Unification, competition and optimality in signed languages: aspects of the syntax of American Sign Language (ASL)

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Major advances have been made in recent years with respect to our understanding of the syntactic organization of signed languages. However, most of the syntactic research has been carried out within derivational syntactic frameworks. Certain issues have been left unaddressed because such frameworks do not readily lend themselves to explanatory solutions. This paper will begin with a brief introduction to the syntactic organization of American Sign Language (ASL); then one specific area where unification-based optimality-theoretic approaches might offer insights will be discussed: the manual and non-manual expressions of syntactic information. This represents research in progress, and suggestions from the conference participants would be welcome.

1. Syntactic organization of ASL: parallel expressions of information in the manual and non-manual channels

Signed languages display the same kind of hierarchical structure that characterizes spoken languages. In parallel with manual signing, however, syntactic information is conveyed by non-manual grammatical markings that occur over phrasal domains (frequently larger than a single lexical sign). Described by Neidle, et al. [9] in terms of c-command domain, the spread of these non-manual syntactic markings could alternatively be characterized in terms of their syntactic/semantic scope.

Syntactic information expressed through non-manual markings includes: negation, question status and type (yes/no *vs*. wh, direct *vs*. rhetorical questions), referential information, subject and object agreement, mood, tense, aspect, definiteness, specificity, and information status (topic, focus). Each marking is made up of a cluster of behaviors, such as particular head positions and (often periodic) head movements, eyebrow height, eye aperture and gaze, mouth movements, and nose wrinkles, among others. For example, wh-questions normally include lowered eyebrows, squinted eyes, and a slight rapid side-to-side headshake. There is variability in terms of exactly which behaviors are used in particular cases by an individual, as well as variations across signers as to their canonical expression of a given syntactic marking [2].

As demonstrated by Coulter [5] (although his approach can be further extended), there is semantic decomposition involved. A given component of a non-manual marking seems to be associated—across the range of its occurrences—with particular semantic information. For example, the rapid headshake that occurs with wh-questions (differing a bit in its distribution when compared with the lowered eyebrows also considered characteristic of wh-question marking) is also found in other indefinite contexts. Moreover, although it is taken as a given in the literature that direct wh-questions involve lowered eyebrows, this is not always the case. Raised eyebrows used for specific effect (including expression of speaker's attitude) can override the canonical lowered brows. We will discuss some of the cases where there seems to be competition between (anatomically conflicting) non-manual expressions and how these are resolved.

2. Interplay between manual and non-manual expressions

There are instances where morphosyntactic information can be expressed manually, non–manually, or simultaneously in both channels. For example, subject agreement can be realized (a) by an agreement prefix on manually agreeing verbs, and/or (b) non-manually, in conjunction with a focus marker [11]. Either is sufficient to license a null subject [1]. When both types of subject agreement marking are present, the realization of both is reduced (i.e., they seem to be 'sharing the burden' of expressing the information). In addition, aspectual marking normally expressed manually can 'migrate' to the head, being expressed non-manually instead.

There is also variability with respect to whether the non–manual marking occurs over a single lexical element or spreads over all elements within its scope. There is a preference (but not an absolute requirement) for non-manual material to be realized in conjunction with manual material. This can be satisfied by use of several seemingly disparate strategies. Non–manual negative marking will serve to illustrate this variability. Then, some interesting variants of wh-constructions will be considered [10]. We will suggest a set of ranked constraints to account for the syntactic distribution of these markings.

3. Summary

Here we present an analysis of ASL, but the fundamental properties under discussion are also characteristic of other signed languages [4, e.g.]. There are generalizations about the realization and distribution of non-manual syntactic markings that cannot be readily captured within the current Chomskyan syntactic models. This paper will present some facts that pose a challenge to derivational models and offer some suggestions about how these might be approached within a unification-based OT framework.

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