ASL Locus Agreement Revisited

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1. Introduction

For the past several years, syntacticians have used Head-driven Phrase Structure Grammar (HPSG) to analyze many of the world’s spoken languages. Recent syntactic analyses of signed languages have been based largely on Government and Binding theory (Aarons et al. 1992, 1994, 1995, Bahan et al. 1995, Bahan 1996, Lillo-Martin 1986, Lillo-Martin 1991); virtually no work has been done on a signed language within a constraint-based grammar. This paper is part of a larger project in which I am examining the syntax and semantics of a signed language within the framework of HPSG (Cormier, Wechsler & Meier, under review). Aside from Cormier et al., signed languages have not been examined from this vantage. In this paper I present a more in-depth analysis of the agreement properties of one particular signed language, American Sign Language (ASL).

In Section 2, I will give a brief introduction to ASL, followed by a description of the formational properties of lexical items in ASL. Also included will be a description of how nominals are signed in space and how different classes of verbs “agree” with these nominals in different ways. Section 3 will include an analysis of ASL grammatical agreement within the framework of HPSG, followed by Section 4 in which I will examine anaphoric agreement in ASL. In Section 5, I will discuss previous analyses of ASL agreement and compare them to the analysis presented here. Section 6 will include a summary and the conclusion of the paper, with Section 7 as an appendix explaining notation and coding procedure, and giving a complete list of the verbs I have used in this study. Finally, Sections 8 and 9 list acknowledgments and references.

2. Description of ASL

2.1 ASL: Introduction

ASL is a natural language used by most deaf people in the United States and Canada. For deaf children of deaf parents, ASL is acquired just as naturally as any spoken language (Newport and Meier 1985, Meier 1991). For deaf children of hearing parents, ASL is spread primarily among children at residential schools for the deaf. Structurally, ASL shares characteristics with many
spoken languages. It is a topic-oriented language much like Chinese (cf. Lillo-Martin 1991) and has a classifier system comparable to that of Navajo (Klima and Bellugi 1979). ASL is typically SVO, but due to its agreement inflection, many other word orders are possible (Fischer 1975).

2.2 Lexical items

Loosely speaking, a manual sign (i.e., a lexical item) in ASL consists of a particular handshape, a location, a movement, and a palm orientation. Some signs maintain the same general handshape and location throughout the articulation of the sign. Other signs involve changes in handshape and/or movement and/or location. For example, the verb LIKE starts with a 5 handshape (all 5 fingers extended and spread) at or contacting the center of the chest, and closes to an 8 handshape (contact between middle finger and thumb, with other fingers extended) in the neutral space in front of the chest. (Neutral space is the area in front of the signer's torso, within approximately a forearm's length from the body.) This distinct change of location from the signer's chest to the neutral space in front of the signer is an example of path movement, an inherent property of many agreement verbs, as will be discussed further below.

2.3 Nouns

Before looking at the verbal system of ASL, it is important to understand how nominals are signed in space. An NP can consist of a noun by itself (e.g., DOG, CAT, BOY, etc.)¹, or a pronominal pointing sign as shown in Figure 1.²

![Figure 1](image_url)

jiPT “he/she/it”

¹As is conventional in ASL literature, English glosses will be given in small caps.
²xPT is a pointing sign, with x being the location toward which the point is directed. In the illustrations containing more than one lexical sign, the dotted lines indicate the sign that is articulated first, followed by the sign shown in solid lines.
When a pointing sign occurs in a construction with a noun, it functions as a determiner instead of a pronoun (Bahan 1996). The determiner can occur immediately before the noun, immediately after it (see Figure 2), or perhaps even concurrently with the noun if that noun is one-handed.3

![Figure 2](image)

BOY jPT
boy the
“the boy”

The pointing sign (xPT), whether functioning as a pronoun or determiner, acts as a discourse marker. By using a pointing sign, a signer associates nouns or pronouns with distinct locations in space. Any subsequent signs that point to an established location are interpreted as coreferential. If the referent is physically present, the signer points to the location of that referent. If the referent

3 Other researchers have claimed that pointing signs occurring before the noun function as determiners, while pointing signs occurring after the noun function adverbially (Bahan et al. 1995, Bahan 1996, MacLaughlin 1997). Bahan et al. present the following grammatical sentence as evidence that prenominal and postnominal pointing signs are not in free variation and therefore must function differently (nonmanual markers are omitted for the sake of simplicity):

a. [jPT WOMAN jPT] ARRIVE EARLY
‘That woman (there), (she) arrived early.’

They claim that the prenominal index (i.e., pointing sign) expresses definiteness, while the postnominal index can express definiteness or indefiniteness. However, given that both types of index can be definite, it is not clear from their discussion why example (c) below cannot mean ‘John saw the man’ as in example (b):

b. JOHN SEE [PTi MAN]
‘John saw the man.’

c. JOHN SEE [MAN PTi]
??: ‘John saw a man (there).’

In fact, their arguments suggest that examples (b) and (c) above could both have a definite interpretation (i.e., ‘John saw the man.’). Since the issue is unclear, I will assume for the purposes of this paper that both prenominal and postnominal pointing signs can function as determiners.
is not physically present, the signer simply chooses a location in neutral space for that referent. These locations remain throughout the discourse until they are actively changed (Lillo-Martin 1986).

2.4 Verb Agreement

2.4.1 Agreement Verbs

Some verbs in ASL, called agreement verbs, make use of the association between NPs and distinct locations (Padden 1983). Since ASL lacks case marking and word order is fairly free, the agreement morphology on the verb is often what identifies the subject and object. These verbs define a relationship between two locations primarily in two ways: i) through palm orientation or ii) through path movement between locations. STARE-AT is a verb that manifests agreement through changes in palm orientation, also termed facing of the palm (Meir in press). In this sign, the palm is oriented toward the location associated with the object NP and the back of the hand is oriented toward the location associated with the subject NP. Subject and object information can also be distinguished by differences in the location of the verb. For example, the verb HELP involves path movement that begins with the location associated with the subject NP and ends with the location associated with the object NP, as illustrated in Figure 4 where the subject and object NPs refer to signer and addressee, respectively. The S and A subscripts on HELP indicate that the verb is marked for subject agreement with the signer and object agreement with the addressee.

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Some researchers have claimed that signers arbitrarily choose a location in space for non-deictic pronouns/determiners. Others have claimed that there are usually factors that determine where a locus is set up in signing space (e.g., discourse factors, semantic affinity with another referent, conventional location, etc.). Thus, the set up is rarely arbitrary (Engberg-Pedersen 1993). Thanks to Karen Emmorey for bringing this to my attention.
Agreement verbs fall into two major subclasses, referred to as single-agreement verbs and double-agreement verbs (Meier 1982, Padden 1983). Single-agreement verbs agree only with the object, while double-agreement verbs can agree with both the subject and object. For example, HELP is a double-agreement verb and agrees with the subject and the object, as illustrated in Figure 4.

SEE is a single-agreement verb; it agrees only with the object. (The lack of an initial subscript on SEE in Figure 5 indicates that this verb is not marked for subject agreement.)
Single-agreement verbs like SEE tend to be body-anchored. That is, their articulation begins or ends on the signer’s body. For these verbs it is not possible for the initial location of the verb to match the location of the subject (i.e., *iSEEj). However, not all single-agreement verbs are body-anchored (e.g., TEACH, for some signers). This suggests that the ASL verb typology - shown later in (8) - is based on a distinction in lexical class rather than just phonological form.

So far only third-person translations for the i and j indices have been used. Signer/addressee agreement works exactly the same way as third-person agreement shown above. The only difference is that for every signer, there is a particular location associated with the signer him/herself, and likewise for every addressee there is a particular location that is associated with the addressee, as illustrated in Figure 6 and in (7).

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5 Since the status of person in ASL is a matter of some controversy (Meier 1990, Lillo-Martin and Klima 1990), “first person” and “second person” will not be used when referring to the speaker and addressee loci. “Third person” here simply means a location not associated with the speaker or addressee.

6 Some verbs (e.g., TELL, FINGERSPELL-TO, & TEACH for some signers) lack a first-person object form. For such verbs speaker agreement would need to be precluded.
Within the subclasses of single-agreement and double-agreement verbs, agreement verbs can be further broken down by transitivity (transitive vs. ditransitive) and direction (forward vs. backward). Most agreement verbs are transitive⁷ - some are singly transitive (e.g., HELP) while others are ditransitive (e.g., GIVE). Ditransitive verbs (e.g., GIVE or TELL) agree with the goal argument. If there is no goal argument as in the case of transitive verbs, then the verb agrees with the theme argument (e.g., HELP or SEE). Along with transitivity, each agreement verb also has a distinct direction, either direction of movement or direction of palm orientation as described above. The direction can be forward (from the subject and toward the object - e.g., HELP) or backward (from the object and toward the subject - e.g., CHOOSE). For example, Figure 6 above shows a first person pronoun followed by the forward verb HELP moving away from the signer and toward the addressee. With a backwards verb (e.g., sPT ACHOOSE$ 'I choose you'), the verb would move away from the addressee and toward the signer. Double-agreement verbs can be categorized into all four combinations of these features: forward transitive, forward ditransitive, backward transitive, and backward ditransitive. Single-agreement verbs can be categorized into three

⁷Some agreement verbs (such as COLLAPSE and DIE) are intransitive; for these verbs the subject is typically the patient or theme. However, these verbs constitute a small minority of the set of agreement verbs and are often difficult to distinguish from plain verbs (see Appendix). Therefore, single intransitive verbs will not be discussed here.
combinations of these features: forward transitive, forward ditransitive, and backward transitive.
As of yet, there is no attested example of a backward ditransitive single-agreement verb.

The list of verbs in the Appendix (Section 7.2.2) was compiled from various papers on ASL verbs -- specifically, Padden (1983), Supalla (in prep), and Brentari (1988). All three researchers classify verbs into at least the major classes of agreement verbs, plain verbs, and spatial verbs (although the labels used for each type of verb vary). Padden (1983) distinguishes between transitive and ditransitive verbs and between forward and backward verbs, but she does not use the single/double distinction. Supalla (in prep) does distinguish between single and double agreement. He also discusses direction and transitivity, but his list of verbs does not mark these last two classes. Brentari (1988) uses a much more complex system that distinguishes seven different classes of verbs, using the categories single/double, path/path only, and forward/backward. I am not convinced that she needs a separate category for path/path only, so I have not used this category in my typology, shown below in (8).

(8) Types of ASL Agreement Verbs
I. single (object only)
   A. transitive
      1. forwards (e.g., SEE)
      2. backwards (e.g., INHALE)
   B. ditransitive
      1. forwards (e.g., TELL)
      2. backwards (so far unattested)
II. double (subject and object)
   A. transitive
      1. forwards (e.g., HELP)
      2. backwards (e.g., CHOOSE)
   B. ditransitive
      1. forwards (e.g., GIVE)
      2. backwards (e.g., TAKE)

2.4.2 Plain Verbs and Spatial Verbs

Agreement verbs make up one of three major classes of verbs in ASL: agreement verbs, plain verbs, and spatial verbs (Padden 1983).
(9) Types of ASL Verbs

I. agreement
II. plain (e.g., LIKE)
III. spatial (e.g., MOVE-FLAT-OBJECT)

Plain verbs show no agreement with the subject or the object; these verbs require subject and object arguments that are either overtly expressed or easily retrievable from context. An example of a plain verb is LIKE, as described above in 2.2.

Spatial verbs are verbs of motion and show agreement with locations associated with initial and final positions of the actual motion depicted by the sign, not with the subject or object. Spatial verbs include the set of classifier predicates, which use handshape classifiers to describe motion. An example of a spatial verb is the verb MOVE-FLAT-OBJECT, as shown in Figure 10b (illustration from Liddell 1990). Notice that the spatial verb MOVE-FLAT-OBJECT is very similar in form to the double-agreement verb GIVE shown in Figure 10a.

For GIVE, the movement begins at the location associated with the subject and ends with the location associated with the object. For MOVE-FLAT-OBJECT, the beginning and ending points of movement represent the initial and final locations of the thing being moved. Despite this difference, both verbs agree with locations set up in the discourse. The locations happen to correspond to different types of arguments.

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8 Bahan et al. (1995) claim that plain verbs show nonmanual agreement (e.g., body shift and eye gaze). For the purposes of this paper, however, I will focus only on manual agreement.
The verbs that make up each class of verbs cover several different semantic categories, as shown in the appendix. Agreement verbs tend to be agentive, but some are stative. Some plain verbs are stative, while some are agentive. In particular, it is interesting that the stative verb LIKE is a plain verb, while the stative verb HATE is a double-agreement verb. These two verbs are semantically very similar and yet fall into different verb classes. Spatial verbs fall into two classes: Motion + Path + Figure and Motion + Path.9 Classifier predicates (a subset of spatial verbs) fall into the Motion + Path + Figure class. These verbs express the fact of motion and the path of that motion together with a figure (an object acting or undergoing action). For example, MOVE-FLAT-OBJECT expresses a flat object as well as the motion of that flat object. Other non-classifier spatial verbs fall into the class Motion + Path, which expresses the fact of motion and the path of motion but not the thing moved (e.g., BRING). Taken together with the idiosyncratic formational characteristics of agreement verbs as described in Section 2.4.1, these facts further suggest that the ASL verb typology in (8) is based on a distinction in lexical class rather than either phonological form or semantic class.

In summary, agreement verbs in ASL involve either i) a distinct palm orientation in which the palm faces away from one location and toward another location, or ii) path movement from one location to another. For forward double-agreement verbs, these locations must be the subject location and the object location, respectively (vice-versa for backward verbs). For single-agreement verbs, the final location (for forward verbs) or the initial location (for backward verbs) must be associated with the object. Ditransitive verbs agree with the notional indirect object rather than the direct object. Plain verbs show no agreement at all, while spatial verbs agree with locative arguments.

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9Terminology from Talmy (1985).
2.5 Overt vs. non-overt pronominal arguments

Each major class of verb allows for non-overt pronominal arguments. The distribution of non-overt pronominal NPs for plain verbs is similar to the distribution of non-overt pronominal NPs in Chinese as shown below in (11) and (12).\(^\text{10}\)

   a. pro came.
   b. John saw pro.
   c. pro saw pro.
   d. John said that pro saw Bill.
   e. John said that Bill saw pro.

(12) ASL plain verbs (Lillo-Martin 1991)
   a. pro THINK.
   b. STEVE LIKE pro.
   c. pro LIKE pro.
   d. STEVE SAY pro LIKE JULIE
   e. STEVE SAY JULIE LIKE pro.

Thus for both Chinese and ASL plain verbs, neither subjects nor objects must be overt. ASL has been recognized by many researchers as a discourse-oriented, topic-prominent language like Chinese, as opposed to a sentence-oriented, subject-prominent language like English (Fischer 1975, Coulter 1979, Petronio 1993, Wilbur 1994). In topic-prominent languages, overt subjects and objects are not required if the topic -- usually the subject -- is clear from context (Lillo-Martin 1991).

As for agreement verbs, both single and double-agreement verbs can have non-overt pronominal subjects. This applies for forwards as well as backwards verbs. In both Figures 13a and 13b, for example, the verb HELP begins at the location of the subject and ends with the location of the object. The overt subject pronoun in Figure 13b is optional.

\(^{10}\)Lillo-Martin (1991) uses the example sentences shown here in (11) and (12) to argue for different types of null pronominal categories in both ASL and Chinese, represented by "pro" (Lillo-Martin uses "e"). I am arguing neither for nor against her analysis; rather, I am merely demonstrating that the distribution of non-overt arguments in ASL parallels that of Chinese. For the purposes of this paper, "pro" merely represents a non-overt argument whose antecedent must be understood in context.
Non-overt pronominal subjects with single-agreement verbs are possible in exactly the same environments as non-overt subject and object pronouns with plain verbs as described above. That is, with single-agreement verbs the subject may be omitted if the referent is clear from context. Thus (14b) is possible only when the subject is clear from context.

(14) "She sees him."
   a. \textit{iPT} \textit{SEEj}  
      \textit{she} \textit{see-him}  
   b. \textit{SEEj}  
      \textit{see-him}  

Non-overt object pronouns are possible with all agreement verbs, whether single or double-agreement.\footnote{The contexts which may favor overt object pronouns over non-overt object pronouns (and vice-versa) is not clear; I leave this issue for further research.} Both single and double agreement verbs must agree with their objects. Therefore, the object referent need not be previously set up in the discourse. This is demonstrated below with the single-agreement verb \textit{SEE} in (15) and the transitive double-agreement verb \textit{HELP} in (16). The marker "top" over a word or phrase indicates topic-marking on that constituent. Topics are marked in ASL nonmanually, specifically with raised eyebrows.
(15) "She sees him."
   a. iPT SEEj jPT
      she see-him him
   b. SEEj jPT
      see-him him

(16) "She helps him."
   a. iPT iHELPj
      she she-help-him
   b. iHELPj
      she-help-him
   c. iPT iHELPj jPT
      she she-help-him him
   d. iHELPj jPT
      she-help-him him
   _top
   e. jPT, iPT iHELPj
      him, she she-help-him
   _top
   f. jPT, iHELPj
      him, she-help-him

Examples (16c) and (16d) show that overt object pronouns are possible with double agreement verbs like HELP. In addition, (16e) and (16f) show that even when the object pronoun is moved into topic position (as noted by the topic marking "top"), the verb still agrees with the location of that object (as noted by the $j$ locus marker on HELP).

The ditransitive verb like GIVE also allows non-overt object pronouns, as shown in (17). The pronominal object that the verb agrees with (i.e., the goal argument) can be a non-overt pronoun. The theme argument, which plays no part in agreement, can also be an overt pronoun, as shown in (17g) - (17j). Both (17c) and (17d) are grammatical for some signers, but not to others. However,
the grammaticality of (17e) and (17f) suggests that the possible ungrammaticality of (17c) and (17d) may be based on a restriction on multiple postverbal NPs rather than a restriction on overt direct objects.

(17) "She gives him a ball."

a. \(iPT\) \(iGIVE j\) \(jPT\) \(BALL\)
   she     she-give-him   ball

b. \(iGIVE j\) \(jPT\) \(BALL\)
   she-give-him   ball

c. \(\%\) \(iPT\) \(iGIVE j\) \(jPT\) \(BALL\)
   she     she-give-himhim   ball

d. \(\%\) \(iGIVE j\) \(jPT\) \(BALL\)
   she-give-himhim   ball

\(\_\text{top}\)

e. \(jPT, iPT\) \(iGIVE j\) \(jPT\) \(BALL\)
   him,     she     she-give-him   ball

\(\_\text{top}\)

f. \(jPT, iPT\) \(iGIVE j\) \(jPT\) \(BALL\)
   him,     she     she-give-him   ball

g. \(iPT\) \(iGIVE j\) \(kPT\)
   she     she-give-him   it (referent present) \(^{12}\)

h. \(iGIVE j\) \(kPT\)
   she-give-him   it (referent present)

\(^{12}\) The theme argument with a ditransitive verb can typically be an overt pronoun only when the referent is actually present. The oddity of (16g) - (16j) when the referent is not present may be due to difficulty processing locations for too many non-specified referents at once. Note that the following examples with noun + determiner are fine, whether or not the referent is present.

a. \(iPT\) \(iGIVE j\) \(kPT\) \(BALL\)
   she     she-give-him     the   ball

b. \(iGIVE j\) \(kPT\) \(BALL\)
   she-give-him     the   ball
Spatial verbs can have overt pronominal arguments (e.g., an overt subject pronoun - cf. (18a) below), but not overt pronominal locative arguments, as shown in (18c) - (18e) with the spatial verb WALK. The subject pronoun need not be overt, however, as shown in (18b).

(18) (Assume that previously in the discourse, $i$ has been associated with 'home' and $j$ has been associated with 'school'.)

'She walks from home to school.'

a. \text{KPT} \quad \text{iWALKj}
   \text{she} \quad \text{walk from home to school}

b. \text{iWALKj}
   \text{walk from home to school}

c. * \text{iPT} \quad \text{iWALKj}
   \text{walk from that home to school}

d. * \text{iWALKj} \quad \text{jPT}
   \text{walk from home to that school}

e. * \text{iPT} \quad \text{iWALKj} \quad \text{jPT}
   \text{walk from that home to that school}

Thus, overt and non-overt pronominal subjects and objects are possible for plain verbs as well as agreement verbs. Spatial verbs, on the other hand, cannot have overt pronominal locative arguments.
3. HPSG Analysis of ASL Agreement

Agreement in HPSG depends on structure-sharing of the index value of one expression with the index value of another expression. For most spoken languages, these index values must include some combination of the categories person, number and gender. But as we have seen in the above description, ASL agreement depends heavily on location, or *locus*. Therefore I propose the following sort declaration for *index*:\(^{13}\)

\[(19) \text{index}: [\text{LOCUS } \text{locus}] \]

Partition of *locus*: \(S, A, \text{other} \)

Partition of *other*: \(i, j, k, \ldots\)

Following Meier (1990), \(S\) and \(A\) will be used to refer to locations associated with the signer and addressee, respectively. \(S\)(signer) is the location directly in front of the signer's chest. \(A\)(addressee) is the location within the signer's own sign space but toward and associated with the addressee. The index values \(i, j, k, \ldots\) etc. represent distinct locations in neutral space.

3.1 Verbal Lexical Entries

3.1.1 Agreement Verbs

The lexical entry for an agreement verb stem specifies only the ARG-S list (not the SUBJ and COMPS list) and coindexes the NPs with their appropriate semantic roles in CONTENT. Thus the lexical entry represents the verb stem, unmarked for any agreement morphology. Each lexical entry simply gives the valence features of the verb and cross-references those valence features with the semantic roles that the verb takes. This applies for both transitive and ditransitive verbs. For transitive verbs like SEE and HELP, the subject is coindexed with the agent/source and the object with the patient/goal. For ditransitive verbs like GIVE, the subject is coindexed with the agent/source, the first object with the goal, and the second object with the patient. The lexical entries also assign verbs to their appropriate agreement types, so that SEE is of the sort *single-fwd-agr-vstem*, HELP is of the sort *double-fwd-agr-vstem*, and GIVE is a *double-fwd-agr-ditrans-vstem*.

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\(^{13}\)ASL also has number agreement, which may also be explained to a certain extent in terms of locus agreement. However, this issue needs to be further analyzed.
Direction (forward vs. backward) is specified in the sort hierarchy of agreement verbs but otherwise plays no role in the lexical entries.

(20) Lexical entry for SEE:
\[
\text{single— fwd — agr— vstem}
\]
\[
\text{PHON } \langle \text{SEE} \rangle
\]
\[
\text{SYNSEM|LOC}
\]
\[
\text{CONTENT}\frac{\text{SEER \[1\]}}{\text{SEEN \[2\]}}
\]

(21) Lexical entry for HELP:
\[
\text{double— fwd — agr— vstem}
\]
\[
\text{PHON } \langle \text{HELP} \rangle
\]
\[
\text{SYNSEM|LOC}
\]
\[
\text{CONTENT}\frac{\text{HELPER \[1\]}}{\text{HELPEE \[2\]}}
\]

(22) Lexical entry for GIVE:
\[
\text{double— fwd — agr— ditrans — vstem}
\]
\[
\text{PHON } \langle \text{GIVE} \rangle
\]
\[
\text{SYNSEM|LOC}
\]
\[
\text{CONTENT}\frac{\text{GIVER \[1\]}}{\text{GIVEE \[2\]}}
\]

3.1.2 Plain and Spatial Verbs

The lexical entries for plain verbs are similar to those given in 3.1.1 for agreement verbs. For example, the lexical entry for the verb LIKE coindexes the subject and object to the agent and patient, respectively. It also assigns LIKE to the sort \textit{plain-vstem}. 
(23) Lexical entry for LIKE:

\[
\begin{align*}
\text{PHON} & \{\text{LIKE}\} \\
\text{SYNSEM} | \text{LOC} & \left\{ \text{CAT} | \text{ARG} - S \left\{ \text{NP}_{[1]}, \text{NP}_{[2]} \right\} \right\} \\
\text{CONTENT} & \left\{ \text{like} - \text{rel} \right\} \\
& \left\{ \text{LIKER} [1], \text{LIKEE} [2] \right\}
\end{align*}
\]

The lexical entries for spatial verbs look similar to those of ditransitive agreement verbs, except that spatial verbs have four instead of three arguments. Recall that the spatial verb MOVE-FLAT-OBJECT is formationally very similar to the ditransitive verb GIVE. However, the semantic roles that correspond with the arguments are quite different. For spatial verbs, the subject NP corresponds to the agent; the source and goal of motion are not specified in the lexicon.

(24) Lexical entry for MOVE-FLAT-OBJECT:

\[
\begin{align*}
\text{PHON} & \{\text{MOVE} - \text{FLAT} - \text{OBJECT}\} \\
\text{SYNSEM} | \text{LOC} & \left\{ \text{CAT} | \text{ARG} - S \left\{ \text{NP}_{[1]} \right\} \right\} \\
\text{CONTENT} & \left\{ \text{move} - \text{flat} - \text{obj} - \text{rel} \right\} \\
& \left\{ \text{MOVER} [1], \text{THEME} [2], \text{SOURCE} [i], \text{GOAL} [j] \right\}
\end{align*}
\]

3.2 Verbal Sort Declarations: Grammatical Agreement

To account for the pro-drop patterns mentioned above in Section 2.5, I propose that ASL has two types of agreement: grammatical and anaphoric. These two types of agreement were first proposed in Bresnan and Mchombo's (1987) analysis of Chichewa. Grammatical agreement is defined in their analysis as the following: "In grammatical agreement, a NP bears an argument relation to the verb, while the verbal affix expresses redundantly the person, number and gender class of the NP." In ASL grammatical agreement, the verbal affix redundantly expresses the locus
(instead of person, number\textsuperscript{14}, and gender) of the overt argument NP. In this section, I will describe how grammatical agreement works in ASL. Anaphoric agreement will be explained later in Section 4.

\subsection{Agreement Verbs}

To account for grammatical agreement with agreement verbs, each type of verb has a sort declaration that specifies the argument structure and valence features of all possible surface forms. Below are the sort declarations for single-transitive-agreement, single-ditransitive-agreement, double-transitive-agreement, and double-ditransitive-agreement verbs.

\begin{equation}
\text{Sort declaration for single-trans-agr-verb (e.g., SEE}\, j, j\text{INHALE):}
\end{equation}

\begin{align*}
\text{single-trans-agr-verb:} & \quad \text{PHON F}_{\text{single-trans}}([3], y) \\
& \quad \text{SYNSEM [4][CAT SUBJ } ((1)\text{NP}) \text{]} \\
& \quad \text{COMPS } ((2)\text{NP}) \} \\
& \quad \text{ARG - S } (1)\text{NP, (2)NP} (\text{LOCUS } y) \\
& \quad \text{STEM PHON [3]} \\
& \quad \text{SYNSEM [4]}
\end{align*}

where $\text{F}_{\text{single-trans}}(\alpha, \beta) = \alpha \beta$ if $\alpha$ is a forward verb

$= \beta \alpha$ if $\alpha$ is a backward verb

\begin{equation}
\text{Sort declaration for single-ditrans-agr-verb (e.g., TELLj):}
\end{equation}

\begin{align*}
\text{single-ditrans-agr-verb:} & \quad \text{PHON F}_{\text{single-ditrans}}([3], y) \\
& \quad \text{SYNSEM [4][CAT SUBJ } ((1)\text{NP}) \text{]} \\
& \quad \text{COMPS } ((2)\text{NP}) (\text{[5]NP}) \} \\
& \quad \text{ARG - S } (1)\text{NP, (2)NP} (\text{LOCUS } y), (5)\text{NP} \\
& \quad \text{STEM PHON [3]} \\
& \quad \text{SYNSEM [4]}
\end{align*}

where $\text{F}_{\text{single-ditrans}}(\alpha, \beta) = \alpha \beta$\textsuperscript{15}

\textsuperscript{14}See Footnote 13.

\textsuperscript{15}Recall from (8) that there are no attested backwards ditransitive verbs in ASL.
(27) Sort declaration for *double-trans-agr-verb* (e.g., *HELP* j, *CHOOSE* i):

\[
\begin{align*}
\text{double-trans-agr-verb :} & \quad \text{PHON } F_{\text{double-trans}}(x,[3],y) \\
& \quad \text{SYNSEM } [4] \| \text{CAT} \\
& \quad \begin{cases} 
\text{VAL } \langle \text{SUBJ } \langle \{1\text{NP}\} \rangle \rangle \\
\text{COMPS } \langle \{2\text{NP}\} \rangle \\
\text{ARG} \langle \{1\text{NP}_{\text{LOCUS }x}, \{2\text{NP}_{\text{LOCUS }y}\} \rangle \\
\text{STEM} \end{cases} \\
& \quad \text{PHON } \{3\} \\
& \quad \text{SYNSEM } [4] \\
\end{align*}
\]

where \( F_{\text{double-trans}}(\alpha, \beta, \gamma) = \alpha \beta \gamma \) if \( \beta \) is a forward verb

\[= \gamma \beta \alpha \] if \( \beta \) is a backward verb

(28) Sort declaration for *double-ditrans-agr-verb* (e.g., *GIVE* j, *TAKE* i):

\[
\begin{align*}
\text{double-ditrans-agr-verb :} & \quad \text{PHON } F_{\text{double-ditrans}}(x,[3],y) \\
& \quad \text{SYNSEM } [4] \| \text{CAT} \\
& \quad \begin{cases} 
\text{VAL } \langle \text{SUBJ } \langle \{1\text{NP}\} \rangle \rangle \\
\text{COMPS } \langle \{2\text{NP}, \{5\text{NP}\} \rangle \\
\text{ARG} \langle \{1\text{NP}_{\text{LOCUS }x}, \{2\text{NP}_{\text{LOCUS }y}, \{5\text{NP} \rangle \rangle \\
\text{STEM} \end{cases} \\
& \quad \text{PHON } \{3\} \\
& \quad \text{SYNSEM } [4] \\
\end{align*}
\]

where \( F_{\text{double-ditrans-trans}}(\alpha, \beta, \gamma) = \alpha \beta \gamma \) if \( \beta \) is a forward verb

\[= \gamma \beta \alpha \] if \( \beta \) is a backward verb

These sort declarations expand the lexical entries for the verbs. For both single and double-agreement verbs, the SUBJ list member as well as the first member of the COMPS list are optional. Unexpressed ARG-S list items (those which are not structure-shared with valence list items) are interpreted as pronouns. The sort declaration for a backwards agreement verb is the same as the corresponding forward agreement verb, except for the position of the locus markers in the phonology, e.g., \( \_\_\text{PT A CHOOSE}S \) 'I choose you' (lit: ‘I you-choose-I’). For double-agreement verbs, the initial and final locus positions are switched. For single-agreement verbs, the locus marker is in initial position instead of final position. These conditions on backwards verbs ensure that the verb moves from the object locus to the subject locus (for double-agreement verbs) or from
the object locus to some location on the body (for single-agreement verbs). For ditransitive verbs like TELL and GIVE, the third argument NP (the second member of the COMPS list) plays no part in agreement.

### 3.2.2 Plain and Spatial Verbs

Plain verbs allow non-overt pronominal subjects as well as objects, but no locus-attaching functions are necessary since plain verbs show no agreement. Therefore, the sort declaration for a plain verb such as LIKE in (29) need only specify that the SUBJ and COMPS members are optional.

\[(29) \text{Sort declaration for } \text{plain-verb (e.g., LIKE):}\]

\[
\text{plain-verb: } \begin{cases} \text{SYNSEM | CAT} \\
\text{VAL} \begin{cases} \text{SUBJ } \{1\} \\
\text{COMPS } \{2\} \\
\text{ARG - S } \{1\} \text{NP, } \{2\} \text{NP} \end{cases} \\
\end{cases}
\]

Spatial verbs must have non-overt locative arguments, as the sort declaration would reflect. However, these locative arguments are not part of the SUBJ or COMPS lists. Given the complexity of specifying locative arguments in an argument structure, I leave this issue for future research.

The functions $F_{\text{single-trans}}$, $F_{\text{single-ditrans}}$, $F_{\text{double-trans}}$, and $F_{\text{double-ditrans}}$ specify the morphological operations whereby loci associated with ARG-S list items are affixed to agreement verbs. The $x$ and $y$ tags represent items of sort $\text{locus}$, hence range over the full set of loci, \{S, A, i, j, k... \}. Thus, these sort declarations account for agreement with any locus. No separate specifications are needed for speaker and addressee agreement.

### 3.3 Origins of Locus Values

As mentioned above, NPs can be set up in space whether or not the referent is present. If the referent is present, the locus of the pronoun or determiner must correspond to the actual location of the referent. We can set up a separate restriction on the anchoring of indices to handle this; however, this issue will not be examined here.
If the referent is not present, then loci are set up arbitrarily. Assuming that the pointing sign PT is the head, the index values originate within the CONTENT of jPT, not within the CONTENT of the noun; cf. (30) and (31).

(30) Lexical entry for pronoun/determiner jPT:

(31) Lexical entry for the noun BOY:

(32) Sort declaration for npro:

(33) Sort declaration for ppro:

The index, and hence the locus feature, lexically originates in the pronoun, while the common noun supplies only the relation (here, the boy relation). This means that an NP consisting of a noun without a determiner either does not have a locus value, or that the noun is assigned a locus in a different manner. In example (34b), I have assumed that no mechanism (pointing or otherwise) has assigned a locus value to the noun BOY.

---

16See Footnote 4.
17There are other methods of assigning a noun a locus value. These include body shift (i.e., shifting the body toward a
To summarize, if iPT subcategorizes for a nonpronoun complement, then it is a determiner. If, on the other hand, iPT does not subcategorize for a complement, then it functions as a pronoun. Therefore the lexical entries in (30) and (31) allow for three main types of NPs, shown in (34).

(34) Possible NPs in ASL

\[
\begin{align*}
\text{a. Noun + Determiner} & \quad \text{iNP} \\
\quad \text{NP:npro} & \quad \text{N:ppro} \\
\quad \text{BOY} & \quad \text{iPT} \\
\end{align*}
\]

\[
\begin{align*}
\text{b. Noun only} & \quad \text{NP:npro} \\
\quad \text{BOY} & \quad \text{iPT} \\
\end{align*}
\]

\[
\begin{align*}
\text{c. Pronoun only} & \quad \text{iNP:ppro} \\
\quad \text{iPT} & \quad \text{iPT} \\
\end{align*}
\]

4. Anaphoric Agreement

Recall from Section 3.2 that with grammatical agreement, the verbal agreement marker redundantly marks the phi-features of the argument NP. However, in ASL the referent NP is often not an argument of the verb, but a sentential topic or topic of discourse. Agreement with this type of non-argument NP is called anaphoric agreement. Bresnan and Mchombo (1987) define anaphoric agreement as agreement in which "the verbal affix is an incorporated pronominal argument of the verb, and the coreferential NP has a non-argument function - either as an adjunct of the pronominal argument or as a topic or focus of the clause or discourse structure." In ASL anaphoric agreement, the verbal affix is an incorporated pronominal argument of the verb and the coreferential NP has a non-argument function as a topic of discourse. The verbal affixes express locus), eye gaze (i.e., gazing at a certain location in space), and articulating the noun at a certain location in neutral space (this is particularly true of fingerspelled names and is not possible with body-anchored nouns). Thanks to Karen Emmorey for bringing this to my attention.
K. Cormier/ASL Locus Agreement Revisited

locus rather than just person, number and gender. Therefore in a sentence like iASKj ‘He/she/it asks him/her/it’, the i and j loci are not grammatical agreement markers at all, but incorporated pronouns. Each locus finds its antecedent either through deixis (as mentioned in Section 3.3) or from a previous discourse antecedent.

Some constructions can be analyzed as having either grammatical or anaphoric agreement, such as the topic construction in (16f), repeated here as (35).

(35) _top
jPT, iHELP j
him, she-help-him

Example (35) can be analyzed as grammatical agreement plus wh-movement of the object to topic position, or as anaphoric agreement where the antecedent of the object locus j happens to be in the same sentence but in a non-argument (i.e., topic) position.

Let us assume that (35) is an example of anaphoric agreement. Since the object NP is not an argument of the verb, we can posit that the object NP here is a TOPIC-DTR or ADJUNCT-DTR. A partial feature structure for (35) is shown below as (36).

(36) Feature structure for jPT, iHELP j

According to B&M’s analysis for Chichewa, subject markers can be used for either grammatical or anaphoric agreement, while object markers can only be used anaphoric agreement. Specifically, Chichewa has eighteen gender classes, each with a subject marker (SM) and an object marker (OM). B&M note that “the OM has the same segmental form as the SM in every class but 1 and 2.” Thus, the grammatical and anaphoric agreement markers are, for sixteen out of the eighteen gender classes, the same.
In a head-adjunct phrase, the head of the phrase (in this case, the verb) cannot subcategorize for an NP because the NP (as a topic) is not in an argument relation to the verb. Instead, the adjunct noun - through the MOD feature - selects for an inflected verb which has an NP on its ARG-S list. Following Malouf (1994), the CONTENT of the adjunct noun is the same as the CONTENT of the verb except that the noun's restriction on the feature locus is unified with the restriction of the selected NP argument from the verb's ARG-S list. This ensures that the locus features of the noun matches the locus features encoded in the agreement markers of the selected argument.

The type of analysis in (36) can be applied to cases where 1) the subject has been topicalized, 2) the object has been topicalized, as in (35) above, or 3) both the subject and object have been topicalized. In fact, the notion of anaphoric agreement can also be applied on a grander scale to discourse topics. However, information from the context would play a larger role in an analysis of discourse topics. I leave this issue for future research.

To summarize, both types of agreement described by Bresnan and Mchombo (1987) occur in ASL. Grammatical agreement occurs with overt arguments, while anaphoric agreement occurs with non-overt arguments. For example, subject and object markers for agreement verbs can be used for either grammatical or anaphoric agreement, depending on whether the pronoun is overt or non-overt. If the pronoun is overt, the locus value of the verb will redundantly express the locus of the pronoun; this is grammatical agreement. If the pronoun is not overt, the verb will have an incorporated pronoun marked for locus which must agree in locus with some topic of discourse; this is anaphoric agreement. Additional support for this analysis comes from spatial verbs which cannot have overt locative arguments, yet they must agree with some locations previously specified in the discourse. We can posit that spatial verbs use only anaphoric, not grammatical, agreement.

5. HPSG Analysis Compared to Previous Analyses of ASL Agreement

agreement (AGR) is present only with agreeing verbs, specifically under the INFL node. It is this agreement (AGR) that sanctions null arguments with agreement verbs. Null arguments are also possible with plain verbs, even though no structural agreement exists with these verbs. These null arguments are licensed by discourse topics instead of AGR. This is similar in spirit to the proposal made here in Section 4, that discourse topics "license" or occur with anaphoric agreement.

The difference between plain and agreement verbs in Lillo-Martin's analysis hinges on the presence or absence of the AGR feature in INFL. But it is not clear from her explanation what exactly licenses the AGR feature; therefore it is not clear under her analysis why some verbs show agreement while others do not. This fact is easily accounted for in a lexicalist framework like HPSG, since verbs can be classified in a sort hierarchy as either plain verbs or agreement verbs.

Aarons et al. have a very different perspective on ASL agreement, even within the same GB framework. They contend that structural agreement (AGR) is present in all ASL sentences, specifically as both AGR_S (Subject agreement phrase) and AGR_O (Object agreement phrase). Their claim is that the difference between plain verbs and agreement verbs is “in the way that the syntactic agreement features are encoded morphologically” (Aarons et al. 1994). Specifically, they analyze ASL agreement morphology with plain verbs as similar to English subject-verb agreement with subjects that have so-called "zero plural" marking. For example, in the sentences (a) 'The sheep was sheared' and (b) 'The sheep were sheared', the subject in (a) is clearly singular while the subject in (b) is clearly plural, even though the exact same form of the noun 'sheep' is used in each instance. Thus Aarons et al. conclude based on these data that structural agreement exists in all English sentences. They extend this analysis to ASL by claiming that even though plain verbs are "zero marked" for agreement, structural agreement exists with all ASL verbs.

However, English zero agreement marking and ASL plain verbs are not quite comparable. In the English examples above, for instance, the verbs 'was' and 'were' indicate that the subjects must be singular and plural, respectively. But in an ASL sentence with a plain verb (e.g., BOY LIKE ICE-CREAM), there may not be any locus available in the sentence for the verb to agree with.

Aarons et al. (1992) additionally claim that plain verbs do have agreement marking:
"Throughout ASL, agreement is expressed morphologically by the affixation of a pronominal-type
morpheme... With plain verbs, [subject agreement takes the form of] the signer's head and upper torso" (Aarons et al.1992); this is what they call the Role Prominence Marker (RPM). My informants agree that the RPM can occur as an agreement marker with both plain and agreement verbs, but that RPM is always optional. An optional agreement marker is not enough evidence to claim that structural agreement exists with all ASL sentences.

The analysis presented here takes advantage of the fact that HPSG can encode morphological information in the lexicon, allowing for interaction between morphology and syntax. According to the hierarchical model of the lexicon presented in Pollard and Sag (1994), lexical items can be classified based on any number of characteristics, morphological as well as syntactic.

Also, there is no concept in HPSG that corresponds to the GB notion of structural agreement. According to Pollard and Sag (1994), "agreement is simply the systematic variation in form that arises from the fact that information coming from two different sources about a single object must be compatible."

Liddell (1995) proposes yet another (and very different) account of the way ASL verbs use space. He claims that the relationship between verbs and location is not linguistic (and therefore not what is normally considered "agreement"), that verbs point to people and objects the same way that hearing people normally use gestures to point to people and objects. One of his arguments against the existence of the feature locus is that for any given referent, different agreement verbs (or "indicating verbs", as he calls them) are associated with different heights on the referent's body. For example, with the verb glossed as HAVE-ESP-WITH ('have the same thought at the same time'), one hand is articulated near the signer's head while the other hand is directed toward the referent's head. The verb ASK is directed toward the referent's chin, and the verb GIVE is directed toward the referent's chest. Liddell claims that this shows there is no single locus value associated with a given referent.

However, there are some problems with Liddell's analysis. Liddell's verb height argument just described in fact contradicts his claim that verb agreement is not linguistic. Since the height of a verb cannot be predicted, this information would need to be encoded individually for each verb in the lexicon. Also, his analysis does not explain why some verbs (i.e., agreement or "indicating"
verbs) have this pointing property while some do not (i.e., plain verbs). As mentioned in Section 2.4, the distribution of verbs into these two categories cannot be predicted on the basis of phonological form or semantic class.

Another argument Liddell has offered against ASL verb agreement (Liddell 1997, personal communication) is that in a sentence like iASKj (with no overt pronouns), there is nothing for the verb to agree with. In my analysis, however, this problem is accounted for by anaphoric agreement. The verb anaphorically agrees with whatever referents the loci i and j have been associated with earlier in the discourse.

6. Conclusions

The analysis presented here accounts for the agreement properties of this class of agreement verbs in ASL. The verbal sort declarations account for the pro-drop properties described above by allowing for different combinations of overt and non-overt pronominal arguments. The agreement functions specify the index value of certain members of the ARG-S list, regardless of the overt/non-overt nature of the arguments. These functions ensure that the locus values of the verb are token identical to the locus values of the verb's arguments.

More importantly, this analysis lends support to Pollard and Sag's (1994) account of index agreement, according to which agreement features attach to the index or discourse marker. The ASL locus functions exactly as a discourse marker (see Lillo-Martin and Klima 1990), even though locus is not normally considered a phi-feature like the other agreement features of person, number and gender (Bahan 1996). The fact that locus participates in verb agreement, particularly in both grammatical and anaphoric agreement, provides interesting evidence for index agreement.

Also, the fact that locus functions as a phi-feature in ASL but not in any spoken language suggests that phi-features as we know them are not universal. In order to encompass both signed and spoken languages, the inventory of phi-features would therefore need to be expanded to include these spatial loci.

Although ASL does share many characteristics with spoken languages, there are many differences as well. One difference is the number of possible values for agreement features in
spoken languages versus locus in ASL. Person, number, and gender each consist of a finite set of values. ASL can have an infinite number of possible locus values (Lillo-Martin 1991, Meier 1990). The number of loci that a signer might actually use is limited by perceptual and memory-related constraints, but theoretically an infinite number of loci are possible.

The properties of ASL presented here also raise some more general questions about agreement as a universal property of languages. For instance, Everett (1996) discusses the issue of thematic hierarchy prominence and claims that languages that have "the grammatical role of primary object place goal above theme in the hierarchy. In these languages the verb agrees with the indirect object in ditransitive clauses." He cites as an example the language Pacaas Novos, in which the verb always agrees with indirect object if there is one; otherwise, the verb agrees with the direct object. ASL also follows this crosslinguistic pattern as well. However, in some ways ASL deviates from crosslinguistic patterns. For example, most spoken languages prefer subject agreement over object agreement (Greenberg 1966). In fact, some have claimed that this preference for subject agreement is universal among all languages (Everett 1996). However, the data presented here shows that ASL actually prefers object agreement over subject agreement instead. This is an unexpected and quite interesting difference between the signed and spoken modalities.

Issues for further research include number agreement and a more in-depth look at spatial verbs in ASL, as well as locus agreement in other signed languages. Researchers such as Engberg-Pedersen (1993) and Supalla (in prep) have identified agreement verbs in other signed languages, e.g., Danish Sign Language. Crosslinguistic data on verb agreement may further support the arguments given here.

7. Appendices

7.1 Notation

The subscripts $S, A, i, j, k$, etc. represent distinct locations in space --- see (19). Verbs are translated in present tense for clarity. ASL does mark aspect and can mark tense (Aarons et al. 1995), but often tense is not marked if it is understood in context. Also, different genders are used
here to distinguish between different locations, although ASL does not grammatically distinguish gender.

VERB A verb unmarked for agreement; verb stem
xVERBy A verb marked for subject and object agreement.
VERBy A verb marked for only object agreement.

7.2 Appendix: Data

7.2.1 Coding Procedure

Based on three inflected forms of each verb (I-VERB-YOU, YOU-VERB-ME, and SHE-VERB-HIM), each verb was coded for single vs. double agreement and direction of movement. Transitivity was determined from the semantics of each verb. Single vs. double agreement was determined by movement; movement from subject to object was coded as double agreement, while movement from non-subject location - e.g., location on signer's body - to the object position was coded as single agreement. Direction was coded in terms of the notional source and goal: movement from source to goal was coded as forward while movement from goal to source was coded as backward. Single intransitive verbs are defined as agreement verbs with only one argument, namely, a subject. Single intransitive verbs are not discussed in this paper because they are often difficult to distinguish from plain verbs. Finally, some of the verbs elicited were plain verbs (i.e., verbs that do not agree with any argument). None of the verbs elicited were spatial verbs.

The verb classifications given in 7.2.2 are based on my own preliminary qualitative coding of videotaped data from a native signer. The excerpt shown in (37) is taken from the coding manual I wrote in order to allow for reliability coding in the future.

(37) \textit{Double Fwd} (e.g., GIVE) 
These verbs inflect for subject and object. Movement (or palm orientation) from source to goal.

\textit{Double Bkwd} (e.g., TAKE) 
These verbs also inflect for subject and object. Movement (or palm orientation) from goal to source.

\textit{Single Fwd} (e.g., SEE)
These verbs inflect only for object, specifically goal. Typically these include verbs that have initial body contact, although body contact is not necessary. For example, for some signers TEACH is a single fwd agreement verb.

**Single Bkwd**
These verbs inflect only for object, specifically source. I’m not sure if these exist at all in ASL. Supalla claims that OVERHEAR is an example, but Gene and Chris say that’s a plain verb.

**Single Intrans** (e.g., DIE)
These are intransitive verbs that can inflect for subject. Note: These verbs typically have plain verb versions as well; just code the verb according to whether the signer on tape chooses to inflect it.

**Plain** (e.g., LIKE)
Some of the verbs in this database may not be agreement verbs at all. If the verb shows no agreement, it’s a plain verb.

**Unclear**
Obviously, there may be some problems. The camera angle might make it difficult to see the path movement or the palm orientation. Or, the verb may look like one type of verb in some forms (e.g., single fwd) and a different type of verb in other forms (e.g., double fwd). If you have strong doubts about which type of verb it is, choose unclear and specify why it’s unclear in the **Comments** box. If you’re fairly sure and only a bit doubtful, choose whatever agreement type and then give more specific information in the **Comments** box.

### 7.2.2 Example Verbs

Below is a list of all verbs I elicited, plus some that were not elicited but are classified as plain verbs in Padden 1983 (these verbs are marked *N* under **Elicited?**). Transitivity (transitive vs. ditransitive) is marked only for agreement verbs (hence N.A. in the **Trans** column for plain verbs). Transitivity was determined based on the English gloss for these verbs. Verbal aspect class was determined by grammatical tests from Chierchia and McConnell-Ginet (1990). Some verbs are marked as **Agentive (T.E.)**. **T.E.** (Telic Eventuality) merely indicates that the verb takes place over a certain period of time and has a definite starting and ending point (Chierchia and McConnell-Ginet, 1990).

<table>
<thead>
<tr>
<th>VERB</th>
<th>Agr/Plain</th>
<th>S/D</th>
<th>Dir.</th>
<th>Trans</th>
<th>Aspect</th>
<th>Elicited?</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPLY</td>
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<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>Agentive</td>
<td>N</td>
</tr>
<tr>
<td>BATHE</td>
<td>Plain</td>
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<td>N.A.</td>
<td>N.A.</td>
<td>Agentive</td>
<td>N</td>
</tr>
<tr>
<td>BRUSH-TEETH</td>
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<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>Agentive</td>
<td>N</td>
</tr>
<tr>
<td>BUILD</td>
<td>Plain</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>Agentive</td>
<td>N</td>
</tr>
<tr>
<td>CELEBRATE</td>
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<td>N.A.</td>
<td>N.A.</td>
<td>Agentive</td>
<td>N</td>
</tr>
<tr>
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<td>N.A.</td>
<td>N.A.</td>
<td>Agentive</td>
<td>Y/N</td>
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<td>N.A.</td>
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<td>N.A.</td>
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<td>N</td>
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<tr>
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<td>N.A.</td>
<td>N.A.</td>
<td>Agentive</td>
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</tr>
<tr>
<td>ENCOURAGE</td>
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<td>N.A.</td>
<td>N.A.</td>
<td>Agentive</td>
<td>N</td>
</tr>
<tr>
<td>EXAGGERATE</td>
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<td>N.A.</td>
<td>N.A.</td>
<td>Agentive</td>
<td>Y</td>
</tr>
<tr>
<td>EXERCISE</td>
<td>Plain</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>Agentive</td>
<td>N</td>
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<tr>
<td>FLIRT</td>
<td>Plain</td>
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<td>N.A.</td>
<td>N.A.</td>
<td>Agentive</td>
<td>Y</td>
</tr>
<tr>
<td>HIDE</td>
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<td>N.A.</td>
<td>N.A.</td>
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<tr>
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<td>N</td>
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<td>N.A.</td>
<td>Agentive</td>
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<td>N.A.</td>
<td>N.A.</td>
<td>Agentive</td>
<td>N</td>
</tr>
<tr>
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<td>N.A.</td>
<td>N.A.</td>
<td>Agentive</td>
<td>Y</td>
</tr>
<tr>
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<td>Plain</td>
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<td>N.A.</td>
<td>N.A.</td>
<td>Agentive</td>
<td>N</td>
</tr>
<tr>
<td>LEARN</td>
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8. Acknowledgments

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9. References


Wechsler, Stephen and Larissa Zlatic. (Dis)agreement in Serbo-Croatian. Under review.
