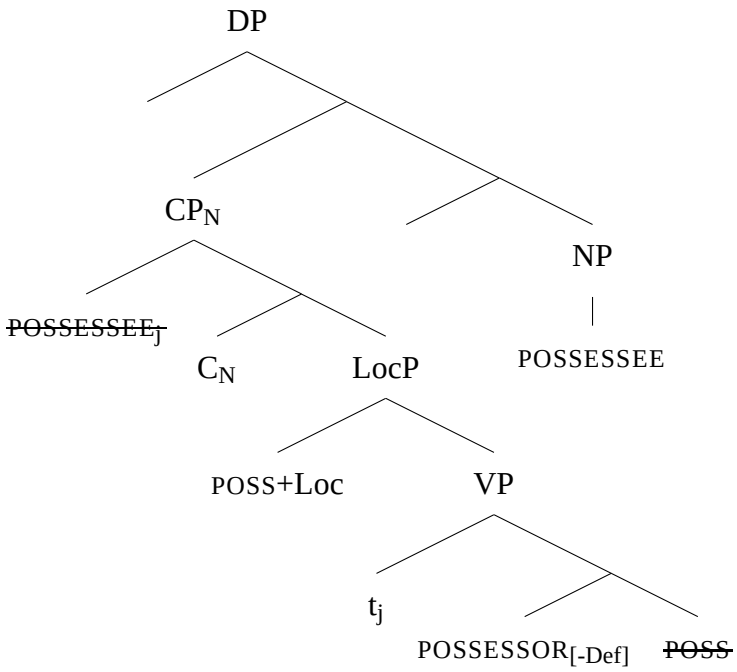
As is explicit in the structure in (114) and also evident in the use of the proper name MARK-TWAIN in (115b), the possessor in this structure is definite. In fact, it must be. What remains unaccounted for, then, is the other pattern associated with POSS-POSSESSOR order in the attributive

structure: the ban against indefinite possessors in the post-POSS position (116).

(116) [RC-LocP POSS$_i$ $_i$TEACHER] BOOK
A book of #a/the teacher's

That is, setting aside the issue of whether or not an unused position for definite objects is present, why is a structure like that in (117) not a possible output of the grammar?

(117)



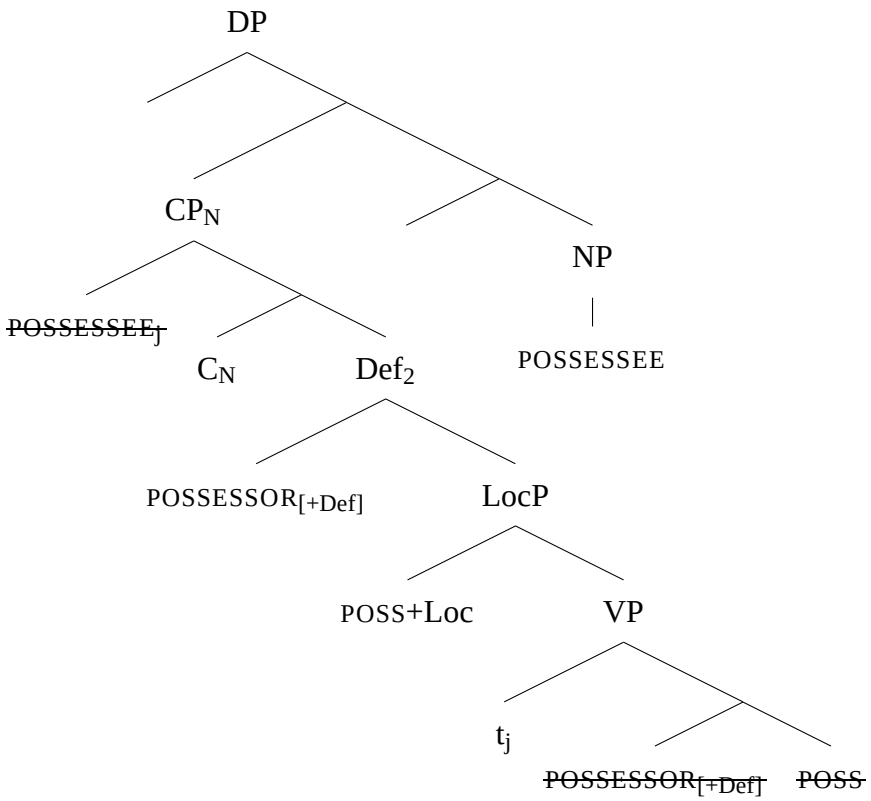
At present, I do not have an explanation for this observed restriction. Though the puzzle shall remain open, its existence nevertheless provides indirect support for an analysis of the type developed here. While it is unclear why only a definite possessor can surface in this structure, two aspects of the structure are made clear in the present analysis. First, it is clear that the present analysis can generate a definite possessor in the post-POSS position of the attributive structure. Thus, the analysis has the potential to account for the otherwise surprising empirical pattern of disallowing indefinites in low structural positions. Second, despite not yet having an explanation for this pattern, the analysis nevertheless makes clear where the explanation will ultimately be found. In providing principled analyses of the POSS structures thus far accounted for, the present approach also provides principled restrictions on the analyses that can be entertained for the POSS

structures left unaccounted for. If an indefinite possessor is ungrammatical in the post-POSS position of attributive POSS structures only, then the answer must lie in the mechanisms responsible for licensing indefinite post-POSS possessors in the predicative POSS structure and the unavailability of these licensing mechanisms in the attributive structure. The analysis will, therefore, hinge on precise identification of the low structural position (or positions) in which indefinite possessors (objects) are found and how this position interacts with the structural position(s) of POSS and the possessee (subject), as locality effects in extraction from the low domain may also play a role. Therefore, as has strikingly proven time and again to be the case, the answer to this attributive puzzle will be found in the structure of predicative possessives.[17]

Returning to the components of predicative possessives that have been clearly identified, there remains, still, one additional structural layer that may be targeted for attributive relativization: the higher position in which definite objects may be licensed. With respect to predicative POSS structures, a second position for definite object licensing was necessitated by the appearance of unambiguously definite possessors in the pre-POSS position. Setting aside, again, the issue of whether or not the lower position for definite objects is also present—and, if so, whether it serves as an intermediate landing site for definite possessors that precede POSS—(118) presents the attributive relative clause generated from this structural layer.

[17]Though this will, ultimately, affect other structural details, the consequences are likely to be minor, leaving in tact the empirical and analytic generalizations made here.

(118)



= (119)

The interpretive and structural patterns that should result from this relativization site are clear. The possessive structure will display POSSESSOR-POSS order, the possessor will be obligatorily definite, and the possessive relation will be that of "strict possession":

(119) [$_{\text{RC-Def}_2}$ $_i$TEACHER$_{[+Def]}$ POSS$_i$] BOOK
A book of the teacher's

✓He owns it (owner)
#He wrote it (author)

Note, however, that the surface form of (119) is identical to that in (112), illustrating once more the crucial insights offered by the predicative construction, as it is only in the predicative POSS structure that these two positions are easily distinguished. Teasing apart the structural ambiguity underlying the possessives in (112) and (119) is further complicated by the fact that the only difference between them, given the current inventory of diagnostics, is that the possessive in (119) will exhibit only the "strict possession" interpretation, an interpretation that, unless stipulated oth-

erwise, is subsumed by the 'flexible' interpretation of the possessive relation in (112). Here, too, further investigation of the predicative structure may be of use, as overt material surfacing between these two definite positions in the predicative structure, if it can be found, may also serve to distinguish them in the attributive structure.

Before closing this section, there are two remaining, and related, issues to be addressed. It is clear from the discussion above that a significant amount of the predicative structure may be present in the attributive relative clause, raising the issue of exactly how big this 'reduced' relative clause is. Though a conclusive answer to this question cannot, at this time, be provided, the issue of relative clause size relates to a core property of attributive POSS structures that has not yet been addressed: the inability to host spatial agreement with the possessor subject (120).

(120) $_{j}$BRUNO $_{(*i)}$POSS$_{j}$ $_{i}$BOOK ON TABLE
Bruno's books are on the table.

Thus, while the structural possibilities of the attributive relative clause cannot be definitively identified, the structural limitations can be: the attributive relative clause must be 'reduced to' a structure that is too small to contain subject agreement. Though this observation does yet settle the issue of 'reduced' relative clause size, the observation itself no doubt relates to the generalization that pre-nominal relative clauses are always smaller than their post-nominal counterparts in languages where the two co-exist. This, too, is evident in POSS structures, as post-nominal relative clause modification by POSS a structure that has been set aside to this point, can include transitive spatial agreement (121).

(121) IX$_{1}$ STUDY $_{j}$DOG $_{j}$POSS$_{i}$ $_{i}$BRUNO
I am studying/researching the dog that belongs to Bruno.

What I wish to establish by documenting these patterns here is that the distribution of subject agreement marking in these constructions, in combination with cross-linguistic generalizations regarding the structure of 'full' and 'reduced' relative clauses (cf. i.a. Cinque 2010), may provide the evidence necessary to identify where and how subject agreement is introduced in ASL. This would

not only resolve a long-standing problem in the syntax of ASL (cf. comments in §2.4.2)—though substantial research exists on verbal agreement in ASL and other signed languages, much of it focuses on the morpho-phonological exponence of verbal agreement or on other properties of the system that do not address directly how the agreement is syntactically encoded—but would pave the way toward using the presence of subject agreement as a syntactic diagnostic in ASL. Though the development of syntactic diagnostics is always a welcome result, this is especially true in a language like ASL, where language-specific diagnostics are altogether too rare and syntactic analysis is complicated by rampant word order variation, robust usage of null arguments and predicates, the absence of a case system, and the surface optionality of exhibited by many components of the grammar, in addition to other general and language-specific challenges faced in linguistic analysis.

2.5.2.3 Derived Maximality: Possessor Movement in the DP

The relative clause structures investigated above account for an array of interpretive patterns evidenced in the attributive POSS structure, including the general failure of attributive POSS to yield an obligatorily maximal interpretation of the possessed noun (122). Such variability is entirely expected, given that modificational material (the POSS relative clause) and functional material responsible for the determination of definiteness (DP) are independent components of the nominal structure that do not, by default, interact. Thus, attributive POSS structures may function, it seems, as definites or indefinites, with the associated variation also in how they are interpreted with respect to maximality.

(122) [$_i$JOHN POSS$_i$ TWO BOOK]
Two books of John's

✓The two books belonging to John
✓Two books belonging to John

There is, however, one environment in which this interpretive variability is not present, where an obligatorily maximal interpretation of attributive POSS is forced. This occurs when overt quantificational material, such as the numeral in (122), intervenes between the possessor and the re-

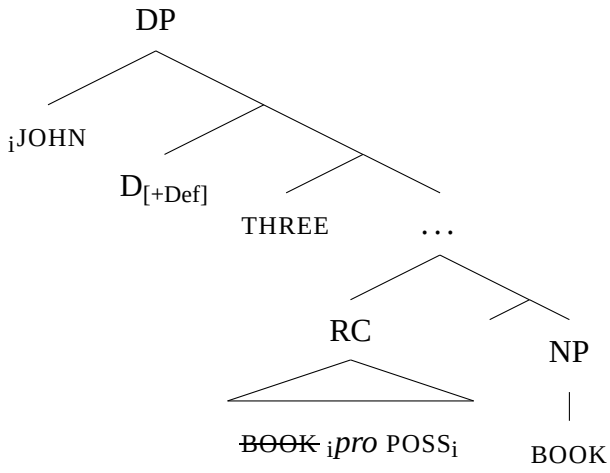
mainder of the attributive POSS structure, as is the case in (123).[18]

(123) [$_i$CRAIG THREE POSS$_i$ COMPUTER] BREAK
The three computers of Craig's broke.

✓Craig has three computers total
#Craig has more than three computers

Given that the failure of attributive POSS to interact with the DP layer of the nominal was held accountable for variation in definiteness of the attributive POSS structure in general, the proposal here is that an obligatorily definite interpretation must be the result of some component of attributive POSS interacting with the DP layer. Specifically, an obligatorily definite interpretation arises as a consequence of base-generating the possessor in a DP-peripheral (topic) position in which it 'activates' or checks definiteness of the possessed nominal. The possessor argument inside of the POSS relative clause, then, is a null pronominal co-referent with this base generated constituent, as schematized in (124), again setting aside details that are not relevant to the present observation.

(124)



[18]Another structure that naturally suggests itself here is that in which the quantifier precedes the remainder of the attributive POSS structure, as in (i)–(i) below.

(i) ???[THREE $_i$CRAIG POSS$_i$ COMPUTER] BREAK

(ii) ???[THREE POSS$_i$ $_i$CRAIG COMPUTER] BREAK

The interpretation of these structures could not be investigated here because these surface patterns were independently ruled out by consultants, who preferred, in these cases, to construe the numeral as quantifying the possessor.

It must be noted that this structure is not contingent upon the appearance of the overt numeral. Rather, the intervening numeral just serves to unambiguously indicate the DP-peripheral position of the possessor. DP-peripheral placement of the possessor is also possible in the 'un-quantified' structure and, moreover, its string ambiguous nature presumably underlies the quantificational variability of the attributive POSS possessive (125).

(125) $_{i}$JOHN POSS$_{i}$ BOOK
A/the book of John's

This proposal makes clear predictions that can be tested in future research. Because we can identify a structure—the intervening quantifier structure—that unambiguously yields a maximal interpretation, this structure should also give rise to otherwise unobserved definiteness effects. Thus, the analysis predicts that an example such as that in (126b), unlike that in (126a), should be ungrammatical. I have not yet been able to verify this prediction with consultants.

(126) a. IX$_{j}$ $_{j}$GARDEN HAVE $_{i}$JOHN POSS$_{i}$ BOOK
There are books of John's in the garden.

b. (*)IX$_{j}$ $_{j}$GARDEN HAVE $_{i}$JOHN THREE POSS$_{i}$ BOOK
There are the three books of John's.

This represents the last of the attributive POSS patterns to be discussed here, putting us in a position to evaluate the ultimate success of the VP analysis in accounting for the properties of predicative and attributive POSS possessives (Table 2.3).

2.6 On Juxtaposition and (Faux-)Cliticization

The discussion to this point has focused almost entirely on the empirical and analytic complexities of the attributive and predicative POSS structures. As was made clear in the descriptive overview in §2.2, however, the POSS structures analyzed here do not exhaust the grammatical mechanisms used for the expression of possession in ASL. Two other structures, identified in that earlier discussion, are also used to encode possessive meaning in ASL, predominantly in the attributive possessive

	DP Analysis	VP Analysis
Attributive POSS	DP Possessive	Relative Clause
Quantificational Variability	No	Yes
Interpretive Restrictions	Unclear	Yes
Word Order & Definiteness	Unclear	Yes
*WH-possessors	No	Yes
*Transitive Agreement	No	Yes
Predicative POSS	Predicate Nominal	Verbal Predication
(Stricter) Interpretive Restrictions	Unclear	Yes
Word Order & Definiteness	Unclear	Yes
✓WH-possessors	No	Yes
✓Transitive Agreement	No	Yes

Table 2.3: Final evaluation of VP Analysis with respect to POSS properties documented.

environment: JUXTAPOSITION (127a) and APOSTROPHE-S (127b).

(127) a. JUXTAPOSITION

BRUNO BOOK
A book of Bruno's

b. APOSTROPHE-S

BRUNO APOSTROPHE-S BOOK
A book of Bruno's

Before closing the present discussion, I shall turn briefly to these other possessive structures in the language. The limitations of the present investigation prevent the development of a detailed analysis of these alternative possessive structures and, thus, the discussion below focuses only on providing a more detailed descriptive discussion of these structures and identifying some of the empirical generalizations that have emerged and the analyses these generalizations might suggest.

2.6.1 Juxtaposition: Beyond POSS Dropping

The JUXTAPOSITION structure, analyzed by MacLaughlin as a consequence of the optional realization of POSS, is illustrated in (128).

(128) CRAIG PICTURE
A picture of Craig('s)

While a full analysis of this structure is outside the scope of the present research and is not, moreover, possible given the data currently available, it is nevertheless clear that JUXTAPOSITION cannot be analyzed as an instance of genuine allomorphy between POSS and a null possessive marker. This is evidenced by the fact that JUXTAPOSITION are neither semantically nor structurally interchangeable, as JUXTAPOSITION is available with WH-possessors and is compatible with possessive relations that cannot be expressed by POSS. Thus, the JUXTAPOSITION structure in (128), unlike POSS possessives, is compatible with a theme-like interpretation in which CRAIG is the individual depicted in the picture. Moreover, JUXTAPOSITION has been observed to be preferred with possessive structures headed by relational nouns (129), though more work is needed to uncover the exact set of nominals for which this preference emerges (130), especially as the pattern does not appear to be strictly reducible to an issue of animacy of the possessor.

(129) $_{i}$BOOK (*POSS$_{i}$) PAGE
A page of the book

(130) $_{i}$BICYCLE (??POSS$_{i}$) WHEEL

What these patterns suggest is that, unlike the possessor reading of POSS, JUXTAPOSITION seems to be the manifestation of a low genitive construction in the sense of Milner (1978) and Longobardi (2001). Further evidence that this is the appropriate generalization comes from the interpretation of possessed nominals in which POSS and JUXTAPOSITION co-occur. Thus, in (131) the POSS possessor JOHN is interpreted as an owner of the PAINTING (possessor), while the JUXTAPOSITION possessor is clearly playing the role of the painting author or agent, a lower genitive reading. Comparable patterns emerge in the nominalization structures discussed in Chapter 3, where POSS and JUXTAPOSITION display evidence of introducing higher and lower verbal arguments, respectively, though here too the data remains suggestive albeit inconclusive.

(131) $_{i}$JOHN POSS$_{i}$ PICASSO PAINTING
A painting of John's by Picasso

The low genitive status of JUXTAPOSITION finds further support from word order variability, as JUXTAPOSITION may introduce the genitive in postnominal position as well.

(132) a. PICTURE CRAIG
A picture of Craig's

b. KID NEIGHBOR
Kids of the neighbor's

While much further research is warranted in order to establish the range of structural and interpretive properties of JUXTAPOSITION, the above patterns the two general conclusions made here. One, JUXTAPOSITION is a syntactically distinct structure for introducing possessive relations in the nominal domain. Two, JUXTAPOSITION is a syntactic structure for introducing possessive relations that may be characterized as low genitive structures.

2.6.2 Borrowing the English Clitic

The final structure to be discussed here is the APOSTROPHE-S possessive (133), marked by the APOSTROPHE-S sign that has its etymological source in the representation of the written English *'s* sequence in fingerspelling and in Signed English systems.

(133) CRAIG APOSTROPHE-S PICTURE
A picture of Craig's

Though originally part of Signed English, Chen Pichler and Hochgesang (2008) treat APOSTROPHE-S as an grammaticized English borrowing into ASL, a treatment that is echoed by some signers, who refer to APOSTROPHE-S as a part of "real ASL". Nevertheless, a detailed investigation of the APOSTROPHE-S structure is complicated by sociolinguistic matters, given that signers display idiosyncratic prescriptive dispreference—or, in some cases, preference—for the APOSTROPHE-S structure. Still, the availability of the APOSTROPHE-S structure in ASL has the potential to provide significant and interesting insight into the cognitive linguistic system. Given that APOSTROPHE-S is undeniably borrowed from English, a language in which signers are at least functionally bilingual and which also undeniably gives rise to 'contact sign' phenomena in a variety of communica-

tive contexts, it is worthwhile to investigate how APOSTROPHE-S is treated in the grammar of the signer. In this respect, there is clear evidence that APOSTROPHE-S is affected by its English origins but also that it has taken on a life of its own, so to speak, in ASL.

As evidence of the English influence, APOSTROPHE-S phrases, like its English clitic counterpart, with the possessor, though there is no morpho-phonological reason for the fully syllabic APOSTROPHE-S sign to behave like a clitic in the grammar of ASL. Accordingly, APOSTROPHE-S obligatorily surfaces at the right edge of the possessor nominal and cannot license null or displaced possessors. It is not, however, the case that APOSTROPHE-S functions fully on a par with its English counterpart, however, as signers consulted rejected the theme reading of the possessor CRAIG in (133) above. Unlike the English structure *Craig's picture*, then, the APOSTROPHE-S is, like POSS incompatible with the low genitive interpretation discussed in the previous section. Unlike POSS, however, APOSTROPHE-S is a grammatical means of forming WH-possessor structures, as discussed earlier. Moreover, WHO APOSTROPHE forms are used by highly literature signers who are well aware of the suppletive *whose* used in written English. As such, these WH-possessor structures cannot be entirely reduced to a case of English borrowing. Though further investigation of the APOSTROPHE-S structure is needed—ideally, in a setting in which its naturalistic use in ASL can be examined—these patterns, too, confirm the existence of a third morpho-syntactically distinct structure for encoding possession in ASL, APOSTROPHE-S, a structure that is influenced by but not determined by its English origins.

2.7 Chapter Summary

The analysis presented herein developed and defended a verbal predicate analysis of the POSS possessive marker in ASL, arguing that POSS enters the structure as a verbal marker of predicative possession, akin to *belong*. Thus, it is the predicative POSS structure that is taken here to be the structural origin of both predicative and attributive uses of POSS, with the latter arising as a consequence of relative clause modification of the possessee noun. The discussion began with the observation that the alternative derivational approach—uniformly deriving POSS structures from a DP-internal analysis of attributive POSS—is incompatible with a number of empirical patterns

attested in the structure and interpretation of POSS possessives. In order to account for the full range of POSS properties, it was argued, along the way, that the grammar makes available multiple positions for the licensing of definite objects and creates, in the verbal domain, a complex predicate formed from POSS and a locative predicate, yielding the restricted interpretation ("strict possession") of POSS that arises in all predicative and some attributive structures. The appearance of POSS in attributive possessives, and its structural and interpretive variability therein, is the result of relativizing the predicative POSS structure, albeit with a degree of variation in the size of the structure targeted for relativization. What was made clear throughout the discussion is that the syntax and semantics of POSS structures in ASL are illuminated most not by examination of the nominal domain but by examination of the verbal domain of ASL.

In the final portion of the chapter, the issue of JUXTAPOSITION and APOSTROPHE-S possessives in ASL were briefly addressed, though these structures were clearly identified as requiring further investigation before conclusive generalizations or analyses are possible. The structure of JUXTAPOSITION and APOSTROPHE-S possessives, however, by no means exhaust the range of issues necessarily left open here or the research questions raised by the present analysis. For example, though a predicate nominal analysis of POSS cannot explain fully its predicative use, the grammar does make available all of the ingredients necessary to generate possessive predicate nominals and, indeed, predicate nominal uses of attributive POSS have been documented. This raises the interesting issue of how predicate nominal and truly predicative uses of POSS are mediated and distinguished in the grammar of the signer and how these structures can be further teased apart in linguistic analysis. One diagnostic suggested in the discussion above is that of transitive spatial agreement with POSS, which is ruled out in attributive POSS structures and thus should serve as a reliable cue to the predicate nominal status of a given structure. Outside the domain of ASL, the analysis developed here provides interesting insight into the origin and variability of possessor arguments. Within the grammar of ASL, the present analysis increases our understanding of the structure of the predicative and nominal domains of the language. Most notably, the analytic advances made provide a clear and predictive framework for investigating these and other issues in future research.

CHAPTER 3

A Token Gesture: Nominalization via Reduplication

3.1 Nominalization and the Mutability of Category

The human mind is designed for the acquisition and performance of a number of tasks, one of which is the use of language, a capability that is a distinguishing characteristic of our species. On these matters, there is considerable agreement. What seems to follow naturally from these observations is the expectation that the languages used by humans will share certain structural properties, and much linguistic research has been concerned with the identification of these shared properties. One such universal property of human languages is the division of expressions of the language into discrete categories. Indeed, this property is so fundamental to the nature of human languages that its existence has been documented in the home sign systems created *de novo* by deaf children who lack exposure to accessible linguistic input (Goldin-Meadow 2005). The intrigue that motivates the present chapter, however, is a related property that is also remarkably robust, if not universal, in the structures of human language: the existence of morpho-syntactic processes that re-categorize the expressions of the language. Why—and how—is it that a generative system that appears fundamentally dependent upon the classification of its components into discrete categories makes available generative operations that change these classifications?

This is the subject, broadly construed, addressed in the present chapter. Narrowly construed, this chapter focuses on the analysis of a nominalization process, NOMINALIZING REDUPLICATION (Supalla and Newport 1978), that is used to derive concrete object-denoting and result-denoting nominals from verbal forms in ASL. I begin with a discussion of the structural patterns attested in deverbal nominalization processes (§3.1.1) and then turn to the original description of the NOMINALIZING REDUPLICATION process that is investigated here (§3.1.2). An overview of the chapter

is provided in §3.1.3.

3.1.1 Verbal Constituency and Variability in Nominalization

Linguistic research on nominalization processes in human language is almost as rich and varied as the processes themselves, dating back to some of the earliest work in the generative perspective (Lees 1963, Katz and Postal 1964, Chomsky 1970). In lieu of providing a historical or comparative perspective on analytic approaches to nominalization processes, I shall instead focus here on outlining two key properties of nominalization processes in the approach assumed here:

P1: Nominalization processes are operations of the morpho-syntactic system, resulting from the merger of a nominalizing head with a constituent of the extended verbal domain.

P2: Structural and interpretive properties of nominalized constituents are determined by the properties of the constituent targeted for nominalization.

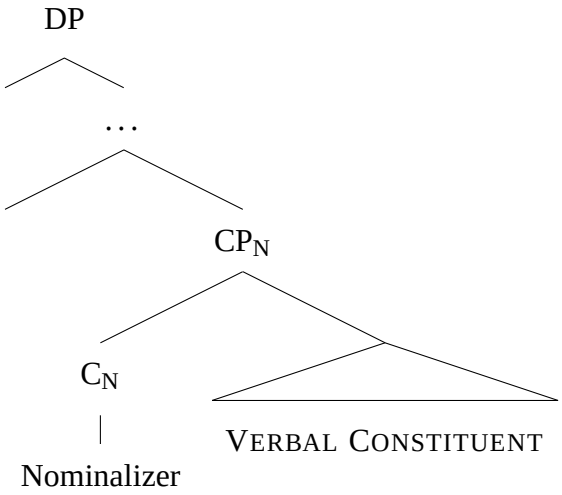
Beginning with the ideas that can be unpacked from the statement of the first property, this approach does not allow for the application of nominalization processes prior to syntactic insertion (i.e., in the lexicon). That is, as noted in the introductory remarks at the outset of this research (§1.1.2), I assume, following, among others, Marantz (1997), Borer (2004) and in the spirit of Fodor (1983), that generative operations are relegated to a single component of the grammar: the syntax. With respect to the particularities of this theoretical stance in the domain of nominalization processes, it is uncontroversially the case that certain nominalization processes must apply in the syntax. This is evident in the fact that there are nominalization processes that target syntactically complex constituents, such as those responsible for the creation of nominalized complement clauses in Japanese (1).

(1) *John-wa [doroboo-ga mise-kara dete kuru] no-o mi-ta*
John-TOP [thief-NOM shop-from come out] NML-ACC see-PST
John saw the thief coming out of the shop. (Horie 2011)

Thus, given evidence of nominalization processes that are clearly syntactic, the present approach draws the strong conclusion that all nominalization processes are syntactic.

Concerning structural details of nominalized structures—the latter half of the first property identified above—, nominalization is analyzed as the syntactic consequence of merging a nominalizing head with a constituent of the extended verbal domain, including clause-like constituents such as that above. This nominalizer can be straightforwardly identified as the (potentially null) marker of the nominalization, such as the *no* in the preceding Japanese example, the variety of nominalizing suffixes (e.g., *-ness*, *-ity*, *-ing*) found in English, or the NOMINALIZING REDUPLICATION process discussed here for ASL. Building on the analysis of relative clause structure presented in Kayne (1994), a revival of Vergnaud's (1974) original promotion account, this nominalizing head is analyzed here as a complementizer-like constituent with nominal features (Koopman 2005b, Ntelitheos 2006), as schematized in (2).

(2)



Thus, the nominalizing head, [$_{C_N}$ Nominalizer], merges with its target constituent, yielding a root structure with the nominal properties necessary to be embedded in the DP domain.

The second property of nominalization processes identified above follows as a direct consequence of this syntactic analysis. The structural and interpretive properties of nominalized constituents are determined by the structural properties of the constituent targeted for nominalization. Here, too, the Japanese example above may serve as illustration. Because the nominalizer *no* in (1) targets a constituent high in the verbal domain, the nominal so derived has all of the rights

and privileges of this large verbal structure, including the appearance of multiple arguments (*doro-boo*, *mise*) and nominative case marking of the subject. Structural properties such as these arise because they have already been made available in the verbal domain and, therefore, are carried over as part of the structure nominalized. Moreover, as nominalization processes vary in the verbal structures they target, so too do the properties of the derived nominals. Nominalization low in the verbal structure, such as that of the English nominalizer *-tion*, yields derived nominals without these verbal properties. This is evidenced by the inability of the *-tion* nominal in (3b) to license a nominative case-marked subject, resorting instead to licensing the subject via the *'s* marker found on prenominal possessors (3c).

(3) a. Herzog combined a rabbit firefighter and a dancing chicken in the final scene.
b. *Herzog combination surprised movie-goers.
c. Herzog's combination surprised movie-goers.

In English, just as in Japanese, however, larger verbal structures may also be targeted for nominalization, resulting in the availability of a nominative case-marked subject and the obligatory presence of the object argument in the derived nominal (4).

(4) Herzog combining *(a rabbit firefighter and a dancing chicken) surprised movie-goers.

Evidence of verbal structure in nominalization is also available outside the domain of argument structure and case marking. Thus if the verbal constituent targeted lacks the aspectual structure necessary for event quantification, so too will the derived nominal, as is the case for low *-ment* nominalization in English (5b).

(5) a. Bruno frequently announced things while drunk.
b. *Bruno's frequent announcement while drunk bothered Eva.

If, however, the nominal so derived is made plural, its plurality can serve to license frequency modification (6).

(6) Bruno's frequent announcements while drunk bothered Eva.

Crucially, the only means of licensing frequency modification with a singular derived nominal is when the verbal core of that derived nominal contains the appropriate level of event structure. This, too, is possible with *-ment* nominalization in English, but only when *-ment* attaches higher in the verbal structure, unavoidably bringing with it to the nominal domain the object argument contained inside this larger verbal constituent (7).

(7) Bruno's frequent announcement *(of things) while drunk bothered Eva.

Though the above observations provide only a cursory overview of the structural variation in nominalization, they nevertheless illustrate the diagnostic methodology used here: if one wants to identify the structural target of nominalization processes, one need only investigate the presence or absence of the relevant verbal properties in the derived nominal, a topic that is further addressed in §3.3 and §3.4.3. This method of analysis brings with it an additional means of investigating the structural layers of the verbal domain in language—the examination of nominalization structures. This entirely welcome side effect is also discussed with respect to the properties of NOMINALIZING REDUPLICATION discussed below.

3.1.2 Revisiting the Number of Seats in a Chair

In their dictionary of ASL, the first of its kind, Stokoe et al. (1965) observed that formal distinctions between verbs and nouns were largely absent from the language, that conceptually related verbs and nouns such as SIT and CHAIR relied on linguistic context for the identification of their verbal or nominal status. Thirteen years later, in what has now become seminal research in the field, Supalla and Newport (1978) countered this claim. While it is undeniable, they argued, that the verbal and nominal expressions in Figure 3.1 are similar in form, it is equally undeniable that these expressions are not identical in form, provided that attention is paid to the appropriate parameters of sign formation.

The parameter of sign formation that Supalla and Newport showed to be crucial to the noun-

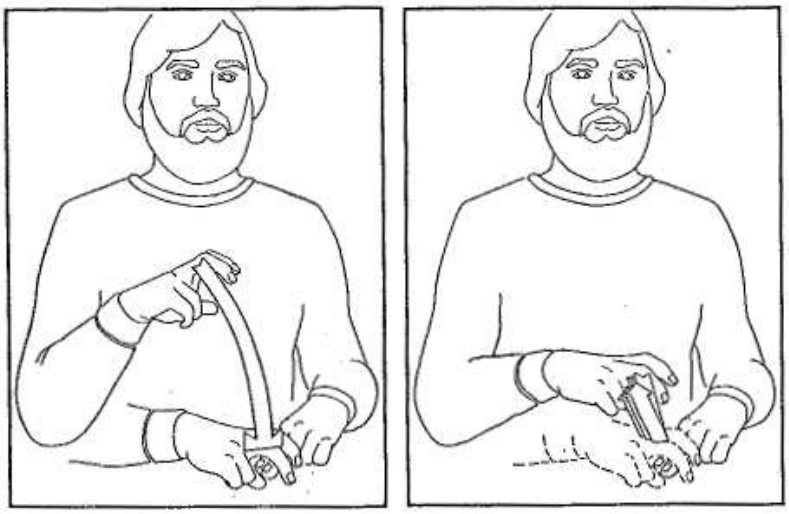


Figure 3.1: The verbal sign SIT vs. the nominal sign CHAIR. Re-printed from Supalla and Newport (1978) with permission from Elsevier.

verb distinction in ASL is that of movement. While SIT and CHAIR share completely the parameters of handshape (two curved H-handshapes) and location (neutral signing space) and overlap in certain movement properties (downward movement with non-dominant hand contact), further aspects of the movement of the signs serve to distinguish the verbal and nominal forms. First, the movement of the nominal form CHAIR is repeated (reduplicated), as represented by the doubled arrows in 3.1.[1] Second, the movement of the nominal form is produced with what Supalla and Newport referred to as *restrained manner*, a property that is not so easily inferred from static images alone. Restrained manner is produced with an increase in muscular tension of the articulators, resulting in a concomitant increase in signing velocity and a sign form that may appear stiff or bouncy. Such movement properties do not only distinguish SIT from CHAIR in ASL. Rather, Supalla and Newport observed that the presence of repeated, restrained movement consistently and productively distinguishes a class of nouns in ASL from the verbs that "[express] the activity performed with or on the object named by [them]" (Supalla and Newport 1978:101–102).[2] This is

[1]It is interesting to note that repeated movement, in general, seems to be a surface characteristic of 'nounhood' in ASL and perhaps sign languages in general. Thus, name signs like CRAIG and BRUNO are always produced with repeated tapping movements, and a number of common nouns lacking deverbal origins (e.g., CHURCH) are produced with repeated movement, as noted also by Brentari (1998). I thank Karen Emmorey for fruitful discussion of these patterns.

[2]Though the failure to observe this distinction on the part of the 1965 dictionary may be excused due to the

the process of NOMINALIZING REDUPLICATION analyzed here.

Based on the description they provide, the class of nouns that Supalla and Newport identified will be referred to here as concrete object-denoting nominals—the discussion below will further argue that this class is morpho-syntactically characterized by the presence of a classifier component in the verbal structure nominalized—and will be glossed as VERB.NMZ-RED so as to make transparent their status as morpho-syntactically complex structures. An additional property of these derived nominals is that they are consistently produced with smaller movements than those found in the verbal form, as is also transparent in the illustrations of the signs provided in Figure 3.1. Supalla and Newport attribute this feature of the movement to the restrained manner in which the nominal signs are produced. Thus their analysis captures the reduction in the size of the movement as part of the phonological specification of the NOMINALIZING REDUPLICATION process itself, a perspective echoed in subsequent discussions of the process (Brentari 1998, Wilbur 2009). Building on Wilbur's (2003, 2010) proposal that the phonological properties of predicates in ASL are systematically indicative of morpho-syntactic structure and semantic interpretation—a proposal consistent with the 'lean interface' architecture assumed here (cf. §1.1.2)—, the present analysis takes a different perspective on the reason for the size reduction in NOMINALIZING REDUPLICATION. Observing that the nominals derived via NOMINALIZING REDUPLICATION are systematically *smaller* than their corresponding verbal form, the analysis proposed here argues that this is because the verbal structure present in the nominalization is systematically *smaller* than that of the corresponding surface verbal form. In the descriptive terminology used above, NOMINALIZING REDUPLICATION is a structurally low nominalization process, effectively creating the derived nominal before the verbal form has been fully built.

3.1.3 Chapter Overview

As was standard at the time, the analysis that Supalla and Newport posited for the NOMINALIZING REDUPLICATION process they discovered was a lexical one: morphological processes establishing

ignorance of the field at the time of its publication, such an excuse cannot be extended to the number of commercially available contemporary dictionaries of ASL which fail to document a distinction between even the most oft-cited of Supalla and Newport's observed noun-verb pairs.

the nominal (and, originally, verbal) status of the form apply in the lexicon prior to syntactic insertion. Therefore, the investigation undertaken here not only addresses this pattern anew but also represents the first, to the author's knowledge, investigation of NOMINALIZING REDUPLICATION with respect to the syntactic properties exhibited by the derived nominals. The chapter begins with an empirical observation: NOMINALIZING REDUPLICATION is also evident in the derivation of result-denoting nominal forms such as VOTE.NMZ-RED ('election'/'a/the result of voting'). In §3.2, I defend both the existence of a class of derived result-denoting nominals and the proposal that these result-denoting nominals are derived through the same morpho-syntactic process of NOMINALIZING REDUPLICATION that is responsible for concrete-object denoting nominals. An explanation of these patterns must, then, account for why NOMINALIZING REDUPLICATION is ambiguous between concrete object-denoting and result-denoting interpretations. A principled explanation of these patterns must account for why NOMINALIZING REDUPLICATION is systematically ambiguous between these and only these interpretations. The first ingredient of this explanation is presented in §3.2.3: the surface form of verbal predicates permitting concrete object-denoting interpretations reveals that these verbal forms are complex predicate structures, arising from the combination of the verbal root with material from the verbal classifier system. This classifier component—again, as evidenced by the surface form of the predicate—is absent from the verbal forms that permit result-denoting interpretations only, though it should be noted that these result-denoting interpretations may be either abstract or concrete.

The discussion in §3.3 presents additional evidence that surface form alone transparently identifies the verbal structure targeted by NOMINALIZING REDUPLICATION. The crux of the proposal is that the surface form of the derived nominal is small because it contains only a small component of the verbal structure. Building on the Event Visibility Hypothesis of Wilbur (2003) and appealing to a decomposition of verbal structure along the lines of that developed in Ramchand (2008), I show that the class of verbal predicates permitting NOMINALIZING REDUPLICATION—as well as other verbal predicates with comparable event structure—can be decomposed into at least two discrete phonological components: a spatial path movement that corresponds to the process portion of the event (VP_{Proc}) and a phonological change that encodes event telicity (VP_{Res}). Having established this surface transparent decomposition of verbal event structure in ASL, I then argue that the

noted "smaller movement" of NOMINALIZING REDUPLICATION is simply the reflex of nominalizing only the lower VP_{Res} layer of the verbal structure. The constituent reduplicated—in both the concrete object-denoting and result-denoting structures—lacks the path movement associated with the VP_{Proc} layer, containing only the minimal movement necessary to produce the phonological change associated with VP_{Res}.

The implementation of the analysis, using the approach to nominalization discussed above, is developed in §3.4. Result-denoting interpretations arise when VP_{Res} is merged with the [$_{C_N}$ NMZ-RED] nominalizer, which contains the necessary information regarding syntactic category and is spelled out as the reduplicant. The concrete object-denoting nominals underlain by complex classifier predicates are derived as reduced relative clause structures built on this same [$_{C_N}$ NMZ-RED] nominalizer, with the null nominal argument introduced by the verbal classifier (§3.3.2) serving as the head of the relative clause structure. I then turn to one of the overarching themes of the present research: argument structural properties. Though the complexities of the empirical patterns documented make detailed analysis unavailable at this point, there is nevertheless suggestive evidence that the low target of NOMINALIZING REDUPLICATION has the expected effect of drastically reducing the argument structural potential of the deverbal nominalization, as evidenced by language-internal patterns and cross-linguistic diagnostics of result nominals (Grimshaw 1990).

In §3.5, another empirical observation is made: agent nominalizations marked by the sign PERSON in ASL (e.g., [VOTE PERSON]) are not nominalized by PERSON (i.e., are not [VERB PERSON]), counter to traditional descriptions of this structure. Rather, the constituent to which PERSON attaches is a constituent that displays the morpho-syntactic properties of having already been nominalized via NOMINALIZING REDUPLICATION, motivating a revision to existing analyses and descriptions PERSON nominals. The chapter closes (§3.6) with a summary of the arguments presented. An appendix of nominals derived via NOMINALIZING REDUPLICATION, compiled from both the fieldwork conducted for the present research and from descriptions in the research literature (Supalla and Newport 1978, Launer 1982, Brentari 1998), is provided at the end of the dissertation.

3.2 NOMINALIZING REDUPLICATION: Extensions and Divisions

The import of Supalla and Newport's pioneering research on the NOMINALIZING REDUPLICATION operation in ASL can be evaluated for both its empirical and theoretical significance. With respect to its empirical contribution, Supalla and Newport's research brought to the attention of the linguistic and signed language community previously overlooked complexities of ASL grammar and, in doing so, further identified the components of signed language systems—the production parameters of sign segments—that are relevant in the application and investigation of grammatical processes. Moreover, in developing their analysis of this process, Supalla and Newport provided a theoretical model for how these components can be represented and manipulated in the grammatical system. In short, the research undertaken by Supalla and Newport provided an example of how linguistic analysis of signed languages should proceed.

Though it has been discussed in subsequent research such as that of Klima and Bellugi (1979), Launer (1982), Liddell and Johnson (1986), Sandler (1989), and Brentari (1998)—and related patterns have been documented in other signed languages (Johnston 2001, Kimmelman 2009)—, the NOMINALIZING REDUPLICATION process has not been subject to further linguistic scrutiny of its morpho-syntactic complexity, despite significant interim advances in grammatical analysis of both signed and spoken languages. Moreover, the analysis developed in Supalla and Newport pre-dates linguistic research establishing systematic correspondences between the structural size of the verbal constituent targeted for nominalization and the verbal properties retained in the output of the nominalization process. Theoretical shifts such as these warrant the analytic re-evaluation of NOMINALIZING REDUPLICATION undertaken in the present chapter, wherein both the surface form and the structural properties of NOMINALIZING REDUPLICATION are examined within the narrow confines of the morpho-syntactic system.

However, it is an empirical observation that serves as the impetus for the present investigation and, moreover, provides the insight necessary to develop an adequate syntactic account of the process. The relevant empirical observation is this: NOMINALIZING REDUPLICATION is also used in the derivation of nominals whose denotation extends beyond that of concrete objects used in the performance of the activity denoted by the associated verb and, indeed, beyond that of concrete

objects all together. This empirical pattern is alluded to in Klima and Bellugi's 1979 discussion of NOMINALIZING REDUPLICATION and is documented explicitly in the acquisition study of Launer (1982) and the phonological research of Brentari (1998). Both Launer and Brentari document the existence of NOMINALIZING REDUPLICATION nominals which fail to meet the semantic criteria (concrete object-denoting) outlined by Supalla and Newport, examples of which are provided in (8)–(9) using the transcription conventions adopted here.

(8) a. (i) [$_{V}$ COMPARE]
to compare
(ii) [$_{Nmz}$ COMPARE.NMZ-RED]
comparison ('a/the result of comparing')
b. (i) [$_{V}$ PROVE]
to prove
(ii) [$_{Nmz}$ PROVE.NMZ-RED]
proof ('a/the result of proving')

(Launer 1982)

(9) a. (i) [$_{V}$ SUPPORT]
to support
(ii) [$_{Nmz}$ SUPPORT.NMZ-RED]
support ('a/the result of supporting')
b. (i) [$_{V}$ CALL-H]
to call
(ii) [$_{Nmz}$ CALL-H.NMZ-RED]
name ('a/the result of calling')

(Brentari 1998)

Appealing to classificatory terminology found in the research literature, this additional class of NOMINALIZING REDUPLICATION—productively documented with the signers consulted for the present research (10)—will be referred to here as result-denoting nominals. This classification is

supported not only by their most natural translation as result nominals of English (e.g., *comparison*) but also by their structural properties and behavior with respect to cross-linguistic diagnostics (cf. §3.3).

(10) a. (i) [$_{V}$ ACCEPT]
to accept
(ii) [$_{Nmz}$ ACCEPT.NMZ-RED]
acceptance ('a/the result of accepting')

b. (i) [$_{V}$ DEVELOP]
to develop
(ii) [$_{Nmz}$ DEVELOP.NMZ-RED]
development ('a/the result of developing')

In the present discussion, however, I focus on the initial, more narrow goal of establishing that the nominals above are result-denoting and are indeed derived via the same process of NOMINALIZING REDUPLICATION identified by Supalla and Newport. To this end, I present two lines of argumentation. First (§3.2.1), I confirm that this productive extension of NOMINALIZING REDUPLICATION derives nominals that have a result interpretation. Second (§3.2.2), I provide evidence that the surface ('spell out') properties of these derived result-denoting nominals match those of the originally identified class of concrete object-denoting nominals. These observations bring to the fore the theoretical matters at issue here: how does the grammar systematically gives rise to structures that are syntactically ambiguous between result-denoting and concrete object-denoting interpretations, but, crucially, only these meanings? To set the stage for the explanation provided, §3.2.3 operationalizes a formal distinction between these two classes of nominals: excepting concrete/abstract alternations in the interpretation of result-denoting nominals (e.g., PLAN.NMZ-RED 'plan'/'a/the result of planning'), concrete object-denoting interpretations of NOMINALIZING REDUPLICATION arise only with complex predicates composed of a verbal root and a classifier constituent, the latter of which deterministically identifies the interpretation of the nominal derived.

3.2.1 Evidence for Result Interpretations

Unlike the class of concrete object-denoting nominals, which are interpreted either as instrumental, locative, or theme arguments of the corresponding complex predicate, result-denoting NOMINALIZING REDUPLICATION nominals do not refer to a participant in the event denoted by the corresponding verbal form. Rather, result-denoting NOMINALIZING REDUPLICATION nominals refer to the outcome of the event itself. Thus, the outcome, or result, of an *accepting*, *developing*, or *joining* event is, respectively, *acceptance*, *development*, or *participation*, and reference to these outcomes in ASL can be achieved via NOMINALIZING REDUPLICATION (11): ACCEPT.NMZ-RED, DEVELOP.NMZ-RED, and JOIN.NMZ-RED.

(11) a. (i) [$_{V}$ ACCEPT]
to accept
(ii) [$_{Nmz}$ ACCEPT.NMZ-RED]
acceptance ('a/the result of accepting')

b. (i) [$_{V}$ DEVELOP]
to develop
(ii) [$_{Nmz}$ DEVELOP.NMZ-RED]
development ('a/the result of developing')

c. (i) [$_{V}$ JOIN]
to join
(ii) [$_{Nmz}$ JOIN.NMZ-RED]
participation ('a/the result of participating')

In addition to this interpretive intuition, Alexiadou (2001) provides an empirical diagnostic that can be used to confirm that the referent of the derived nominal is that of an event outcome, as it is only the outcome of an event that can appear in publication (12).

(12) a. $_{i}$VOTE.NMZ-RED IX$_{i}$, IN PRINT.NMZ-RED,
PRINT DISSEMINATE
The election was published in the newspaper.

b. $_{i}$ADOPT.NMZ-RED IX$_{i}$, IN PRINT.NMZ-RED, PRINT DISSEMINATE
The adoption was published in the newspaper.

c. $_{i}$EXAMINE.NMZ-RED IX$_{i}$, IN PRINT.NMZ-RED, PRINT DISSEMINATE
The exam was published in the newspaper.

d. $_{i}$PLAN.NMZ-RED IX$_{i}$, IN PRINT.NMZ-RED, PRINT DISSEMINATE
The plan was published in the newspaper.

Notably, consultant discussion of the examples above illustrates that, as is generally the case with result nominals, a result-denoting interpretation of NOMINALIZING REDUPLICATION does not exclude a concrete (vs. abstract) interpretation. To confirm the grammaticality and interpretation of these and related elicitation paradigms, consultants were asked to describe a context in which the sentences investigated could be appropriately used. In the case of (12c), a consultant readily offered two distinct situations that the sentence could describe. One, the sentence could describe a situation in which an exam was administered (e.g., as in statewide educational testing) and the performance results of the exam were discussed in a news story. This is the abstract interpretation of the result nominal EXAMINE.NMZ-RED. Two, the sentence could describe a situation in which an instructor had an exam stolen and the exam itself was replicated in a (presumably illicit) news story for cheating purposes. This is the concrete interpretation of the result nominal EXAMINE.NMZ-RED. Comparable concrete/abstract ambiguities were also documented for other result nominals investigated here, such as PLAN.NMZ-RED in (12d) which could refer either to a (concrete) architectural plan of a building or to the (abstract) outcome of a planning meeting.

Though NOMINALIZING REDUPLICATION was not licit for all verbs investigated and some speaker variation was documented, the process was highly productive for each of the signers consulted, extending even to nonce creation of NOMINALIZING REDUPLICATION forms (cf. §3.5).[3] This, too, however, aligns result-denoting interpretations of NOMINALIZING REDUPLICATION

[3]Speaker variation, also discussed in §3.5, is unsurprising for any linguistic process given the nature of the acquisition task faced by the child. This is also especially unsurprising for linguistic processes of ASL and other signed languages, given the particularities of the language acquisition situation of the deaf, the communication barriers facing geographically separated signing communities—sign language communication requires face-to-face interaction or previously unavailable video technology—, and, finally, the rapidly changing nature of ASL that arises, in part, as a consequence of its relative youth as a language (cf. Fischer 1975).

with the concrete object-denoting nominals documented by Supalla and Newport, as they also observe that the process, though highly productive, was not applicable to all verbs investigated. As has been documented for comparable processes in other languages (e.g., *blacken* vs. **bluen*), limitations on the productivity of NOMINALIZING REDUPLICATION may be attributed, in part, to phonological restrictions. This is one of the key insights of Brentari's (1998) phonological analysis of NOMINALIZING REDUPLICATION, where she observes that NOMINALIZING REDUPLICATION seems to apply only to verbs with simple movements, not to verbs produced with a complex sequence of movements. For Brentari, this can be encoded as a restriction on the prosodic weight of the verbal form, on a par with syllabicity or stress pattern restrictions documented in spoken language: complex movements are too prosodically heavy to undergo NOMINALIZING REDUPLICATION. In §3.3.3, I provide evidence that there is also a semantic restriction at play: NOMINALIZING REDUPLICATION is only compatible with predicates that can receive a 'default' or coerced telic interpretation. This, too, is entirely as expected, given cross-linguistic evidence that nominalization processes are sensitive to the event semantics of the verbal target (Kolliakou 1995, Borer 2005). Though, ultimately, I leave the issue of the productivity as a matter of future research, it should also be noted that limitations of productivity robustly characterize category-changing operations such as nominalization. Indeed, it is limitations of productivity that underly the traditional, and problematic, distinction between derivational and inflectional morphology and factor heavily in lexical approaches to nominalization.

3.2.2 Formational Similarities Across Interpretations

The missing component of the argument, assumed above and defended explicitly in the present section, is evidence that the reduplication found in the above derived result-denoting nominals is indeed the same process of NOMINALIZING REDUPLICATION that generates the class of concrete object-denoting nominals. In what follows, I present four pieces of evidence in defense of the claim that the same process of NOMINALIZING REDUPLICATION generates both of these derived nominal classes. First, I establish that the nominal classes share properties of spell out form. Second, appealing to patterns of reduplication found elsewhere in the grammar of ASL, I argue that these surface properties cannot be explained on phonological grounds alone. Third, building on their

documented similarity in spell out form, I show that result-denoting and concrete-object denoting nominals exhibit the same paradigm of predictable allomorphy. Finally, I present a sub-class of reduplicated nominals that are ambiguous between result-denoting and concrete object-denoting interpretations, confirming that this is indeed a case of syntactic ambiguity of surface identical forms.

As initial evidence of the surface similarity of concrete object-denoting nominals and result-denoting nominals identified here, Figures 3.2 and 3.3 provide video stills of the verbal form VOTE and its corresponding result-denoting nominal VOTE.NMZ-RES ('election'/'a/the result of voting'). Before turning to the properties that can be illustrated by or inferred from these still image sequences, a brief presentational note is in order. The video stills in Figures 3.2 and 3.3 were produced during an elicitation task in which the consultant was asked to produce a sequence of of signs the phonetic carrier sentence [IX_i SAY (- TARGET -) YESTERDAY]. A carrier sentence was used to avoid the complications of examining the form of signs elicited in isolation. This particular carrier sentence was chosen because virtually any sign can be felicitously inserted into the (- TARGET -) position and because the signs sandwiching this position are both produced with contact at or near the chin region of the face, thus providing clear anchors from which the target sign can be excerpted. The sequences of still images in Figures 3.2 and 3.3, and many examples presented throughout this chapter, begin with the final chin contact of SAY and end with the initial chin contact of YESTERDAY. The images have also been annotated for time elapsed in milliseconds.

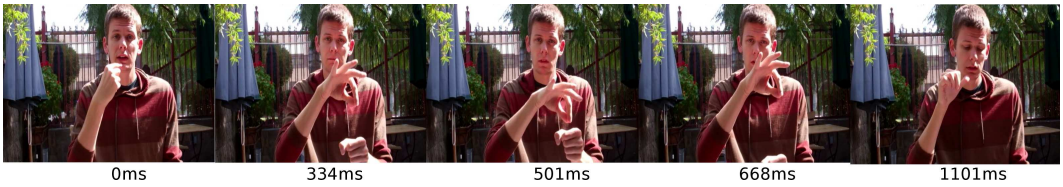


Figure 3.2: Time-stamped (ms) video stills, VOTE.

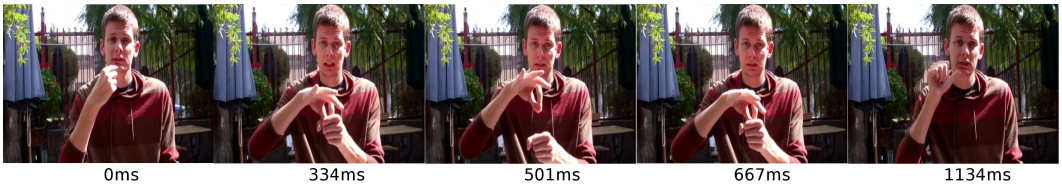


Figure 3.3: Time-stamped (ms) video stills, VOTE-FOR.NMZ-RED.

Beginning with the production of the verbal form VOTE, observe first that the sign is produced with only a single instance of contact between the dominant and non-dominant hand, occurring at approximately the 501ms mark of Figure 3.2. That only a single instance of contact occurs is evident in both the obvious absence of a second instance of contact in the video stills provided and in the position of the non-dominant hand at the 668ms mark. As no further contact with the non-dominant hand will be made, the signer has already begun his transition into the one-handed sign YESTERDAY, as indicated by the lowering of the non-dominant hand from signing space. Conversely, in the production of the result-denoting nominal VOTE.NMZ-RED in Figure 3.3, two instances of contact between the dominant and non-dominant hand are clearly present: once at the 334ms mark and one at the 667ms mark.

Though the restrained nature of the reduplicated movement in VOTE.NMZ-RED is not so easily seen in static images alone, it is clearly present and its presence can be somewhat inferred from the sequence of static images. This is where the annotation of the time elapsed becomes significantly informative, as the single of movement in VOTE and the reduplicated movement of VOTE.NMZ-RED are both produced in comparable amounts of time. The total time elapsed in the production of the reduplicated form VOTE.NMZ-RED is only 33ms longer, a time differential that could be phonetically attributed to the fact that the signer's head is leaned further back, increasing the distance the hand must travel before making contact with the chin. Thus, in the time it takes the signer to produce the single instance of movement in VOTE, two instances of movement are produced in the nominalized form VOTE.NMZ-RED. In order to produce more articulatory gestures in the same amount of time, the hands must be moving faster, and increased velocity is one of the consequences of restrained movement. Though this could be attributed, in part, to the 'smaller' size of the reduplicated nominal, point-by-point comparisons of the transition between the 0ms and the 334ms marks of each sign confirms that a change in signing velocity is also relevant. Again, the video stills have been clipped at the final chin contact of SAY so as to match at the 0ms mark. At the 334ms mark of VOTE, the dominant hand is still relatively close to chin height in signing space. At the 334ms mark of VOTE.NMZ-RED, however, the dominant hand has already traversed signing space and is making its first contact with the non-dominant hand. Thus, the nominalized form VOTE.NMZ-RED, as is characteristic of all of the derived result-denoting nominals examined here,

is produced not only with reduplicated movement, but with restrained reduplicated movement: NOMINALIZING REDUPLICATION.

One could at this juncture question the morpho-syntactic significance of the restrained nature the movement involved in NOMINALIZING REDUPLICATION, positing instead that it is simply a general phonological correlate of reduplication processes in ASL. Accordingly, the restrained movement present in concrete object-denoting and result-denoting nominals would be taken not as evidence for their being underlain by the same morpho-syntactic process but as a side effect of their being derived via (potentially distinct) reduplication processes. Such an argument, however, is untenable given the wealth of reduplication processes found elsewhere in the grammar of ASL that are not produced with restrained movement. As noted explicitly by Supalla and Newport, ASL is a language that makes robust use of reduplication processes for a variety of morpho-syntactic purposes. Reduplication is used to encode argument plurality in the spatial agreement system. Reduplication is used to encode number distinctions (singular vs. dual vs. exhaustive plural) in the nominal domain. Reduplication is also used to encode durativity or iterativity in the predicate domain (Fischer 1973). Pertinent to the present discussion, however, these other reduplication processes in ASL are not morpho-phonologically specified for restrained movement. Restrained movement, therefore, is not a general phonological consequence of reduplication, but rather a phonological indicator of a specific type of morpho-syntactic reduplication: NOMINALIZING REDUPLICATION.

Further evidence of the morpho-syntactic identity of the reduplication process underlying result-denoting and concrete object-denoting nominals comes from the paradigm of phonologically-conditioned allomorphy that is shared between them. Building on surface variation observed by Supalla and Newport, Brentari (1998) systematically distinguished three discrete classes of NOMINALIZING REDUPLICATION: reduplicated movement, reduplicated aperture change, and reduplicated orientation change. The first of these, exemplified in each of the reduplicated nominals illustrated thus far, is derived via restrained reduplication of a path movement of the hands in space. Thus, in SIT.NMZ-RED (‘chair’/‘a/the thing for chair-sitting on’, Figure 3.1) it is the downward movement of the hands in space that is reduplicated. The second, exemplified for the class of concrete object-denoting nominals by the derived form STAPLE-WITH-STAPLER.NMZ-RED (‘stapler’/‘a/the thing for stapling with a stapler’) in Figure 3.4, is derived via restrained

reduplication of the opening or closing of the hand (handshape aperture change). The third is derived via restrained reduplication of a change in the palm orientation during the production of the sign, as evident in the repeated radial flexion of the wrist in the production of the nominal sign STRIKE-MATCH.NMZ-RED ('match'/'a/the thing for striking like a match') in Figure 3.5.

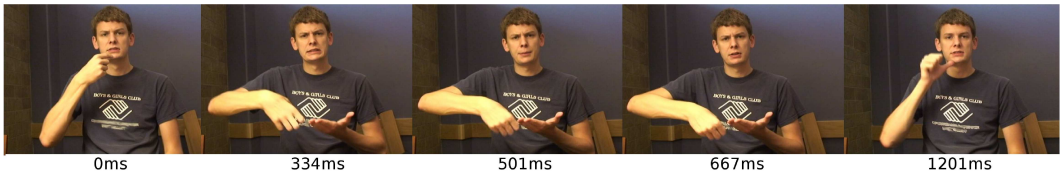


Figure 3.4: Time-stamped (ms) video stills, STAPLE-WITH-STAPLER.NMZ-RED.

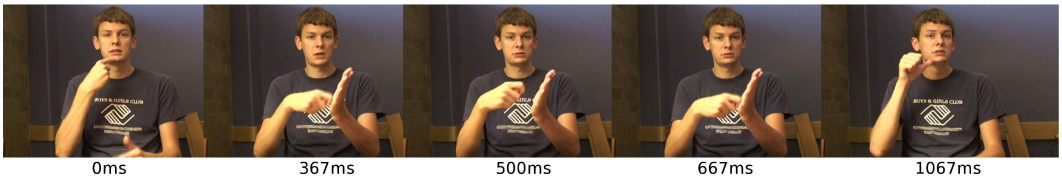


Figure 3.5: Time-stamped (ms) video stills, STRIKE-MATCH.NMZ-RED.

Exactly these variants are attested in the class of result-denoting nominals as well. Thus, while it is the movement of the hands in space that is reduplicated in the derivation of VOTE.NMZ-RED (Figure 3.3), it is the closing of the hands that is reduplicated in the result-denoting nominal ACCEPT.NMZ-RED ('acceptance'/'a/the result of accepting', Figure 3.6) and the outward rotation of the wrist that is reduplicated in the nominal ANNOUNCE.NMZ-RED ('announcement'/'a/the result of announcing', Figure 3.7), though the small movements in this case are especially difficult to capture in static images.

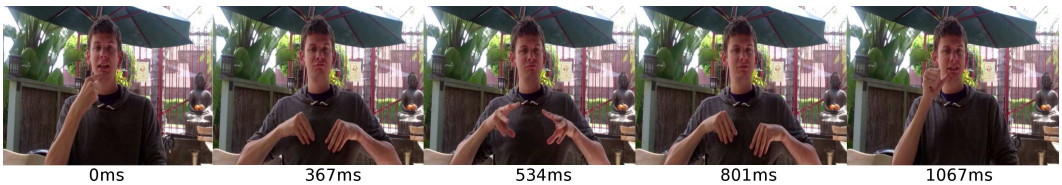


Figure 3.6: Time-stamped (ms) video stills, ACCEPT.NMZ-RED.

Furthermore, as is the case for the class of concrete-object denoting nominals, the form of the result-denoting nominal is entirely predictable. If the verbal form is produced with handshape aperture change, it is this aperture change that is reduplicated in the formation of the result-denoting

Figure 3.7: Video stills, ANNOUNCE.NMZ-RED.

nominal. If the verbal form is produced with a change in palm orientation, it is this orientation change that is reduplicated in the result-denoting nominal. Otherwise, the result-denoting nominal is derived via reduplication of a short path movement (cf. §3.3). Thus, concrete object-denoting and result-denoting nominals pattern identically in terms of their surface form.

Final evidence for their identity in form comes from the fact that nominals derived via NOMINALIZING REDUPLICATION exhibit interpretive ambiguity that extends beyond the concrete/abstract ambiguity discussed above for certain result-denoting forms. Thus, while the nominalized form MOVE-IN-AIR-BY-PLANE.NMZ-RED in (13), a member of Supalla and Newport's original class of concrete object-denoting nominals, can refer to the instrumental argument of the complex verbal predicate ('airplane'/'a/the thing for moving in air by plane'), one consultant also permitted a result-denoting interpretation of this derived form ('flight'/'the result of moving in air by plane').[4]

(13) [$_{Nmz}$ MOVE-IN-AIR-BY-PLANE.NMZ-RED]

a. ✓'airplane' (concrete object-denoting)

b. (✓) 'flight' (result-denoting)

Moreover, the result-denoting nominal VOTE.NMZ-RED, as a consequence of its verbal classifier structure, a matter returned to in the section following, can also refer to the instrumental/theme

[4]Though I did not have the opportunity to check this interpretation with other consultants, it was confirmed by another native signer not formally involved in the present research. Interestingly, the signer with whom I discussed this form also used MOVE-IN-AIR-BY-PLANE.NMZ-RED with the agentive 'pilot' interpretation (cf. §3.5).

argument used in the voting process (‘ballot’).

(14) [$_{Nmz}$ VOTE.NMZ-RED]

a. ✓‘election’ (result-denoting)

b. ✓‘ballot’ (concrete object-denoting)

Patterns such as these, though they are subject to ‘lexicalization’—the form VOTE.NMZ-RED can also be idiomatized to refer, abstract, to the actual vote cast—, confirm that in the mind of the signer NOMINALIZING REDUPLICATION is ambiguous between these two nominal classes. Thus, they provide support for two of the conclusions that are central to the analysis developed here. One, the same process of NOMINALIZING REDUPLICATION is involved in the derivation of both concrete object-denoting and result-denoting nominals in ASL. Two, in order for that to be the case, the process of NOMINALIZING REDUPLICATION is systematically structurally ambiguous, as it is only systematic structural ambiguity that can provide a principled explanation of this observation.

3.2.3 A Shape of Hand: Structural Distinctions Across Interpretations

The morpho-syntactic components of nominalization provide only a single locus from which structural ambiguity in the output nominal form can be derived: structural variation in the verbal constituent targeted for nominalization. Given robust evidence for a systematic ambiguity between concrete object-denoting and result-denoting interpretations of NOMINALIZING REDUPLICATION, then, the source of the ambiguity is destined to lie in the properties of the verbal structures that give rise to these distinct interpretations. Even a cursory examination of the patterns above makes abundantly clear what the relevant property is: verbal forms that give rise to concrete object-denoting nominals are all produced with semantically meaningful handshapes from the verbal classifier system of ASL (Supalla 1982, 1986, McDonald 1982, Schick 1987, Liddell and Johnson 1987); verbal forms that give rise to result-denoting nominals are not. This observation is shared, in part, by Brentari:

”It is quite possible that there is a morphological/semantic component to the analysis

of these forms as well. It is probably no accident that the forms that undergo nominalizing reduplication are all of a single semantic class; namely, each form has a specific handshape representing either a size and shape specifier or an instrument classifier, both of which contain detailed information about the object involved in the event" (Brentari 1998:332, fn.7)

Thus, the curved H-handshape of SIT (Figure 3.1) meaningfully represents the surface shape of the chair involved in the sitting event just as the X-handshape of STRIKE-MATCH (Figure 3.5) represents the shape of the match being struck against a surface and just as the C-handshape of STAPLE-WITH-STAPLER (Figure 3.4) meaningfully represents how a stand-issue office stapler is held in the hand.

Such a pattern is not, however, found in the verbal forms that give rise to result-denoting interpretations under NOMINALIZING REDUPLICATION. Though there may be some iconic connection between the movement of ANNOUNCE (Figure 3.7) away from the mouth and the grasping movement of ACCEPT (Figure 3.6) toward the chest, also used as a verb of ownership, the handshapes with which these verbal forms are produced do not correspond to classifier structure and, as such, do not semantically represent any of the event participants. This is the distinction in verbal forms that underlies the ambiguity between concrete object-denoting and result-denoting NOMINALIZING REDUPLICATION.

Note, however, that the nominal classes, and the verbal forms from which they originate, are not completely non-overlapping. While the verbal form MOVE-IN-AIR-BY-PLANE—produced with an ILY handshape classifier that represents the shape of an aircraft (Figure 3.8)—is most canonically associated with a concrete object-denoting interpretation when nominalized (‘airplane’/‘a/the thing for moving in air by plane’), a result-denoting interpretation (‘flight’/‘a/the result of moving in air by plane) of the derived nominal is also possible.

Likewise, while the nominalization of VOTE (Figure 3.2) is most predominantly associated with a result-denoting interpretation (‘a/the result of voting’), a concrete object-denoting interpretation (‘ballot’/‘a/the thing for voting’), as noted above, is also possible. This, too, can be attributed to classifier structure, for the dominant hand F-handshape and the non-dominant hand O-handshape

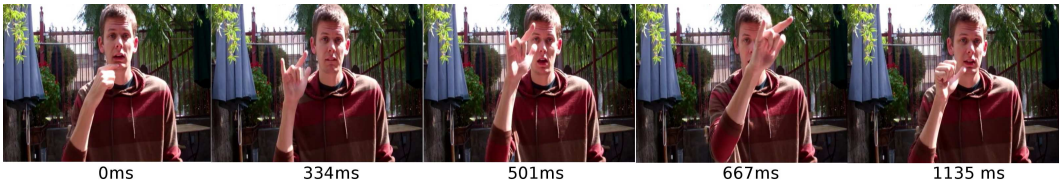


Figure 3.8: Time-stamped (ms) video stills, MOVE-IN-AIR-BY-PLANE.

of VOTE are classifier handshapes representing the placement of a thin object (paper ballot) into a container (voting box) (Kegl and Schley 1986), suggesting that a more appropriate gloss for VOTE is PUT-BALLOT-IN-CONTAINER, though I shall continue, for expository purposes, to use the traditional gloss VOTE.[5] Thus, the more specific and accurate generalization to be drawn is as follows: concrete object-denoting interpretations of NOMINALIZING REDUPLICATION arise only in the presence of classifier structure, though result-denoting interpretations of complex classifier-containing predicates may also be possible.

3.3 Visible Events and Truncated Structure

The commentary above identified the morpho-syntactic means (verbal classifier structure) by which concrete object-denoting and result-denoting nominals can be structurally distinguished. The discussion below is focused on further determining the components of verbal structure present in the nominals derived by NOMINALIZING REDUPLICATION. The section begins (§3.3.1) with a more detailed description of the decompositional approach to verbal structure discussed in Chapter 1, wherein the 'atomic' VP is split into its event structural sub-components (VP_{Proc} and VP_{Res}). Following this, §3.3.2 addresses the morpho-syntactic processes by which the aforementioned verbal classifier structure is introduced. Building on these proposals and the morpho-semantic analysis of verbal predicates developed in Wilbur (2003, 2010), §3.3.3 and §3.3.4 show that NOMINALIZING REDUPLICATION targets the lowest component of the decomposed verbal structure, VP_{Res}. Here, too, the surface form of verbal predicates in ASL provides the necessary insight, as it is the sur-

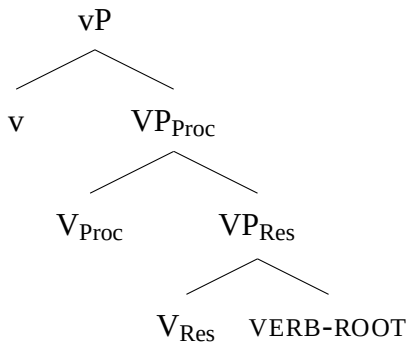
[5] An interesting matter ultimately set aside here—also discussed in the research by Kegl and Schley—is variation in the degree of idiomatization of such lexicalized classifier structures: MOVE-IN-AIR-BY-PLANE is not, for example, a felicitous descriptor of hang-gliding or bird flight, though PUT-BALLOT-IN-CONTAINER is a perfectly acceptable predicate for describing the use of electronic voting machines.

face component corresponding to VP_{Res}, and only to VP_{Res}, that is present and reduplicated under NOMINALIZING REDUPLICATION.

3.3.1 The Decomposed VP

The decomposition of verbal structure originates in the VP-internal analysis of subjects, wherein a dedicated, higher layer ('shell') of the verbal domain is responsible, at least, for the introduction of the subject argument (Fukui and Speas 1986, Kuroda 1988, Koopman and Sportiche 1991, Larson 1988, Kratzer 1994). The decompositional details relevant here are those concerning the syntactic encoding of long-observed semantic properties of verbal event structure (Vendler 1967), ideally providing for an isomorphic relationship between the projection of verbal syntax and the interpretation of semantic events. For concreteness, I assume the decomposition Ramchand (2008) develops for the low verbal domain, wherein the VP shell—the structure built prior to the introduction of a subject argument—is divided into two verbal layers: a process component corresponding to the dynamicity of events and thus related to event durativity and a result component corresponding to the presence of a result state and thus related to event telicity.[6] This is schematized in (15), adopting the maximally transparent terminology V_{Proc} and V_{Res} to refer to these event structural and assuming that they are both introduced compositionally; the projection of the vP is used in this first structure to situate the verbal domain referenced here.

(15)



[6]This division is compatible with much of the existing literature on the syntax and semantics of event structure, though further decomposition may become apparent in future research. At present, at least this two-way distinction is necessary to capture the patterns documented here.

As will become clear below, the division of verbal event structure into VP_{Proc} and VP_{Res} is well-supported, and, indeed, necessitated, by the behavior of verbal predicates in ASL, in both their verbal usage and their nominalized form. Before turning to evidence of this, however, one more structural component needs to be introduced.

3.3.2 Verbal Classifier Structure

Verbal classifiers in ASL and other signed languages surface predominantly in complex predicates of movement (16a) and location (16b).

(16) a. BICYCLE 3+MOVE_UP
bicycle vehicle$_{w/e}$+move_up
The bicycle went up (the mountain).

b. BICYCLE 3+BE_LOCATED
bicycle vehicle$_{w/e}$+be_located
A bicycle is standing (over there).

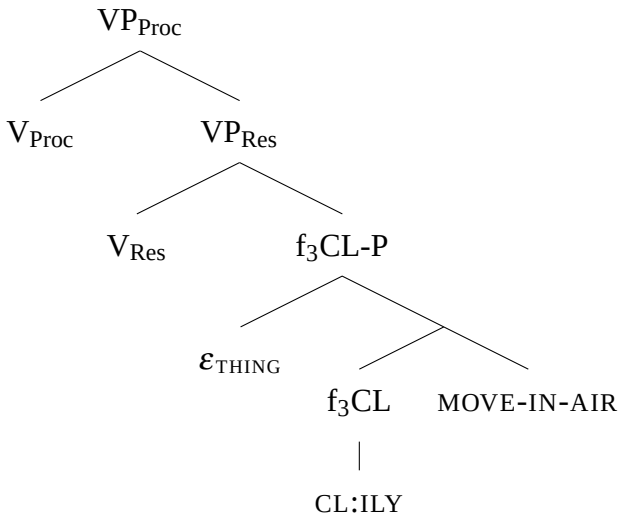
(Benedicto and Brentari 2004)

In structures such as these, the movement and location of the hands in signing space mimic the real world movement and location of the spatial predicate's arguments (here, BICYCLE). Furthermore, the handshape with which the predicate is produced represents semantically the argument whose spatial behavior is described by the event. In the case of both (16a) and (16b), the handshape used is a sideways 3-handshape (CL:3), a handshape used in ASL to semantically represent the vehicular class of nominals. This handshape component, which, again, varies according to the nominal class of the argument, is the classifier structure of the sign.

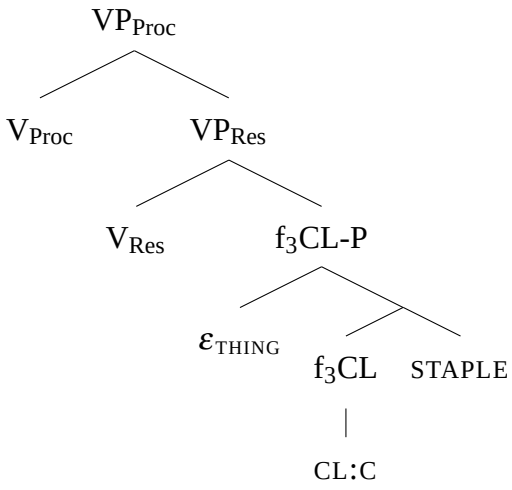
The verbal predicates relevant to the case of concrete object-denoting nominals include not only lexicalized spatial predicates of movement and location (e.g., MOVE-IN-AIR-BY-PLANE) but also lexicalized classifier predicates that are not so transparently associated with spatial meaning. The handshapes of these predicates nevertheless provide surface evidence of the classifier structures that underly them, as evident in STAPLE-WITH-STAPLER, which is produced with a handling classifier representing how a stapler is handled during use. In both cases, the relevant observation

is that these are syntactically complex forms, comprising at least the verbal root (MOVE-IN-AIR, STAPLE) and the classifier structure (BY-PLANE, WITH-STAPLER) realized in the handshape of the verbal form. Adapting the analysis of spatial and locative classifier predicates developed in Benedicto and Brentari (2004), the structural complexity of these lexicalized forms is represented here as in (17).

(17) a.



b.



Thus, at an initial stage of the derivation, the verbal root forms a complex predicate with the projection of the verbal classifier (f_3CL-P).

The task of the verbal classifier projection here is threefold. First, the projection introduces into the syntactic structure the classifier handshape (CL:ILY, CL:C) with which the predicate is produced. Second, the projection of the verbal classifier serves to introduce the null nominal ar-

gument ($\varepsilon_{\text{THING}}$) that it classifies, thus echoing the f_2 and f_1 projections that serve to introduce or license theme and agent arguments, respectively, in Benedicto and Brentari's analysis. The terminological choice of f_3 here serves to distinguish this structure from its analytic predecessors. Unlike the f_2 and f_1 classifier structures that Benedicto and Brentari explore, both of which are merged outside the VP projection, f_3CL-P merges low in the verbal domain, prior to the merger of verbal event structure. Several observations argue in favor not only of distinguishing f_3 as an independent component of the classifier system but also of introducing f_3 low in the verbal domain. One, the complex predicate derived from the combination of the verbal root and the f_3CL-P structure is much more susceptible to lexicalization and idiomatization than the classifier structures analyzed by Brentari and Benedicto, as was discussed with respect to VOTE/PUT-BALLOT-IN-CONTAINER above. Though there is potential for the development of idiomatic meaning at virtually any level of the morpho-syntactic structure (cf. *the pot calling the kettle black*), such extensions of meaning are far more common with small structural constituents. Two, unlike BICYCLE above, the nominal introduced by f_3CL-P does not surface as an overt argument of the verbal predicate. This, too, is unsurprising given that overt arguments are licensed higher in the verbal domain than the site occupied by f_3CL-P. Given this, the null status of the nominal introduced by f_3CL-P may be viewed on a par with the 'incorporated' status of low nominal arguments in other languages. Three, building on this observation, it is clear that the argument role served by the nominal introduced by f_3CL-P is not the agent or theme role filled by the nominals introduced by Benedicto and Brentari's f_2 and f_1 classifier structures. Rather, as described above, the nominals introduced by this lower classifier structure function instead as locative or instrumental arguments, though some 'low theme' interpretation may also be possible, depending on the argument structural analysis of a predicate such as PUT-ON-RING, which is produced with a handling classifier representing the ring.

This final observation also serves as illustration of the remaining structural task of the f_3CL-P projection, which is to determine how the nominal it introduces is interpreted with respect to the event denoted by the complex predicate formed. Thus, it is the f_3CL-P projection that is responsible for determining the instrumental interpretation of the nominal in STAPLE-WITH-STAPLER and the locative interpretation of the nominal represented by the bent H-handshape in SIT. Given this, the f_3CL-P projection may be viewed instead as a set of low classifier structures, each of which

corresponds to the specific argumental interpretation it mediates, on a par with the set of high applicative interpretations discussed in Pylkkänen (2002). For expository purposes, f_3CL-P is the uniform structural representation used here and the interpretation of the nominal introduced is provided in the description or gloss of the derived predicate (e.g., BY in MOVE-IN-AIR-BY-PLANE).

3.3.3 Morpho-Semantics of ASL Predicates

In complex predicates derived as above, the shape of the hands are a non-arbitrary representation of the physical properties of a participant in the event denoted by the predicate. Even when verbal classifier structure is not present, however, as is the case with verbal predicates that yield result-denoting nominals only, the surface properties of the verbal predicate non-arbitrarily reflect the event to which the predicate refers. In this case, however, it is the movement component of the verbal predicate that is relevant. The non-arbitrary nature of the movement component of verbal predicates in ASL is not a novel observation. In her original study of verbal reduplication in ASL, Fischer (1973) observed connections between surface form and event semantics of verbal predicates. Likewise, in their examination of NOMINALIZING REDUPLICATION, Supalla and Newport (1978:103–104) observe that "*single* movement in the [verbal] sign corresponds to single, punctual or perfective action. *Repeated* movement, in contrast, refers to durative or iterative activity which is made of repeated punctual actions (e.g., SMOKE is composed of iterative actions of bringing a cigarette to the mouth). Further, while the *hold* manner corresponds to an action with specified spatial end-points, the *continuous* manner is used for actions with unspecified spatial end-points." These observations have been formalized and made more explicit in recent researching addressing Wilbur's 2003, 2010 proposed *Event Visibility Hypothesis*:

(18) *Event Visibility Hypothesis* (EVH): In the predicate system, the semantics of event structure is visible in the phonological form of the predicate sign. (Wilbur 2010:358)

The crux of the proposal, again, is the longstanding observation that the action denoted by a verbal predicate is represented in the manual production of the predicate itself.

Hence, while all signs in ASL are required to be produced with a movement component, as it is movement that anchors the syllabic structure of sign, the movement of verbal predicates extends beyond this phonological restriction and encodes properties that are semantically meaningful. Relevant to the present discussion are Wilbur's insights regarding the surface composition of verbal predicates in ASL and the discrete connections between the morpho-phonology of the verbal form and the event structural components of the event denoted by the verbal predicate. Specifically, Wilbur, supported by motoric measurements (Wilbur and Malaia 2008) taken during signing, observes that the movement sequence of telic predicates in ASL can be divided into two semantically meaningful parts that are relevant here. The first of these is the spatial path movement of the predicate, which corresponds to the dynamic, process portion of the event, while the second is a significant change in the phonological parameters of the predicate, corresponding to the presence of a result state (telicity) in the event semantics of the predicate. The phonological changes that Wilbur observes to be correlated with event telicity are an opening or closing of the handshape, a change in the palm orientation, movement to a distinct position or location, or movement to an abrupt stop at a position or location, including movement to a contact. That is, just as the structure of a telic predicate, in general, is a verbal bundle of VP_{Proc} and VP_{Res}, the form of a telic predicate is, in ASL, a surface bundle of a path movement and a phonological parameter change.

The morpho-phonological properties indicative of the event dynamicity and event telicity are evidenced here via the verbal predicate ACCEPT in Figure 3.9. The process portion of the event, associated semantically with aspects of both durativity and dynamicity, is represented by a relatively large path movement across signing space toward the signer's chest. As the hands move across signing, they slowly undergo a handshape aperture change, with all of the extended fingers closing into a flat-O handshape, so that these surface components, as is characteristic of sign language, are layered together simultaneously as part of a large verbal complex. The completion of the handshape change signifying the presence of a result state in the event denoted co-occurs with the completion of the spatial path movement, so that the closure of the hands culminates as the hands make contact with the signer's chest.

Crucially, this second part of the bundle is not a discrete surface component stative or atelic predicates, which are produced either with minimal, usually internal, movement that does not affect the

Figure 3.9: The verbal sign ACCEPT.

phonological parameter settings of the sign or with repeated or continuous movements in which comparable discrete changes cannot be identified, as in Figures 3.10 and 3.11.

Figure 3.10: The stative verbal predicate KNOW.

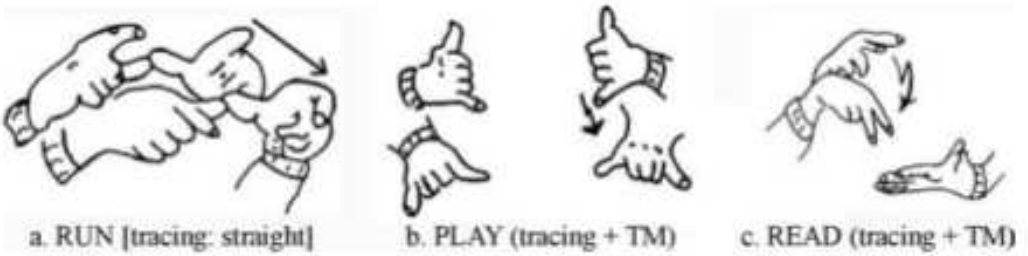
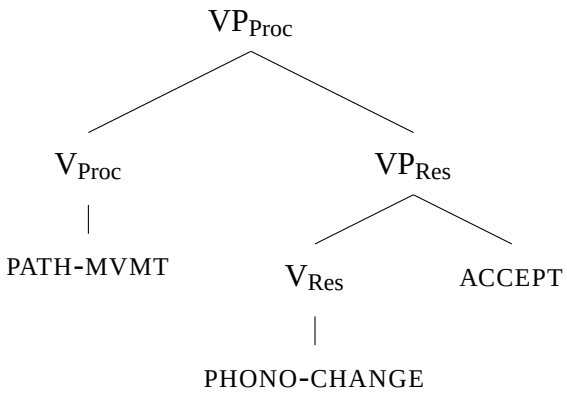


Figure 3.11: Atelic predicates marked by continuous or repeated movements. Re-printed from Wilbur (2010) with permission from Cambridge University Press.

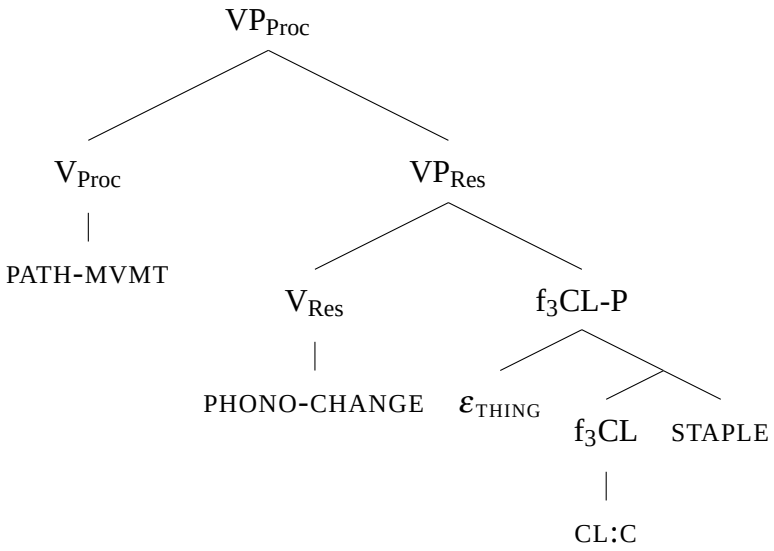
Finally, while it may appear that the aforementioned surface components are by default associated with the 'lexical verb'—acknowledging now that the notion is an epiphenomenon—, it is important to recognize that these structures are introduced compositionally and subject to the morpho-syntactic coercion that is typical of event semantic properties of verbal complexes. The verbal predicate READ in Figure 3.11, for example, can be produced with the morpho-semantic encoding of event telicity if the small repeated movements of its atelic interpretation are replaced by movement to an abrupt stop at the bottom of the non-dominant palm. Likewise, atelicity of ACCEPT can be encoded if the hands fail to fully close as they make contact with the chest, therefore producing the sign without the handshape change associated with telicity.

As suggested above, the connection between the interpretive components of the event denoted by the predicate and the phonological properties of the predicate's production can be transparently encoded in the morpho-syntax of the verbal structure. As such, the spatial path movement (PATH-MVMT) associated with the process portion of the event (dynamicity and durativity) is introduced in the VP_{Proc} portion of the verbal structure, while the phonological change (PHONO-CHANGE) associated with the presence of a result state and, consequently, associated with event telicity is introduced in the VP_{Res} portion of the verbal structure. This latter structural detail, especially, is supported by the morpho-phonological properties of an inchoative predicate such as MELT, which in ASL cannot be transitivized. Given that the intransitive version of the predicate bears hand-shape change indicative of event telicity, such phonological changes must be represented within the lower VP_{Res} structure and not, as Wilbur proposes, dependent on the higher verbal shells (e.g., VP_{Init}/vP). Finally, as expected given the classifier structures above and supported by the event semantic behaviors of lexicalized classifier predicates, the introduction of these morpho-semantic properties is unaffected by the presence or absence of verbal classifier structure. In both cases, the morpho-semantic components are introduced compositionally into the verbal structure, producing the complex verbal form that is the surface structural output ('spelled-out').

(19) a.



b.



The above morpho-semantic structures are motivated by the principled mapping between verbal form and event semantic interpretation in ASL. As discussed in the next section, however, these structures and their morpho-phonological exponence make clear the verbal structure targeted for nominalization by NOMINALIZING REDUPLICATION.

3.3.4 Residual Results

Reflecting on the surface properties of NOMINALIZING REDUPLICATION nominals and their corresponding verbal predicates, two generalizations become immediately clear. First, each of the predicates permitting NOMINALIZING REDUPLICATION is associated with a phonological change associated with the presence of a result state in the morpho-semantics of the verbal predicate, indicating that event telicity is a condition of NOMINALIZING REDUPLICATION. Thus, SIT (Figure 3.1) is produced with movement ending in contact with the non-dominant hand, STAPLE-WITH-STAPLER (Figure 3.4) is produced with an aperture change (closing) of the CL:C handshape, and STRIKE-MATCH (Figure 3.5) is produced with a setting change in the orientation of the palm. Likewise, ACCEPT (Figure 3.9) is produced with the aforementioned handshape change, while ANNOUNCE (Figure 3.7) is produced with a phonological change in the palm orientation and VOTE (Figure 3.2) is, like SIT, produced with movement to contact with the non-dominant hand.

Second, the surface structure of the nominal formed by NOMINALIZING REDUPLICATION pre-

serves this surface indicator of event telicity, as suggested by the discussion of the allormorphic paradigm of NOMINALIZING REDUPLICATION above. What is more significant, however, is that the surface structure of the nominal formed by NOMINALIZING REDUPLICATION preserves, from the verbal structure, only this surface indicator of event telicity. Thus, in explicit comparison of the nominal formed by NOMINALIZING REDUPLICATION and its corresponding verbal predicate, it is clear that the path movement associated with VP_{Proc} is not presented in the derived nominal. Any path movement present in the derived nominal is only the minimal movement necessary to produce the phonological change associated with event telicity. Thus, in SIT.NMZ-RED in Figure 3.1, only the reduced movement to contact is repeated, leaving off much of the path movement of the dominant hand downward in space. Comparably, in ACCEPT.NMZ-RED, the handshape change is produced entirely at the signer's chest, dropping entirely the spatial path movement toward the signer's chest present in the verbal form (Figure 3.9). The absence of this spatial path movement component underlies the traditional phonological description of NOMINALIZING REDUPLICATION as being produced with small reduplicated movement, relegating to the phonological description of the reduplication process the relative size of the movement reduplicated. Given robust evidence that movement properties are systematically linked to the morpho-semantics of event interpretation, however, this perspective on NOMINALIZING REDUPLICATION is rendered unparsimonious, as it fails to maintain this connection in the domain of derived nominals.

The alternative, entirely parsimonious and unremarkable, perspective defended here is that the surface properties of the reduplicated nominal are the natural consequence of the structure targeted by NOMINALIZING REDUPLICATION. Therefore, if the spatial path movement associated with VP_{Proc} is not present in the NOMINALIZING REDUPLICATION nominal, then VP_{Proc} is not present in the structure targeted by NOMINALIZING REDUPLICATION. Likewise, if the phonological change associated with VP_{Res} is present in the NOMINALIZING REDUPLICATION nominal, then VP_{Res} is present in the structure targeted by NOMINALIZING REDUPLICATION. Given this, the analysis of NOMINALIZING REDUPLICATION as a nominalization process becomes evident: NOMINALIZING REDUPLICATION nominalizes the lowest, VP_{Res}, structure of the verbal domain, as detailed below.

3.4 NOMINALIZING REDUPLICATION: The Low Down

In the model of the grammar assumed here—a model which is well-supported given the patterns documented in human language and the acquisitional task faced by the child—, semantic interpretation is determined by syntactic structure. In such a model, semantic ambiguity does not arise at random, excepting true cases of accidental homophony. Rather, semantic ambiguity arises only when surface identity masks an underlying structural ambiguity—that is, when the same output form corresponds to a multiplicity of syntactic structures. As explained above, the documented semantic ambiguity between concrete object-denoting and result-denoting nominal interpretations can be attributed to variation in the verbal forms targeted for nominalization: concrete object-denoting interpretations arise in the presence of verbal classifier structure. What is also needed, however, is a structural description of the derived NOMINALIZING REDUPLICATION nominal, its correspondence to semantic interpretation, and the ambiguous interpretation to which it gives rise. Thus, an appropriate analysis of the structures and the structural ambiguity that underly NOMINALIZING REDUPLICATION must provide a principled answer to each of the following questions:

Q1: How does NOMINALIZING REDUPLICATION derive result nominals from VP_{Res}?

Q2: How does NOMINALIZING REDUPLICATION derive concrete object-denoting nominals from VP_{Res}?

Q3: Why is the process of NOMINALIZING REDUPLICATION systematically ambiguous between these structures (and interpretations)?

Q4: Why is the process of NOMINALIZING REDUPLICATION systematically ambiguous between only these structures (and interpretations)?

In the present section, I implement and motivate details of the syntactic analysis of NOMINALIZING REDUPLICATION defended here. The analysis, and the answers it provides to the above questions, are as follows:

A1: NOMINALIZING REDUPLICATION is a nominalizing C_N head targeting a the VP_{Res} layer of the verbal structure, thus deriving result nominals.

A2: The [$_{C_N}$ NMZ-RED] nominalizer, like other complementizer projections, may also be used in the formation of a reduced relative clause headed headed by the null nominal argument introduced by the verbal classifier, thus deriving concrete object-denoting nominals if, and only if, verbal classifier structure is present.

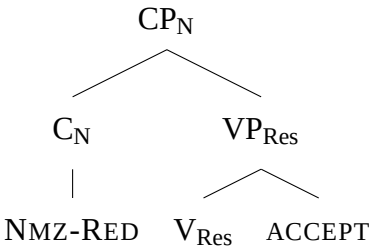
A3: The uniform presence of [$_{C_N}$ NMZ-RED] and the absence of any surface distinction between the nominalization structure and the reduced relative clause structure underlies the systematic ambiguity between result-denoting and concrete object-denoting nominals.

A4: Given the low verbal target of [$_{C_N}$ NMZ-RED], other interpretations of NOMINALIZING REDUPLICATION are not possible because the relevant structural components are simply absent from the structure.

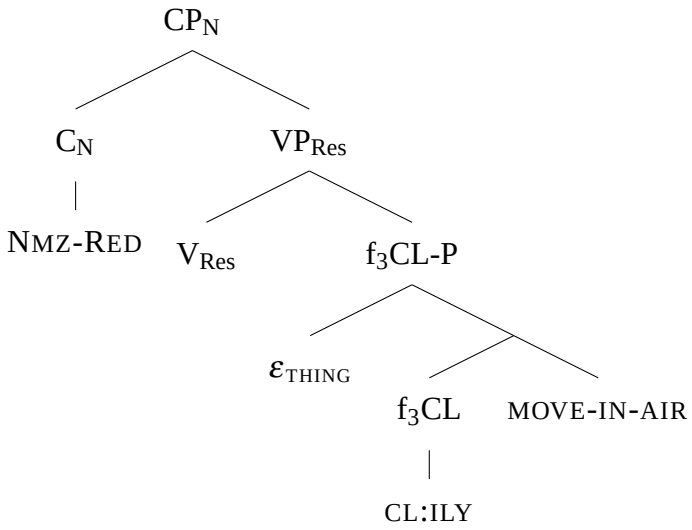
3.4.1 Result Nominalization

Given the morpho-semantic decomposition of the verbal structure and the approach to nominalization assumed here, the morpho-syntactic process of NOMINALIZING REDUPLICATION is entirely straightforward: it is the consequence of merging a nominalizing C_N head (NMZ-RED) with the VP_{Res} portion of the structure, as in (20). Moreover, given that the phonological change instantiated at the VP_{Res} level is associated with the presence of a result state and, as such, with properties of event telicity, it follows entirely that the nominals so derived receive result interpretations.

(20) a. ACCEPT.NMZ-RED (‘acceptance’, ‘a/the result of accepting’)



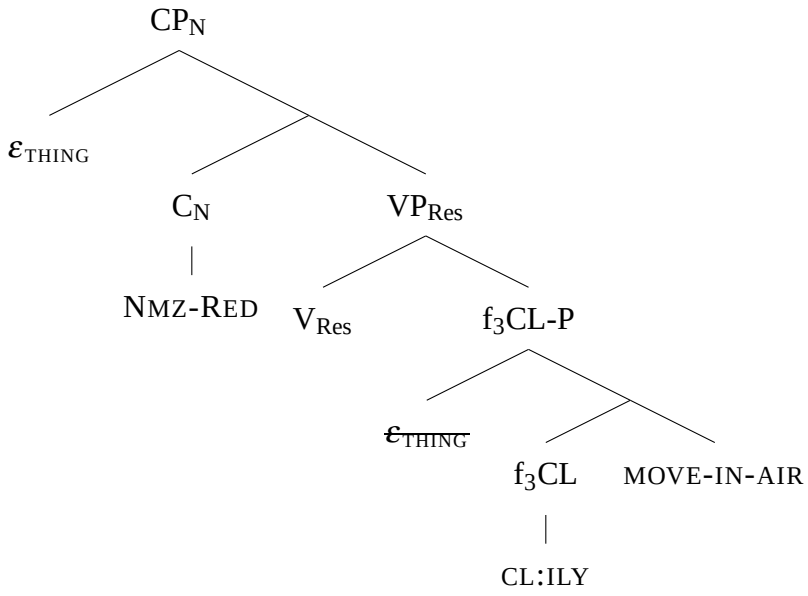
b. MOVE-IN-AIR-BY-PLANE.NMZ-RED (‘flight’, ‘a/the result of moving in air by plane’)



3.4.2 Concrete Object-Denoting Relativization

If, however, the nominalizing [$_{C_N}$ NMZ-RED] merges with a VP$_{Res}$ projection containing verbal classifier structure, an additional structural possibility is also made available. Recall from the earlier discussion that the C$_N$ analysis of nominalizations receives theoretical support from the symmetry it creates between nominalization and relative clause structures. Thus, given the analysis of verbal classifier structures outlined above, merger with a VP$_{Res}$ makes possible not only the result nominalization in (20b) above but also a relative clause structure headed by the null nominal introduced by the f$_3$CL-P classifier structure, as in (21).

(21) MOVE-IN-AIR-BY-PLANE.NMZ-RED (‘airplane’, ‘a/the thing for moving in air by plane’)



The above relative clause analysis generates the appropriate interpretation for the class of concrete object-denoting nominals. Moreover, it captures the fact that this interpretation is only available in the presence of verbal classifier structure, as only then will there be a null nominal argument available for relative clause formation. Moreover, given that the nominal introduced by the verbal classifier is always null and that the phonological exponence of the classifier is bundled together with the verbal complex, the analysis also explains the surface identity of concrete object-denoting and result-denoting nominals and thus the syntactic ambiguity of these two classes: there is nothing in the structure that can give rise to a surface distinction between the nominalization structure and the relative clause structure. Finally, the present analysis provides a diagnostic for investigating the syntactic structure of verbal forms in ASL. If a nominal derived via NOMINALIZING REDUPLICATION allows for a genuine concrete-object denoting interpretation, then its handshape must correspond to a morpho-syntactically active classifier structure, even if this structure is relatively opaque in the surface form of the verbal predicate (cf. Kegl and Schley 1986).

3.4.3 Argument Structure, Etc.: Further Evidence of Result Behavior

The import of the umbrella category *result nominal* in the cross-linguistic classification of nominalized constituents is twofold. In terms of the denotation of nominalized constituents, the result

nominal classification signifies that the referent of such nominalizations, across languages, is the result or outcome of an event. In terms of morpho-syntactic structure, result nominals, across languages, are so categorized because they exhibit certain uniform structural patterns. Given this, an inventory of the structural patterns exhibited by result nominals cross-linguistically may be used as diagnostic criteria for classification as a result nominal. The discussion below confirms their result status of result-denoting nominals derived via NOMINALIZING REDUPLICATION through the application of such a set of diagnostic criteria. The diagnostic criteria used here and elsewhere in the research on nominalization structures are those proposed in Grimshaw (1990), listed in Table 3.1 wherein the result of the diagnostic with respect to NOMINALIZING REDUPLICATION is also provided.

Properties of Result Nominals
(Grimshaw 1990)

		RESTRAINED REDUPLICATION?
(i)	Denote the outcome of an event.	✓
(ii)	Do not obligatorily take arguments.	✓
(iii)	Prenominal genitives are possessives, not agents.	✓
(iv)	Do not allow agent-oriented modifiers.	✓
(v)	May be definite or indefinite.	✓
(vi)	May pluralize.	✓
(vii)	Modification by *frequent* possible only when pluralized.	(✓)
(viii)	May appear as predicate nominals.	(?)
(ix)	Do not permit aspectual modifiers.	(?)
(x)	Do not permit implicit argument control.	(?)
(xi)	*By*-phrases are non-argumental.	N/A

Table 3.1: Properties of result nominals.

Before turning to the empirical evidence in support of the diagnostic results listed, however, a general discussion of the diagnostic criteria themselves is in order. The first matter to note is that these diagnostic criteria were established as a means of distinguishing between result nominals and other types of nominalization structures, specifically complex event nominalizations. In the present investigation, however, the diagnostic criteria are used simply to identify result nominal properties of the result-denoting class of NOMINALIZING REDUPLICATION nominals. This identificatory, as opposed to comparative, approach is motivated by the analytic goal of the present investigation: to confirm the result nominal status of just these structures. Moreover, the comparative approach

is rendered impossible in ASL given that larger nominalization structures on a par with complex event nominalization have yet to be clearly identified.

The second, and more morpho-syntactically interesting, aspect of these diagnostic criteria lies in their grammatical origins. These diagnostic criteria are established on the basis of morpho-syntactic properties shared across the class of result nominals, a pattern that can emerge only when the syntactic structure underlying result nominals is also shared. Thus, one may ask what is this underlying syntactic structure of result nominals and, moreover, how do the documented properties of result nominals arise as a consequence of this structure. Reflecting on the nature of the diagnostic criteria, the generally agreed upon structural property shared by result nominals is that they exhibit little evidence of verbal structure. One consequence of this is that result nominals exhibit significant impoverishment in terms of their argument structural properties when compared with those of their verbal counterpart, motivating the theoretical conclusion that argument structure, and arguments, are introduced incrementally in the decomposed layers of the verbal domain. While this structural property is evident in the class of result-denoting nominals derived via NOMINALIZING REDUPLICATION, a cautionary note is in order. Though it has been posited and defended here that NOMINALIZING REDUPLICATION nominalizes the VP_{Res} component of the verbal structure, it is as yet unclear what the argument structural properties of this projection beyond the argument introduced by the verbal classifier structure of certain forms. Thus, while certain verbal predicates permitting NOMINALIZING REDUPLICATION may be used transitively (22), it is unclear where the object argument of these complex predicates is structurally introduced.

(22) a. OFTEN-PATH IX_i VOTE REPUBLIC
He frequently votes for republicans.

b. WITHOUT-THOUGHT CRAIG ADVISE$_i$ $IX_{i,pl\text{-}cir}$
TAKE-UP WRONG CLASS
Craig thoughtless advised the students to take the wrong classes.

c. IX_i GO-AHEAD INFORM$_j$ COP ABOUT $_{fs}$CRIME
He willingly informed the police about the crime.

3.4.3.1 Absence of Agreement Morphology

Though the position in which object arguments are introduced in ASL is an as yet unexplored issue, there is nevertheless suggestive evidence that whatever this position is, it is absent from the structure of result nominals derived via NOMINALIZING REDUPLICATION, thus providing additional evidence of the low verbal structure targeted. This evidence comes from the domain of verbal agreement in ASL. Many of the verbs—especially within the result-denoting class—permitting NOMINALIZING REDUPLICATION also permit the expression of spatial agreement when used in their verbal forms, as was illustrated with ADVISE$_i$ and INFORM$_j$ in (22b)–(22c) above. This spatial agreement is not, however, possible in the derived nominal form (23). What is especially relevant here is the ungrammaticality of verbal agreement with the nominal form of ADVISE in (23a), given that spatial agreement with this predicate is expressed primarily through the orientation of the palm and should, thus, be in principle available within the phonological confines of NOMINALIZING REDUPLICATION. The absence of this verbal agreement morphology, thus, is clearly a morpho-syntactic, not phonological, restriction. Though the exact origin of this morpho-syntactic restriction is not yet obvious, it is clearly related to the reduced verbal structure in the derived nominal.

(23) a. ADVISE.NMZ-RED$_{(*i)}$ (‘advice’, ‘a/the result of advising’)

b. INFORM.NMZ-RED$_{(*i)}$ (‘information’, ‘a/the result of informing’)

3.4.3.2 The Role of Possessives (Properties [ii]–[iii])

Further evidence of the argument impoverishment of result-denoting nominals is found in the asymmetry between the verbal (24a) and nominal (24b) forms below. Thus, while the verbal form VOTE in (24a) can take both a subject and object argument, neither of these arguments are required in the case of the derived result nominal in (24b).

(24) a. CRAIG VOTE MITT-ROMNEY FINISH HAPPEN
Craig already voted for Mitt Romney.

b. VOTE.NMZ-RED YESTERDAY COST FORTY DOLLAR
The election yesterday cost forty dollars.

Furthermore, in line with Grimshaw's observations, there is evidence that when nominal arguments of the associated verbal form are present in the derived nominal structure, such arguments may be licensed via the possessive strategies of the nominal domain. As such, possessor nominals in the derived structure may be interpreted either as the agent of the associated event or its 'owner' (possessor). Thus, the *pro*-form possessor introduced by POSS in (25) need not, exclusively, refer to the agent of the verb. Likewise, there is evidence that, just as was the case with possessor structures of 'underived' nominals, nominals introduced via juxtaposition exhibit more interpretive variability than those introduced by POSS and, moreover, are licit with lower argument interpretations (26).

(25) POSS_i ADOPT.NMZ-RED
An adoption of his

✓[i] = Person adopting
✓[i] = Lawyer arranging adoption
#[i] = Baby being adopted

(26) CRAIG ADOPT.NMZ-RED
An adoption of his

✓Craig = Baby being adopted

Perhaps the strongest evidence for the absence of argument structure in result-denoting (and concrete-object denoting) NOMINALIZING REDUPLICATION, however, is that these JUXTAPOSITION and POSS constructions were incredibly marked and somewhat unnatural for the signers consulted. Much of the data elicited in this domain exhibited variation that, at present, resists conclusive analysis and warrants further investigation, especially once more is known regarding argument structure of the verbal domain. Nevertheless, three intriguing, albeit tentative, generalizations do emerge:

G1: Nominals introduced by POSS exhibit interpretive restrictions, though these interpretive restrictions are not immediately reducible to properties of verbal argument structure.

G2: Nominals introduced by JUXTAPOSITION exhibit interpretive flexibility on a par with the interpretive flexibility exhibited by JUXTAPOSITION possessors of underived nominals.

G3: If POSS and JUXTAPOSITION are both used, interpretive restrictions in terms of verbal argument structure emerge: POSS must refer to the agent (external) argument and JUXTAPOSITION must refer to the object (internal) argument, even if these strategies in isolation do not exhibit such restrictions.

Note, before moving on, that these generalizations are entirely in line with patterns documented cross-linguistically and that the third generalization above is especially suggestive of a universal hierarchy of genitive/possessive relations in the nominal domain (cf. Longobardi 2001).

3.4.3.3 Unavailability of Agent-Oriented Modifiers

The availability of agent-oriented modification has been identified by Benedicto and Brentari (2004) as one means of distinguishing between agentive and non-agentive arguments in the verbal domain of ASL. They observe that the agent-oriented modifier WILLING ('willingly') is incompatible with the non-agentive argument structure of unaccusative predicates (27a), a pattern which is interesting from a cross-linguistic perspective given the felicity of the English translation. Confirming that this is indeed related to the agentivity of the argument, they further observe that WILLING is an acceptable modifier of the agentive argument structure of unergative predicates (27b).

(27) a. `*WOMAN WILLING FALL`
`woman willingly fall`
The woman fell willingly.

b. `WOMAN WILLING LAUGH`
`woman willingly laugh`
The woman laughed willingly.

(Benedicto and Brentari 2004)

Building on Benedicto and Brentari's observation that agent-oriented modification can be discretely identified in ASL, the result nominal status of NOMINALIZING REDUPLICATION can thus

be evaluated with respect to this property. The agent-oriented modifier investigated here is the sign GO-AHEAD, as this was the preferred means of expressing that an action was undertaken willingly for the signers consulted here. Converging evidence that GO-AHEAD is sensitive to agentivity is provided by Rathmann (2005), who uses the sign to distinguish the otherwise manually unmarked imperative form in ASL (28).

(28) a. *(GO-AHEAD) KNOW HISTORY[7]
Go-ahead (and) know history!

b. (GO-AHEAD) EXPLAIN HISTORY IX_i [MY SON]$_i$
Go-ahead (and) explain history to my son!

(Rathmann 2005)

The agent-oriented interpretation of GO-AHEAD relevant here is illustrated in the modification of the verbal form INFORM in (29), elicited in the context of a gang who feels that one of their members has become too cooperative with the police.

(29) IX_i GO-AHEAD $INFORM_j$ $_j$ COP, $IX_{k,pl\text{-}arc}$,
GANG, FED-UP
The gang is fed up because he willingly informs the police.

Modification by GO-AHEAD is not possible with the nominal form derived via NOMINALIZING REDUPLICATION of INFORM (30), though the intended meaning is, as the translation suggests, an entirely reasonable one and the interpretation of the possessor is quite 'agent-like'.

(30) *$POSS_i$ GO-AHEAD INFORM.NMZ-RED, $IX_{k,pl\text{-}arc}$,
GANG, FED-UP
The gang is fed up because of the information he willingly gives the police information.

Thus, result interpretations of NOMINALIZING REDUPLICATION exhibit the prohibition against agent-oriented modifiers that is expected by Grimshaw's diagnostics and is explained by the low

[7]The transcription presented here corrects a typographical error in the original:

(i) (GO AHEAD KNOW HISTORY
Go-ahead (and) know history!

nominalization target of NOMINALIZING REDUPLICATION, as agentivity is not introduced internal to the verbal structure of the VP_{Res}.[8]

3.4.3.4 Quantificational Variability (Properties [v]–[vii])

The interpretive generalization that underlies Properties [v]–[vii] is that event structure, when carried over to the nominal domain, exhibits the properties of mass nouns. As such, non-result nominalizations behave as singular, definite nominals. In contrast, result nominals, which lack event structure and, like underived nouns, are individual-denoting, behave as count nouns, which can vary in both number and definiteness (31).[9]

(31) a. a/the exam

b. the exam/exams

The structural explanation in this case is not as straightforward, but usually attributes these patterns to a decrease in nominal structure that results from an increase in the size of the verbal constituent nominalized, specifically with respect to the nominal structure (Number) that underlies quantificational variability. Stated bluntly, the more verbal a nominalization, the less nominal a nominalization.

[8]The alternative explanation is that GO-AHEAD is simply not a licit (adjectival) modifier of the nominal domain in ASL. At present, not enough is known about adjectival versus adverbial modification to tell if this is a factor of the data presented here, though there is at least suggestive evidence of some modifier overlap (e.g., FAST, BEFORE-EAR, OFTEN-CIRCLE).

[9]Spatial indexicals in ASL may provide evidence for this generalization outside the domain of nominalization proper. One intriguing property of the spatial reference system in ASL, noted above, is that referential loci may be established for referents that are not individual-denoting. Depending the discourse needs, referential loci may be established for referents that are events, propositions, times, locations, etc., though the full range of possible spatial referents has yet to be explored. Moreover, linguistic reference to individual-denoting and non-individual-denoting may be accomplished via the same spatial indexical sign IX, a pattern that Schlenker (To appear) uses as evidence for ontological symmetry between these referent types in natural language. However, the symmetry between these spatial referents seems to break down in the domain of quantificational variability. While indexical reference to individuals may be marked for various types of plurality ($IX_{pl\text{-}dual}$, $IX_{pl\text{-}arc}$, $IX_{pl\text{-}cir}$, $IX_{pl\text{-}dist}$), this does not appear to be possible when the indexical refers to event. Though this distinction may be reducible to the number of event referents that can be assigned a spatial locus in discourse, this, too, would be evidence for referential distinctions across the individual and event domains. Further research is needed, empirically and analytically, before conclusive generalizations can be made on this issue.

Evaluation of NOMINALIZING REDUPLICATION with respect to this diagnostic provides clear evidence that the output forms display the behaviors expected of result nominals. While the status of ASL as a null determiner language (cf. §2.3.1.1) complicated matters slightly, definite and indefinite interpretations of nominals derived via NOMINALIZING REDUPLICATION can be teased apart as a consequence of linguistic context (32).

(32) a. EACH COUNTRY HAVE VOTE.NMZ-RED
There's an election in every country.

b. y/n
IX$_2$ FINISH HEAR ABOUT VOTE.NMZ-RED Q-WG
Did you hear about the election?

Variation in definiteness is further evidenced by their compatibility with the quantifier types that are found in ASL, such as the definite demonstrative THAT (33a) and the indefinite quantifier SOME (33b).

(33) a. THAT$_i$ $_i$VOTE.NMZ-RED, BEFORE IX$_i$ BETTER
The election was better before.

b. SOME VOTE.NMZ-RED GOOD, SOME BAD
Some elections are good, some are bad.

Comparable argumentation can also be presented in the domain of number variation. Thus, while ASL does not obligatorily distinguish singular and plural nominals, there are cases of overt plural marking in the nominal system. Specifically, nominals in ASL can be marked for dual and distributive plurality. Parallel to the markers of dual and distributive plurality in the pronominal (IX$_{\text{pl-dual}}$, IX$_{\text{pl-dist}}$) and verbal (POSS$_{\text{pl-dual}}$, POSS$_{\text{pl-dist}}$, GIFT-TO$_{\text{pl-dual}}$, GIFT-TO$_{\text{pl-dist}}$) domains (cf. §2.4.2), dual marking on nominals repeats the nominal in two distinct locations in signing space, while distributive marking repeats the nominal in at least three distinct locations. When the nominal sign is produced on the signer's body, and thus cannot be produced at any let alone multiple locations in signing space, the orientation of the signer's body marks the necessary locational distinctions. This was one of the observations included in Supalla and Newport's original research, as they discussed dual inflection in the nominal domain and noted its appearance with the

concrete object-denoting nominals they identified (EAT.NMZ-RED$_{\text{pl-dual}}$, their 'dual FOOD'). This dual inflection is also found with the result interpretation of NOMINALIZING REDUPLICATION (34) (Figure 3.12), as is the distributive plural form (35), which Supalla and Newport did not discuss.

(34) PRINT.NMZ-RED DISCUSS ABOUT TWO DIFFERENT VOTE.NMZ-RED$_{\text{pl-dual}}$
The newspaper talked about two different elections.

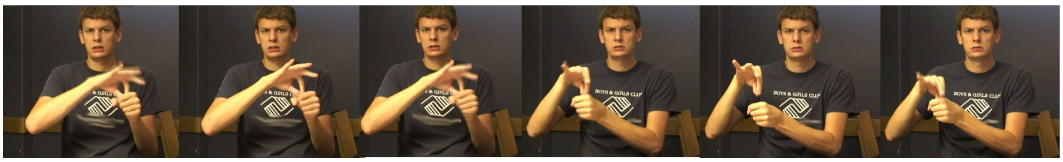


Figure 3.12: Dual inflection, VOTE.NMZ-RED.

(35) EACH VOTE.NMZ-RED$_{\text{pl-dist}}$ BOTHER IX$_1$
Each election bothers me.

Though recent research reveals that the distinction is not so clearcut as Grimshaw originally observed—plural marking of nominalizations with argument structural properties has been documented in both Romance (Roodenburg 2006) and Germanic (Borer 2005) languages—, the generalization that nevertheless holds is that quantificational variability correlates with reduced verbal structure in nominalizations. Thus, the quantificational variability documented here is expected given the small VP$_{\text{Res}}$ structure nominalized by NOMINALIZING REDUPLICATION.

Before moving on, it is also relevant at this juncture to address the distribution of frequency modification in NOMINALIZING REDUPLICATION. As Grimshaw observes, modification by *frequent* is only possible with plural result nominals (36), as nominal modification by *frequent* is contingent upon plurality (cf. §3.1.1).

(36) a. *The frequent exam bothered the students.
b. The frequent exams bothered the students.

Again, for Grimshaw and others researching variation in nominalization structures, the test is proposed as a means of distinguishing between result nominals and eventive nominals, the latter of which are compatible with *frequent* in the singular form because it is functioning as an event modifier (37).

(37) The frequent examination of the students bothered them.

With respect to NOMINALIZING REDUPLICATION, (38) shows that the nominals derived, like other result nominals, cannot be modified by the frequency modifier OFTEN-PATH when they are unmarked for plurality.

(38) *OFTEN-PATH INFORM.NMZ-RED

This diagnostic, however, remains inconclusive. While (38) shows that unmarked NOMINALIZING REDUPLICATION nominals display the expected behavior of singular result nominals, there is as yet no evidence regarding the compatibility of OFTEN-PATH with result nominals that are explicitly marked for plurality. It may, for example, simply be that OFTEN-PATH, produced with repeated tapping of a bent-B handshape across the palm of the non-dominant hand, is not an acceptable nominal modifier (i.e., cannot be adjectival). However, adverbial (39a) and adjectival (39b) uses of a related form, OFTEN-CIRCLE, produced with repeated counterclockwise movements in the center of the non-dominant palm, suggest that this is not the case.

(39) a. IX_i OFTEN-CIRCLE GO-TO CLASS, IX_i STUDENT FED-UP
The student is fed up with going to class all the time.

b. $POSS_i$ OFTEN-CIRCLE CLASS, IX_i STUDENT FED-UP
The student is fed up with his class that happens all the time.

3.4.3.5 Commentary on Unaddressed Result Diagnostics (Properties [viii]–[xi])

On the basis of the diagnostic results above, it is clear that the class of NOMINALIZING REDUPLICATION nominals identified here exhibit the behaviors associated with result nominals. Before

continuing to the analysis of agent nominals, however, it is worthwhile to address, briefly, the properties of Table 3.1 that were not addressed and their reason for omission here.

Beginning with the property whose omission here receives the most straightforward explanation, the interpretation of *by*-phrases with respect to their (non-)argumental status (Property [xi]) was not undertaken here because *by*-phrases do not exist. The *by*-interpretation that Grimshaw and others are after is that associated with the interpretation of the *by*-phrase that introduces external arguments in the passive construction. This diagnostic is simply unavailable for ASL, as the language lacks a passive form (Padden 1988).

Turning next to the use of predicative use of result nominals (Property [viii]), a diagnostic whose structural explanation warrants further research—Grimshaw tentatively attributes it to the fact that result nominals can be indefinite—, the reason for omission here is much less principled: the empirical pattern was simply not investigated in the present research. Result nominals are usually, though not always, as discussed above, abstract. Thus, given the status of ASL as a null copula language whose full range of predicate nominal structures are as yet unclear—though see Wilbur (1996), Wilbur and Patschke (1999), and Abner (In prep)—, it is difficult to develop authentic elicitation materials for purposes of eliciting predicate nominal uses of result nominals. Suggestive evidence that such uses are available is provided by the specificational sentence in (40), which, based on the discussion of possessive structures in the preceding chapter, should be compatible with both a definite and indefinite interpretation, though only the definite interpretation has been confirmed here.

(40) IX$_i$ $_i$RIOT CAUSE WHAT, IX$_j$ $_j$OBAMA POSS$_j$ LECTURE.NMZ-RED
The cause of the riot was Obama's speech.

With respect to the remaining two properties—the prohibition against aspectual modifiers (Property [ix]) and implicit argument control (Property [x])—the structural patterns documented during the course of the present research provide initial evidence that the result nominals identified here do exhibit these properties. Signers were not able to produce NOMINALIZING REDUPLICATION with any of the control or aspectual structures investigated, suggesting that the ban on implicit argument control and aspectual modification is present in result nominals of ASL. Here, too, al-

ternative explanations are possible, as control structures and aspectual modification are further examples of underexplored areas of the ASL grammar. First, this could simply be a consequence of not yet having identified the appropriate structure for combining the derived nominal with the control structure, though given the range of manipulations investigated this is unlikely. Second, this could be a result of these structures being, in general, unavailable in the nominal domain, as suggested by the large clausal structure used for the expression of control in the example a below, a structure which parallels the WH-cleft structures investigated by Wilbur (1996) and Davidson et al. (2011).

(41) a. IX$_{i}$ FINISH COLLECT ART FOR-FOR,
POSS$_{i}$ DECORATE
She collected art to decorate her house.

b. IX$_{i}$ FINISH ADOPT BABY DOG FOR-FOR
SURPRISE IX$_{j,\text{pl-arc}}$ KID
He adopted a puppy to surprise the kids.

In this case, the incompatibility is not, strictly speaking, informative with respect to the result nominal diagnostic. Thus, though the patterns strongly suggests that result interpretations of NOMINALIZING REDUPLICATION exhibit the expected incompatibility with implicit argument control and aspectual modifiers, this too is a matter left to future research.

3.5 Agentive PERSON

Comparable to the *-er* nominal translations they frequently receive, agent nominals formed with the sign PERSON in ASL are commonly used to derive the names of professions. Often cited as evidence of concatenative processes in sign languages, the formation of agent nominals were posited by Padden (1988) as a syntactic diagnostic for verbhood in ASL, a proposal that requires her to set aside cases such as those in (42) as lexicalized exceptions.

(42) a. TOOTH PERSON
dentist

b. AMERICA PERSON
American

As established in the discussion below, however, the combination of PERSON with nouns functions not as an exception to the rule but rather as an illustration of the rule itself.

Counter to traditional descriptions, the 'verbal' sign with which PERSON combines is, in actuality, a form of the verb that has already been nominalized via NOMINALIZING REDUPLICATION. That is, when signers were asked to produce the PERSON signs referring to, for example, an *adviser* or a *voter*, signers consistently produced the forms not by attaching PERSON to the verbal signs ADVISE or VOTE, but by attaching it to the nominal signs, ADVISE.NMZ-RED and VOTE.NMZ-RED, respectively. This is illustrated in Figures 3.13 and 3.14.

Figure 3.13: The PERSON nominal ADVISE.NMZ-RED PERSON.

Figure 3.14: The PERSON nominal VOTE.NMZ-RED PERSON.

Further evidence for the role of NOMINALIZING REDUPLICATION in creating PERSON nominals comes from the domain of speaker variation, nonce form creation, and 'PERSON drop'. As was noted earlier, NOMINALIZING REDUPLICATION exhibits restrictions in the inventory of verbal forms with which it is compatible, and these restrictions are subject to speaker variation. One locus of variation observed in the course of the present research was the availability of a NOMINALIZING REDUPLICATION form for the verb LEARN. Though one consultant permitted NOMINALIZING REDUPLICATION on this form, LEARN.NMZ-RED, yielding the result nominal referring to *education* ('a/the result of learning'), another consultant did not use NOMINALIZING REDUPLICATION to

form this lexical item and instead used an unrelated form derived from the fingerspelling alphabet, E-D ('education'). Interestingly, this difference was also evident when consultants were asked to produce the ASL form corresponding to *student*, a form traditionally described as the combination of PERSON with the verbal sign LEARN. Thus, for the consultant who produced the NOMINALIZING REDUPLICATION form LEARN.NMZ-RED, the PERSON nominal was built on this derived nominal form (43a), while for the consultant who produced an unrelated form for *education*, the PERSON nominal was built on the 'base' verbal form of LEARN (43b).

(43) a. LEARN.NMZ-RED PERSON 'student'/'person for learning'

b. LEARN PERSON 'student'/'person for learning'

This is entirely expected, given that the second consultant lacks a NOMINALIZING REDUPLICATION form of LEARN on which the PERSON nominal can be built. A distributional pattern such as this may suggest the availability of a null allomorph of NOMINALIZING REDUPLICATION that can be used to form a derived nominal when NOMINALIZING REDUPLICATION is not permitted. There is, however, an alternative explanation possible. Launer (1982), in her study of the acquisition of noun-verb pairs differentiated by NOMINALIZING REDUPLICATION, observed that aspects of the NOMINALIZING REDUPLICATION process may be neutralized in fluent speech. Most notably, the actual reduplicant may be lost, which, also, is not unexpected given Wilbur and Schick's (1987) observation that reduplicants in ASL are phonologically unstressed. What Launer observed, however, was that, even in the absence of reduplication, the presence of NOMINALIZING REDUPLICATION could be identified by its other surface properties, such as the restrained manner of production and the reduced size of the sign, attributed here to the structure that is targeted for reduplication. Thus, what may be going on in these cases is that NOMINALIZING REDUPLICATION is present, but its presence is more subtle, requiring more careful phonological examination of the forms produced.

In some cases, though, the creation of a PERSON nominal also elicited the creation of a nonce NOMINALIZING REDUPLICATION form. This occurred during an elicitation procedure designed to investigate the productivity of PERSON nominals and the morpho-semantic factors that may be at play (agentivity) in their derivation. In this elicitation procedure, the consultant was asked to come

up with superhero names based on their superpower. In this task, though the signer consulted did not independently use, for example, MELT.NMZ-RED as a derived nominal the signer did produce the sequence [MELT.NMZ-RED PERSON], not [MELT PERSON], as the name for the superhero whose power is to liquify himself to move around strategically.

Finally, the role of NOMINALIZING REDUPLICATION in the creation of PERSON nominals is also evident in the fact that agentive meanings can be generated in the absence of PERSON, using only the NOMINALIZING REDUPLICATION form of the verb. This, too, is documented in Brentari's discussion of forms that do not adhere to Supalla and Newport's semantic criteria, as she observes that it is possible to use a NOMINALIZING REDUPLICATION form of the verb ASSIST, ASSIST.NMZ-RED, to form a noun referring to *assistant*. This pattern, assumed here to be the consequence of a null nominal counterpart of PERSON, gives rise to variation in how given occurrences agentive nominals are produced (44),

(44) a. (i) MOVE-IN-AIR-BY-PLANE.NMZ-RED PERSON 'pilot'/'person for moving in air by plane'

(ii) MOVE-IN-AIR-BY-PLANE.NMZ-RED $\varepsilon_{\text{PERSON}}$ 'pilot'/'person for moving in air by plane'

b. (i) ADVISE.NMZ-RED PERSON 'adviser'/'person for advising'

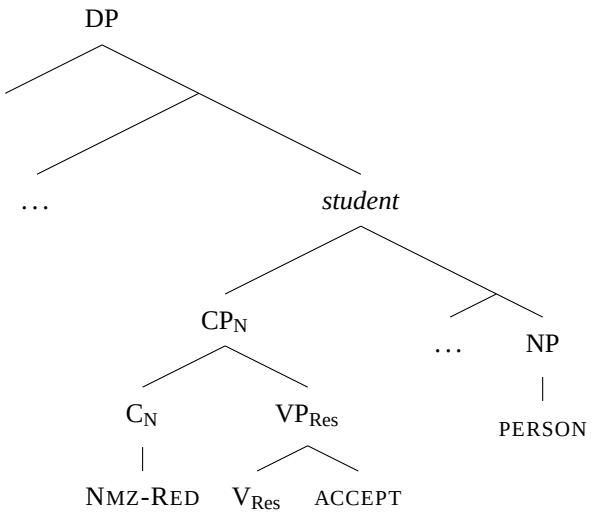
(ii) ADVISE.NMZ-RED $\varepsilon_{\text{PERSON}}$ 'adviser'/'person for advising'

Moreover, these patterns yield a third layer of ambiguity in the NOMINALIZING REDUPLICATION process itself, revealing that the surface form of NOMINALIZING REDUPLICATION corresponds either to a result nominalization, a concrete object-denoting relative clause structure, or to an agentive nominal resulting from a null nominal corresponding PERSON.

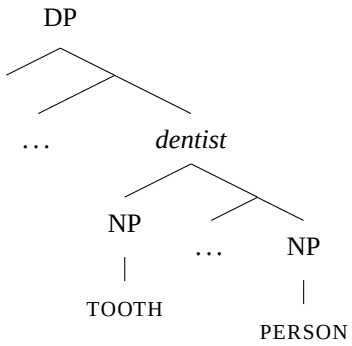
While such patterns require further investigation, the above empirical observations nevertheless confirm that it is the NOMINALIZING REDUPLICATION form that combines with PERSON to form the agentive nominal. Thus, the function of PERSON, or its null counterpart, in the grammar is not to nominalize the verbal form but to creative an agentive interpretation from a pre-existing nominal form, either by combining PERSON with a select set of underived nouns, as in (42), or by combining

PERSON with a select set of morpho-syntactically derived nominals. Specifying that PERSON combines with a select set of nominal forms is empirically necessary here, as PERSON exhibits as yet underexplored lexicalized restrictions in terms of the nouns, derived or otherwise, that it combines with. To account for the observed combinatoric patterns, the tentative suggestion made here is that PERSON is a nominal 'compounding' operation, creating morpho-syntactically complex forms from two nominal expressions. A schematic structural representation of this proposal is given in (45), though it should be noted that the structure of compounding processes remains somewhat unclear in present analyses (Harley 2009). Further investigation of the structure and interpretation of PERSON nominals is needed to identify, in finer detail, how this 'compound' structure emerges from the grammar. Moreover, the PERSON nominals so derived need to be examined with respect to the range of phonological processes that have been documented in compound structures in ASL (Liddell and Johnson 1986).

(45) a.



b.



3.6 Chapter Summary

The morpho-syntactic analysis of NOMINALIZING REDUPLICATION developed in this chapter builds on the decomposition of verbal event structural and the proposal (Wilbur 2003) that the semantics of event structure are evident in the surface form of verbal predicates in ASL. Given that NOMINALIZING REDUPLICATION reduplicates only a sub-part of the verbal form, the most straightforward analysis, which has been pursued here, is that the reduplication process targets only a sub-constituent of the verbal structure, specifically the VP_{Res} that indicates the presence of a result state and is responsible for encoding event telicity. In order to account for the observed ambiguity between concrete object-denoting and result-denoting nominals derived via NOMINALIZING REDUPLICATION, the analysis appeals to independently motivated properties of verbal classifier structure, arguing that concrete object-denoting nominals arise as a consequence of relativization of the null nominal argument introduced by the classifier structure. At present, I leave open the possibility of further unifying the morpho-syntactic structures of these two nominal classes, as it may be possible to derive both result-denoting and concrete object-denoting interpretations through relativization, a process that might also provide insight into the PERSON nominals discussed in the preceding section. In addition to this analytic issue, significant empirical legwork remains to be done, as both the productivity and the interpretive possibilities of NOMINALIZING REDUPLICATION—that is, the extent to which ambiguity exists between result-denoting and concrete object-denoting interpretations—have yet to be fully documented. Future work is also needed in order to investigate details of speaker variability and the phonetic neutralization observed by Launer (1982), an investigation that will benefit from controlled, experimental methodologies investigating production and, crucially, perception of nominal forms. Finally, a theoretical issue raised by this phenomenon in ASL is the issue of why languages exhibit the nominalization processes that they do. As discussed early in the chapter and at the outset of the present research, significant inter- and intra-language variability is found in the predicative structures that can be targeted for nominalization. In ASL, the present research reveals that quite low verbal structures may serve as licit input to nominalization processes in the language, though it does not appear that larger verbal structures may be targeted for nominalization in the language. Given this interesting asymmetry,

and the analyses of nominalization present in the research literature, it is worthwhile to investigate whether a principled explanation of licit nominalization targets can also be developed.

CHAPTER 4

Handing It In

4.1 Overview of the Arguments Presented

The investigation of possession and nominalization undertaken in these case studies has discussed a number of empirical patterns in ASL, many of which are documented here for the first time. In developing a formal account of how the grammar of ASL, *qua* a human linguistic system, generates these structures so too have a number of analytic proposals been made. Though many aspects of the analysis are, like the empirical patterns that motivate them, novel, touching on heretofore unaddressed details of the grammatical system of ASL, a significant virtue of the present approach is that the grammatical machinery required is entirely unoriginal. The structures posited depend only on the properties of the lexical and functional elements they comprise and the standard inventory of structure building operations (Merge and Move). Thus, in addition to carefully documenting the morpho-syntactic properties of possessive and nominalization structures in ASL, the present research serves to illustrate how the complexities of human language can be derived from a principled and relatively simplex grammatical system. Moreover, the present research illustrates that the complexities of ASL, a signed language, are just as compatible with a grammatical system so designed.

Finally, where loose ends remain, they, too, have been reduced to linguistic patterns found elsewhere in the grammar, though detailed analysis of these analogous patterns is a matter left to further research. Once more is understood about the grammar of ASL, we can return to the issues left open and develop more fine-grained analyses of the structures examined here. Given this, it is hoped that the present research is just a drop in the proverbial bucket of continued linguistic research on signed languages and that in future work—some ideas for which have been proposed

during the course of the discussion—evidence from signed languages will help further mold our scientific understanding of human language.

4.1.1 Study #1: Expressions of Possession

The investigation of possessive constructions in ASL revealed that attributive and predicative POSS structures (1) are uniformly derived from a verbal predication structure headed by the POSS possessive marker. Relativization of predicative structures plays a fundamental role in the analysis, as the DP-internal attributive POSS structure is analyzed as a reduced relative clause modifier built from predicative POSS.

(1) a. Attributive POSS

Attributive POSS
$_{i}$BRUNO POSS$_{i}$ BOOK
POSS$_{i}$ $_{i}$BRUNO BOOK
A book of Bruno's

b. Predicative POSS

IX$_{i}$ $_{i}$BOOK POSS$_{j}$ $_{j}$BRUNO
This book belongs to Bruno.

Initial motivation of the verbal predicate analysis of POSS came from the observation that a DP-internal analysis of POSS is incompatible with structural and interpretive properties of both attributive and predicative POSS constructions. Specifically, DP-internal analyses face challenges in accounting for the interpretive restrictions (vs. JUXTAPOSITION) and non-quantificational behavior of attributive POSS possessives. Moreover, such analyses unavoidably posit a predicate nominal structure for predicative POSS possessives, a structure that is untenable given the observed behavioral differences between attributive and predicative POSS constructions and the morpho-syntactic characteristics that POSS shares with verbs in the language.

These morpho-syntactic characteristics were then examined in detail. The results of this examination confirmed that POSS exhibits the distributional and morphological characteristics of verbal predicates in ASL, including the exponence of transitive verb agreement. Distributional and mor-

phological details of POSS were then used to establish that the verbal argument structure of POSS parallels *belong*-type verbs of possession, wherein the possessor functions as the object of the possessive predicate. Finally, it was shown that interpretive restrictions of the predicative POSS structure ("strict possession") and variation in the position of the possessor object arise as a consequence of the interaction of POSS with functional material of the predicative domain, specifically locative structure and licensing positions for definite objects.

The analysis then turned to the issue of deriving attributive POSS possessives from this predicative structure, providing evidence that this is accomplished via reduced relative clause formation. Because relative clauses occupy a structural region of the DP that is lower than that in which quantificational force is determined, attributive POSS structures do not affect the quantificational interpretation of the possessed nominal, though DP-internal word order variation may trigger a definite interpretation. The relative clause structure of attributive POSS is also responsible for the documented ungrammaticality of WH-possessors in attributive POSS structures only, as relative clauses trigger WH-*in situ* (and *ex situ*) island effects in ASL. Moreover, the predicative origins of attributive POSS provide the grammatical structure necessary to account for variation in word order and interpretation exhibited by the attributive construction, including the 'pronominal' use of POSS, licensed here via nominal ellipsis and (verbal) argument drop.

The study closed with a brief discussion of JUXTAPOSITION and APOSTROPHE-S possessive constructions in ASL. Though many issues remain, the observations therein establish, first, that these are both notably different constructions from those that involve POSS. Second, the interpretive patterns of JUXTAPOSITION and other structures in which relational nouns head possessed nominals motivate an analysis in which a functional relational head, not the noun itself, introduces the genitive argument. Finally, the patterns revealed that the APOSTROPHE-S structure in ASL departs significantly from the (Signed) English structure from which it is borrowed. This latter observation warrants further research given its potential implications for issues of language contact—English and ASL have existed side-by-side since the latter's emergence—and bilingualism—users of ASL are all, to some degree, bilingual in at least written English, with English literacy being notably higher for native users of ASL (Mayberry 1989). What is also worth noting explicitly at this point is the stark structural distinction between POSS structures and the superficially similar

English prenominal possessor. Though signers—as well as descriptive and research literature on the language—readily compare POSS to the possessive pronouns or *'s* marker of English, this comparison is simply and robustly unfounded, further confirming the resiliency of the ASL grammar despite language contact and signer bilingualism.

In sum, the analysis presents a comprehensive and explanatory account of possessive structures in ASL. In so doing, it also provides a number of insights into general properties of the predicative and nominal domains in the language. Finally, in reference to the overarching issues identified at the outset of the research, the evidence shows that the possessor of the attributive POSS construction not only fails to serve as an argument of the possessee nominal but is introduced in a domain (verbal structure) entirely separate from nominal syntax proper.

4.1.2 Study #2: Nominalization

Initially documented and analyzed by Supalla and Newport (1978) as a means of deriving concrete object-denoting nominals (2a), the NOMINALIZING REDUPLICATION process examined in the second case study is also a productive means of deriving result-denoting nominals in the language.

(2) a. Concrete Object-Denoting

(i)	[$_{V}$ MOVE-IN-AIR-BY-PLANE]	*to fly*
	[$_{Nmz}$ MOVE-IN-AIR-BY-PLANE.NMZ-RED]	*airplane*
(ii)	[$_{V}$ STAPLE]	*to staple*
	[$_{Nmz}$ STAPLE.NMZ-RED]	*stapler*

b. Result-Denoting

(i)	[$_{V}$ ACCEPT]	*to accept*
	[$_{Nmz}$ ACCEPT.NMZ-RED]	*acceptance*
(ii)	[$_{V}$ DEVELOP]	*to develop*
	[$_{Nmz}$ DEVELOP.NMZ-RED]	*development*
(iii)	[$_{V}$ PARTICIPATE]	*to participate*
	[$_{Nmz}$ PARTICIPATE.NMZ-RED]	*participation*

Building on the Event Visibility Hypothesis of Wilbur (2003, 2010) and standard decompositions of the verbal structure, the analysis argued that nominals derived via NOMINALIZING REDUPLICATION are built from small structures occurring low in the verbal domain, specifically the VP_{Res} that encodes the presence of a result state and mediates event telicity. The proposal made is that NOMINALIZING REDUPLICATION is produced by reduplicating only a sub-part of the verbal form not because it is phonologically specified to do so, but because only a sub-part of the verbal structure is present in the derived nominal. Thus, in line with what Wilbur and her predecessors observed, the evidence from ASL provides unique insight into the syntactic representation of event structural semantics, semantic properties that are evident in the surface form of verbal constituents in ASL and are manipulated by syntactic operations of the grammar. Patterns such as these further motivate a 'lean interface' perspective on the grammatical system, wherein surface form and semantic interpretation are transparently related to syntactic structure.

The morpho-syntactic analysis of NOMINALIZING REDUPLICATION developed here is that of a C_N nominalizer, which attaches to its verbal target (VP_{Res}) and outputs a result-denoting nominal. For some of the verbs permitting NOMINALIZING REDUPLICATION, this low verbal structure also contains components from the verbal classifier system of ASL (f_3CL-P). As analyzed in Benedicto and Brentari (2004), the verbal classifier, evident in the predicate handshape, forms a complex predicate with the verbal root and introduces its own, in this case null, argument. Though it is unclear at this stage if this silent argument is a full DP nominal, it is nevertheless true that the argument-introducing properties of classifier structure further illustrate that is the decomposed structure of the predicative domain that is responsible for mediating argument structure. Relativization plays a central role in this second case study as well, given the proposal that it is relativization of the argument introduced by the classifier structure that underlies concrete object-denoting nominals derived by NOMINALIZING REDUPLICATION. This proposal accounts for the observed denotational ambiguity and provides an unexceptional explanation for why it is always the argument associated with the classifier that is the referent of the derived concrete object-denoting nominal.

After developing the analysis of NOMINALIZING REDUPLICATION, the investigation then went on to show that agent nominalizations marked with the PERSON sign are not, in fact, the consequence of a unique agent nominalization process. In contra-distinction to their traditional descrip-

tion, the empirical facts documented here reveal that PERSON agent nominalizations are not built on verbal forms, but, rather, are the consequence of attaching PERSON to a constituent that has already been nominalized via NOMINALIZING REDUPLICATION. Given that PERSON attaches to an already-nominal form, PERSON structures were analyzed here as nominal compounds, though the morpho-syntactic details of this compounding process were ultimately left open. Broadly construed, the observations regarding PERSON nominals and NOMINALIZING REDUPLICATION made here are entirely in the spirit of Supalla and Newport's original insight: when we look carefully—in the right places and with the right assumptions in place—, the rich grammatical structures of ASL and other signed languages reveal themselves.

Finally, though some speaker variability was documented, such variation is unproblematic for an approach such as that assumed here, as the goal of analysis is to model the internal grammar of the individual. While the inventory of derived nominals may vary across speakers, what does not vary are the structural properties of NOMINALIZING REDUPLICATION when present, and this is exactly as is expected by the analysis.

4.2 General Concluding Remarks

The scientific claim of the sort entertained at the outset of the present research—that nouns, as a lexical category, do not take arguments—is, as a universal statement of non-existence, unfalsifiable. The arguments presented here provide further evidence that it is, nevertheless, a valid one. With respect to the possessor argument of the nominal domain, the data reveals that its presence is mediated by a verbal element, POSS. With respect to the nominals derived via NOMINALIZING REDUPLICATION, the patterns suggest, as has been documented in other languages, that nominalization low in the verbal domain is concomitant with an absence of certain components argument structure in the derived nominal, though further research is needed on the interaction of POSS and JUXTAPOSITION with NOMINALIZING REDUPLICATION nominals, research that will only be possible once we have attained a better understanding of verbal argument structure in ASL. Thus, these case studies in the grammar of ASL may be viewed as converging evidence for the impoverished argument structural properties of nouns.

APPENDIX A

Inventory of Nominals Derived via NMZ-RED

Non-Concrete		Concrete	
Verbal Form	**Derived Noun**	**Verbal Form**	**Derived Noun**
COMPARE	COMPARISON	WASH-HAIR	SHAMPOO
COMPETE	COMPETITION	RIDE-MOTORCYCLE	MOTORCYCLE
DERIVE	DERIVATION	GROW	PLANT
IMAGINE	IMAGINATION	WASH	WASHER
PROVE	PROOF	DRY	DRYER
TO RAIN	RAIN	EAT-SOUP	SOUP
PAY-ATTENTION	ATTENTION	WRITE	PENCIL
SELL	STORE	SHOOT-MARBLE	MARBLE
MIX	MIXTURE	PUT-ON-STAMP	STAMP
REPEAT	REPETITION	PUSH-STROLLER	STROLLER
ANALYZE	ANALYSIS	ATTACK-LIKE-MONSTER	MONSTER
TO COPY	A COPY	SHOOT-ARROW	BOW-&-ARROW
SHOW	EXAMPLE		
TO THUNDER	THUNDER		

Table A.1: NMZ-RED Nominals, Launer (1982)

Verbal Form	**Derived Noun**
SUPPORT	SUPPORT
OWE	DEBT
CALL	NAME
APPLY	APPLICATION
ASSIST	ASSISTANT

Table A.2: NMZ-RED Nominals, Brentari (1998)

Reduplicated Movement

Verbal Form	Derived Noun
SIT	CHAIR
HIT-WITH-HAMMER	HAMMER
GO-BY-PLANE	AIRPLANE
GO-BY-FLYING-SAUCER	FLYING-SAUCER
GO-BY-ROCKET	ROCKET
GO-BY-SHIP	SHIP
GO-BY-TRAIN	TRAIN
GO-TO-BED	BED
PUT-ON-BRACELET	BRACELET
SCREW-ON-JAR LID	JAR LID
OPEN-WALLET	WALLET
BLOW-WHISTLE	WHISTLE
PUT-ON-HAT	HAT
TURN-SCREW	SCREWDRIVER
PUT-ON-TAPE	TAPE
ADD-GAS-TO-TANK	GAS
PUT-ON-HEARING-AID	HEARING-AID
PUT-ON-SUSPENDERS	SUSPENDERS
PUT-ON-BACKPACK	BACKPACK
COVER-WITH-BLANKET	BLANKET
PUT-ON-BROOCH	BROOCH
PUT-ON-CLOTHESPIN	CLOTHESPIN
CLIP-FINGERNAILS	CLIPPER
PRESS-DOORBELL	DOORBELL
TURN-DOORKNOB	DOORKNOB
PULL-DRAWER	DRAWER
PUT-ON-COAT	COAT
PUT-ON-EARRING	EARRING
PUT-ON-DRESS	DRESS
PUT-ON-EARPHONES	EARPHONES

Reduplicated Movement, cont.

Verbal Form	Derived Noun
CALL	NAME
SHOOT	GUN
OPEN-DOOR	DOOR
HANG-UP	HANGER
ZIP-UP	ZIPPER
PLUG-IN	PLUG
CLOSE-GATE	GATE
SHIFT-GEARS	GEARSHIFT
CUT	SCISSORS
TELEPHONE	TELEPHONE
OPEN-UMBRELLA	UMBRELLA
PUT-ON-RING	RING
PUT-ON-SOCK	SOCK
PUT-ON-SCARF	SCARF
PUT-ON-GOGGLES	GOGGLES
PUT-ON-GAS MASK	GAS MASK

Reduplicated Aperture Change

Verbal Form	Derived Noun
SNAP-PHOTOGRAPH	CAMERA
FLICK-LIGHTER	LIGHTER
THUMP-MELON	MELON
STAPLE	STAPLER
SQUEEZE-PLIERS	PLIERS
TAKE-PILL	PILL

Reduplicated Orientation Change

Verbal Form	Derived Noun
STRIKE-MATCH	MATCH

Table A.3: NMZ-RED Nominals, Supalla and Newport (1978) (As categorized in Brentari 1998)

Verbal Form	English Interpretation of Derived Nominal
ACCEPT	*acceptance*
ADVISE	*advice*
ADOPT	*adoption*
ANALYZE	*analysis*
ANNOUNCE	*announcement*
BE-HOT	*heat*
BE-RIGHT	*accuracy*
BE-SCARED	*fear*
COLLECT	*collection*
DEVELOP	*development*
FAIL	*failure*
GAIN	*benefit/credit*
HELP	*help*
INFORM	*information*
JOIN	*participation*
KISS	*kiss*
LEARN	*education*
PICK-UP	*acquisition*
PLAN	*plan*
OPEN-BOOK	*book*
POSS	*possession*
PUT-IN-JAIL	*jail*
PUBLISH	*newspaper*
VOTE	*vote/election*

Table A.4: NMZ-RED nominals examined in the present research, not including those documented in previous inventories. The most natural English equivalent of the derived nominal is presented in lieu of an ASL gloss or structural paraphrase, both of which are predictable from the in-text discussion.

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