Aspectual inflection, verb raising and object fronting in American sign language

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Abstract

This paper examines the object fronting construction of American sign language (Liddell, S., 1980. American Sign Language Syntax. Mouton, The Hague; Matsuoka, K., 1997. Verb missing in American sign language. Lingua 103, 127–149), and its relation to verb raising and aspectual inflection. In this construction, word order, canonically S–V–O, is modified to O–S–V. Matsuoka argues persuasively for a relationship between object fronting and overt verb raising, driven by the presence of an affixal verbal inflection [Lasnik, H. 1995b. Verbal morphology: syntactic structures meets the minimalist program. In: Campos, H. and Kempchinsky, P. (Eds.), Evolution and Revolution in Linguistic Theory. Georgetown University Press, Washington, DC, pp. 251–275]. Thus, her analysis reduces ASL object fronting to an instance of 'object shift' as occurs in the Scandinavian language family. However, evidence is provided here, from the distributions of adverbs and modals, and from the interaction of object fronting with question formation and raising contexts, which indicates that ASL object fronting targets a position high in the clause. A new model of ASL object fronting is developed against the backdrop of Matsuoka and the Lasnik theory of verbal morphology. This new framework has much in common with Matsuoka's account, while attaining greater empirical coverage. In this framework, as in Matsuoka, overt verb raising is triggered by the presence of an aspectual head (Asp). However, I argue that AspP is part of an articulated COMP layer [Rizzi, L. 1997. The fine structure of the left periphery. In: Haegeman, L. (Ed.), Elements of Grammar: Handbook in Generative Syntax. Kluwer, Dordrecht. pp. 281–337]. Object fronting targets spec-AspP, an A′-position. This model is shown to provide a better account of the distribution of adverbs and modals in object-fronted clauses, as well as explanations of the behavior of object fronted clauses in questions and in embedded contexts. Lasnik's model of verbal morphology is extended such that verbs in (some varieties of) ASL allow both derivational and lexical options for aspectual inflection. This mechanism provides

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for an explanation of the infelicity of object fronted clauses in embedded contexts. The analysis crucially relies on the categorial status of object-fronted clauses and the mechanism of c-selection.
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1. Introduction

This paper examines the relationship between object fronting and verbal morphology in American sign language. The point of departure is Matsuoka (1997) where ASL object fronting is convincingly related to two other constructions, 'verb-final' and 'verb-sandwich'. Matsuoka has it that a fronted object raises overtly to spec-AgrOP while the subject remains in spec-VP. She argues that overt object raising is linked to the occurrence of overt verb raising, licensed, in ASL, by the presence of aspectual inflection on the verb. Section 1 gives the details of her analysis.

In Sections 3–7 I show that Matsuoka's analysis faces empirical challenges from the distributions of adverbs and modals, as well as the behavior of object fronted clauses in question and embedded contexts. The implications of adverb distribution are discussed in Sections 3–5. Modal distribution is discussed in Section 6, and Section 7 shows that overt object fronting interacts with question formation processes and with the distribution of clauses in embedded contexts.

In Section 8, a new analysis is proposed, retaining some of the spirit of Matsuoka's treatment. In this new model, ASL object fronting is treated as overt object raising to an A′ position above INFL. The target of object raising is argued to be the specifier of an Aspect Phrase, a component of an articulated COMP layer. I show that this proposal accounts for the distribution of adverbs and modals in object-fronted clauses, as well the interaction of object fronting with question formation and the distribution of object-fronted clauses in embedded contexts. The proposed analysis includes an extension of the Lasnik (1995b) model of verbal morphology and the adoption of a more highly articulated COMP layer than is standardly assumed (Rizzi, 1997). Section 9 summarizes the paper.

2. Fronted objects

In this section, I present details of the object shift construction in ASL and Matsuoka's (1997) account of it. There are two points about ASL verbal morphology to bear in mind in the discussion that follows. First, it is well-known that verbs in ASL fall into two broad categories, those that agree with some or all of their arguments, often referred to as 'agreeing' verbs, and those that do not, 'plain' verbs. Fischer (1974) observes that word order is somewhat freer in clauses containing agreeing verbs, but since the complexities of verbal agreement morphology in ASL are largely orthogonal to the present discussion I will abstract away from these matters (see Padden, 1983, for details). Unless otherwise noted, the examples used in this paper contain plain verbs.

A second component of ASL verbal morphology is directly relevant to the matter at hand. Klima and Bellugi (1979) observed that certain adjectival and verbal predicates of ASL can have their form and meaning modified by 'aspectual modulations'. These modulations affect the morphology of a predicate sign by altering the hand movement associated with it. Different modulations alter the movement and meaning of a predicate in different ways. Among those discussed in Klima and Bellugi are the *continuative*, which adds a reduplicated elliptical motion to the affected predicate, and the *predispositional*, which adds a reduplicated circular motion. The continuative modulation, or aspect, indicates that the state, quality, or event denoted by the affected predicate is prolonged over a period of time. The predispositional modulation modifies an affected predicate, X, to mean something like 'prone to X' or 'predisposed to X'. Klima and Bellugi discuss the morphology and semantics of a number of other aspectual modulations, but the focus here is on exploring the syntactic consequences of verbal aspect in ASL, so in the discussion that follows I will ignore these other matters. Our central concern is with the fact that aspectual inflection on the verb licenses a change in the order of constituents within the clause; S–V–O becomes O–S–V.

2.1. The data

I adopt the premise that the canonical order of constituents in a simple ASL clause is S–V–O (Fischer, 1974, 1975, 1990; Liddell, 1980; Padden, 1983; Petronio, 1993; Matsuoka, 1997).[1] The basic word order is shown in (1a).[2]

(1) a. ✓ BOY EAT APPLE
         'The boy ate the apple'

                    ‾‾‾‾t‾‾‾
     b. ✓ APPLE BOY EAT
         'As for the apple, the boy ate it'

     c. *APPLE BOY EAT

This basic order can be altered by a number of syntactic processes. Prominent among these is topicalization, a syntactic operation which displaces old information to the front of a sentence, as in (1b). Topicalized constituents are set apart from the rest of the clause by a pause and bear a distinctive non-manual marker. This marker is described in Liddell (1980: 22) as consisting of "a slight backward head tilt and a brow raise". In general, a fronted object without a topic marker is quite deviant, as (1c) demonstrates.

However, in a sentence where the verb is aspectually inflected, the object can be fronted without topicalization. This is shown in (2a), which contrasts quite sharply with (1c).

(2) a. ✓ APPLE BOY EAT$_{[CONT]}$
         'The boy ate apples (for a long time)'

     b. ✓ BOY EAT$_{[CONT]}$ APPLE
         'The boy ate apples (for a long time)'

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[1] Petronio (1993: 26), for one, carefully restricts her claim to sentences with plain (non-agreeing) verbs.
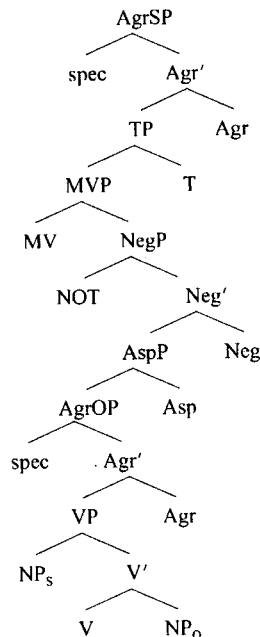
[2] See the Appendix for notational conventions.

Native ASL consultants interviewed for this study also readily accept sentences in which canonical word order is preserved in the presence of an aspectually inflected verb, as in (2b). Matsuoka (1997) and Fischer and Janis (1992) assert that such sentences are ungrammatical. On the other hand, Liddell (1980: 103, 113 fn 9), Romano (1991), and Aarons et al. (1992) consider sentences like (2b) grammatical. Different judgements are possibly due to dialectal variation, although Matsuoka (1997, fn 5) attributes the judgements of ASL speakers who do accept sentences like (2b) to the influence of English. We will return to this issue in Section 8. The key observation is that non-topic object fronting is possible only when the verb is aspectually inflected.

2.2. Matsuoka (1997)

Matsuoka (1997) develops an analysis that captures the fact that overt object fronting in a simple sentence (one where the verb is not aspectually inflected) is not possible and explains why it is allowed if the verb is aspectually inflected. Matsuoka argues for the phrase structure shown in (3).[3]

(3)

```
                          AgrSP
                         /     \
                      spec      Agr'
                               /    \
                             TP      Agr
                            /  \
                          MVP   T
                         /   \
                        MV    NegP
                             /    \
                          NOT      Neg'
                                  /    \
                               AspP     Neg
                              /    \
                          AgrOP    Asp
                         /     \
                     spec      Agr'
                              /    \
                            VP      Agr
                           /  \
                        NP_s   V'
                              /  \
                             V    NP_o
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[3] Matsuoka is not fully explicit about the placement of AspP with respect to MVP and NegP. For concreteness I assume that it is below both of them.

There are three points to note about the structure and attendant analyses. First is the incorporation of an aspect phrase (AspP).[4] This phrase is headed by a morphological affix that affects both the form and interpretation of the main verb with which it combines. The verb must raise overtly to adjoin to the affix or the derivation will crash due to a violation of Lasnik's (1981, 1995b) *stranded affix filter*, (4). Aspectual inflection on the verb is due to the presence of the affixal Asp head.

(4)   *Stranded Affix Filter*: A morphologically realized affix must be a syntactic dependent of a morphologically realized category, at surface structure.

The *equidistance* technology of Chomsky (1993) is the second key component of Matsuoka's analysis, as it allows the object NP to raise over spec-VP to spec-AgrOP without violating economy constraints on movement. The hypothesized structure of an object-fronted clause is shown in (5). In the course of the derivation, the verb, motivated by the affixal properties of Asp^0, raises first to $AgrO^0$, checking the weak V features of that head.[5]

(5)

$$\text{AspP}$$

AgrOP $[_{ASP}\ \text{CONT}] + \text{EAT}_V$

APPLE_O Agr'

VP t_V

BOY   V'

t_V t_O
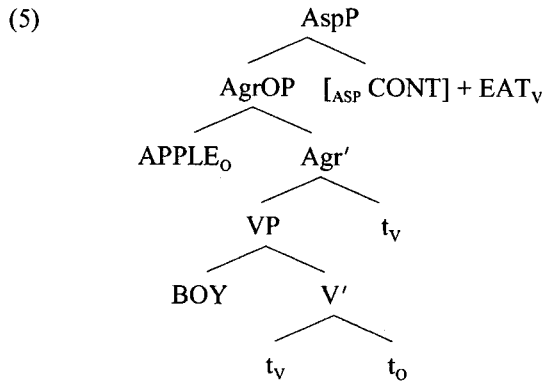
This intermediate step of verb raising has the effect of generating a *minimal domain* (Chomsky, 1993) for the chain [V, *t*] that contains both the specifier and complement positions of the verb phrase, as well as the specifier of AgrOP. Chomsky defines minimal domain as in (6).

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[4] Matsuoka's aspect phrase should not be confused with that of Aarons et al. (1992), Aarons (1994), Aarons et al. (1995), which is a distinctly different proposal.

[5] It is crucial for Matsuoka's analysis of the verb sandwich, to be discussed later, that the affixal properties of Asp^0 are sufficient to drive verb raising. This is problematic given the ungrammaticality of the English sentence (i).

    (i)   * John raced not

If the affixal properties of the INFL were sufficient to drive overt verb movement in English, then (5) should be grammatical when the verb *race* raises over *not*, as noted in Lasnik (1995b).

(6) a.   The *domain* of a head, α, is the set of all nodes contained in αP that are distinct from and do not contain α (or a trace of α if α heads a non-trivial chain).

    b.   The *minimal domain* of α is the set of all nodes in the domain of α that are immediately contained in a projection of α (or a trace of α if α heads a non-trivial chain).

As a result, spec-VP and spec-AgrOP are *equi-distant* from the object. Chomsky allows for the operation *move* to skip structurally nearer (more economical) potential landing sites without violating economy of movement, when the position skipped and the actual target are equi-distant from the source of movement. Thus, the object can raise from its base position, skipping spec-VP, to spec-AgrOP. After the object raises, the verb raises from $AgrO^0$ to Asp^0, satisfying the affixal requirements of that head.

The final component of Matsuoka's analysis involves the Petronio (1993) claim that overt subject raising in ASL is optional. Matsuoka adopts this assumption as a crucial component of her analysis of object fronting, while acknowledging the problems that optional raising poses for a theory embracing minimalist assumptions. This optionality allows the subject to remain in spec-VP, below the hypothesized position of fronted objects.

To summarize, Matsuoka (1997) argues that in ASL, object fronting is only possible when a verb raises overtly to an aspectual affix to save the structure from violating the stranded affix filter. In the presence of aspectual inflection and overt verb raising, the object can raise overtly to spec-AgrOP while the subject remains in spec-VP. This analysis brings ASL object fronting in line with "Holmberg's generalization", the observation that overt verb raising is a necessary precursor to overt object shift in Scandinavian languages (Holmberg, 1986, cited in Holmberg and Platzack, 1995). Assorted theoretical accounts of the Scandinavian phenomenon consonant with Matsuoka's proposal for ASL can be found in the literature (Bobaljik and Jonas, 1996; Branigan, 1992; Chomsky, 1993; but see Holmberg and Platzack, 1995 and Holmberg, 1999 for other proposals). Matsuoka's analysis also allows for a unified treatment of object fronting and two other constructions in ASL licensed by the presence of aspectual inflection on the verb, the *verb-final* construction and the *verb-sandwich* construction.

Constituent order in the verb-final construction is S–O–V_{ASP}. Matsuoka proposes that the derivation of this construction differs from object shift only in that, in verb-final clauses, the subject raises overtly as well as the object. A crucial component of the combined analysis of object shift and verb-final is the claim that overt subject raising in ASL is completely optional.

Verb-sandwich clauses contain two copies of the main verb, one with and one without aspectual inflection. The sequence of constituents is S–V–O–V_{ASP}, as shown in (7a).

(7) a. $\checkmark$ BOY EAT APPLE EAT$_{[CONT]}$
          'The boy ate apples (for a long time)'

b.   * BOY EAT$_{[CONT]}$ APPLE EAT$_{[CONT]}$

On Matsuoka's account, the derivation of a verb-sandwich differs from that of an object-fronted clause in two ways. First, the object does not raise overtly; thus, Matsuoka's analysis relies on optionality for overt object raising, as well as for overt subject raising. Second, the trace of the raised verb is phonetically realized, giving the bare medial copy. The final copy of the verb, carrying aspectual inflection, arises when the raised verb combines with the affixal Asp head. The affixal status of Asp^0 is crucial in that it provides for an account of the inflectional difference between the two instances of the verb, thus explaining the ungrammaticality of (7b).

Matsuoka's analysis relates object fronting in ASL to object shift in other languages, as well as relating it in an explanatory way to other constructions of ASL. We would like to retain those components of the analysis that make this possible. However, in the sections that follow, I will present data from the distributions of adverbs and of modals, and from the interaction of object fronting and question formation, that present empirical challenges to her model.

3. Adverb placement in canonical clauses

In this section, I review the distribution of adverbs in ASL clauses that do not contain aspectually inflected verbs and discuss the implications of this data for verb raising. In Section 4, I use the distribution of adverbs in object-fronted clauses as a means of determining the positions of constituents in such sentences. In using adverbs as structural markers I make two assumptions about their syntactic behavior. First, I adopt the premiss that adverbs do not undergo syntactic movement. This follows from minimalist assumptions. As Chomsky (1995: 329) notes, there is no obvious morphological (featural) requirement that would license adverb movement. Second, I assume that adverbs are inserted into a derivation adjacent to the maximal projection of the category that they modify.

3.1. Sentential adverbs

Boster (1996) uses the positions of temporal adverbs as a diagnostic for determining whether an element has been topicalized out of the subject. She notes that temporal adverbs like TODAY can occur in at least two positions in ASL, as shown in (8).

(8) a.   TODAY THREE STUDENT ARRIVE CLASS LATE
     b.   THREE STUDENT TODAY ARRIVE CLASS LATE
          'Today three students arrived to class late.'

Boster states that her native speaker consultants find both orders quite acceptable. She assumes that when the adverb precedes the subject it is in an IP adjoined position, (9).

(9)   [$_{IP}$ TODAY [$_{IP}$ THREE STUDENT ARRIVE CLASS LATE]

Judgements elicited for the present study with respect to the orders in (8) are consistent with those reported by Boster. Aarons (1994: 56) shows that temporal adverbs can also occur in final position, citing (10). This is also consistent with our data.

(10)   a.   YESTERDAY JOHN BUY BOOK   (Aarons, 1994: 56)
       b.   JOHN BUY BOOK YESTERDAY
            'John bought a book yesterday.'

Aarons et al. (1995: 238) observe that medial temporal adverbs must precede modals when they co-occur, as shown in (11) and (12).

(11)   JOHN TOMORROW CAN BUY CAR   (Aarons et al., 1995: 238)
       'John can buy a car tomorrow'

(12)   a.   IDX$_1$ KNOW TODAY JOHN WILL PASS TEST
       b.   IDX$_1$ KNOW JOHN TODAY WILL PASS TEST
       c.   * IDX$_1$ KNOW JOHN WILL TODAY PASS TEST
            'I know that today John will pass the test'

Aarons et al. (1995) do not make any explicit claims about the structural positions occupied by temporal adverbs, although it seems that they assume IP adjunction (also Aarons et al., 1992: 112). Taking the structure (3) as a point of departure,[6] I assume that temporal adverbs in clause initial position, (12a), (10a), and (8a), are left adjoined to AgrSP, and that those in final position, (10b), are right adjoined to AgrSP. Where temporal adverbs occur between subject and verb (either modal or main verb), as in (12b), (11), and (8b), I assume adjunction to TP, and that the surface position of the subject is spec-AgrSP. The structure of (8b) is then (13), on the additional assumption that the verb has not raised overtly to AgrS^0; although the possibility that it has raised to T cannot be excluded based on the position of temporal adverbs.

(13) [$_{AgrSP}$ THREE STUDENT [$_{TP}$ TODAY [$_{TP}$ [$_{AgrOP}$ ARRIVE CLASS LATE]]]]

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[6] The observations in this section can be straightforwardly adapted to other conceptions of ASL clause structure. Aarons and colleagues, for example, have argued that ASL phrasal categories are uniformly head initial, and that TP dominates AgrSP. Petronio (1993), Petronio and Lillo-Martin (1997) propose a structure similar to that of Aarons et al. in the order of functional categories, as well as the headedness of categories. The two proposals do differ in significant ways not relevant to the matter at hand. See Petronio and Lillo-Martin (1997) and Neidle et al. (1997) for discussion of some of the issues.

Aarons (1994) and Aarons et al. (1995) also point out that temporal adverbs cannot occur between a verb and direct object in ASL,[7] as shown in (14).[8]

(14)   * JOHN BUY YESTERDAY BOOK

This is expected if, as argued here, temporal adverbs adjoin either to AgrSP or to TP and the verb does not raise overtly over the TP adjoined position.

The data reviewed in this sub-section shows temporal adverbs in canonical ASL clauses to be restricted to the periphery of the clause and to the post-subject/pre-modal position. The distribution is accounted for under the conventional assumption that such adverbs can adjoin to either AgrSP or to TP.

3.2. VP adverbs

In this sub-section I discuss the distribution of the 'adverb of quantification' ALWAYS, and show that it is best accounted for by the assumption that ALWAYS is VP adjoined. Cross-linguistically, adverbs of quantification are typically assumed to occupy a VP adjoined position, although there are differences in their distributions across languages. Emonds (1978) observes the contrast between English and French in (15).

(15)   a.   ✓ John often kisses Mary
       b.   * John kisses often Mary
       c.   * Jean souvent embrasse Marie
       d.   ✓ Jean embrasse souvent Marie

Pollock (1989) argues that this difference in word order corresponds to a difference in the structural positions occupied by English and French verbs at the relevant level of representation. Specifically, English verbs are inside the VP, to which the adverbs in (15) are assumed to be left adjoined, while French verbs have raised overtly from VP over the adverb. Example (16) shows that ASL patterns with English in this respect.

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[7] Aarons (1994) actually makes the more general claim that *no* adverb can intervene between a verb and object in ASL, but the only examples she gives are of temporal adverbs like TODAY, which are conventionally considered to be high in the clause. Her data leaves open the possibility that putative VP adverbs might occur between a verb and direct object.

[8] Petronio and Lillo-Martin (1997) observe that when an object is 'heavy' it can occur to the right of an adverb, but not otherwise. They illustrate the point with (i) (non-manuals omitted).
   (i)   a.   * JOHN SEE YESTERDAY TEACHER
               'John saw the teacher yesterday.'
          b.   ✓ JOHN SEE YESTERDAY FIVE TEACHERS IDX$_{PLURAL}$
               'John saw those five teachers yesterday.'
They attribute the contrast to a process of Heavy Noun Phrase Shift. In this paper I abstract away from the case of HNPS and consider only the more general case of (ia), in which an adverb cannot fall between a verb and 'light' direct object.

(16)   a.   ✓ JOHN ALWAYS LOSE PAPER
       b.   * JOHN LOSE ALWAYS PAPER
            'John always loses his papers'

In ASL, when the verb is not aspectually inflected and the direct object is not topicalized, the verb and object must be adjacent (but see fn 8).

ALWAYS can also occur in clause final position, (17a), but placing it in initial position results in a sharply degraded sentence, (17b). This contrasts with similarly placed temporal adverbs which are always acceptable in initial position, as shown in the preceding section.[9]

(17)   a.   ✓ JOHN LOSE PAPER ALWAYS
       b.   * ALWAYS JOHN LOSE PAPER
            'John always loses his papers'

I assume that ASL adverbs of quantification adjoin to VP, and that they can adjoin either to the right or to the left. This explains the alternation between (16a) and (17a), and correctly excludes (17b) on the additional assumption that overt subject raising is obligatory. The latter premise runs counter to the Petronio (1993), Matsuoka (1997) claim that overt subject raising is an optional operation in ASL. But consider that if subject raising is truly optional, (17b) should be grammatical with the subject in spec-VP. I take this as strong evidence for obligatory overt subject raising in ASL.

When ALWAYS and negation (NOT) are both present in a clause, the order of constituents is S–Neg–Adv–V–O, (18). The adverb must follow negation.

(18)   _____neg
            KIDS NOT ALWAYS EAT CORN
            'The kids don't always eat corn'

When both negation and a modal are present, the modal must precede negation, hence Matsuoka's placement of MVP above NegP as shown in (3). That fact, in combination with the observation that a medial temporal adverb must precede a modal, as shown in (12), provides strong evidence that medial adverbs of

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[9] The judgements elicited for sentences like (i) in the course of this study are not entirely consistent. On some occasions, our consultants seem to accept this order, albeit hesitantly.

                ___hn
(i)   ALWAYS JOHN LOSE PAPER

However, there are no spontaneous occurrences of adverbs of quantification in clause initial position in our data. Those instances of such adverbs in initial position that our consultants judge most acceptable always have a *hn* non-manual marker associated with them. Medial and final ALWAYS commonly occurs without any non-manual accompaniment.

quantification and medial temporal adverbs occupy different structural positions. The distribution of ALWAYS with respect to negation is consistent with the premiss that adverbs of quantification are VP adjoined.[10]

In this sub-section I have argued that the distribution of adverbs of quantification in ASL can be accounted for through the assumption that they are adjoined to VP. From that premiss it follows that subjects must raise overtly in ASL. In the next section I will argue that neither the verb nor the object raises overtly from VP in a simple clause containing a non-agreeing verb.

4. Verb raising in canonical clauses

This section addresses the issue of overt verb raising in the canonical S–V–O clause, assuming the structure in (3). I will show that Matsuoka (1997) entails that (at least non-agreeing) verbs do not raise overtly in canonical ASL clauses. On common assumptions, a tensed verb must raise through $AgrO^0$ and T^0 and $AgrS^0$ by LF. In Section 3.1, in order to account for the distribution of temporal adverbs, I adopted the premiss that verbs in ASL do not raise to $AgrS^0$ overtly. In this section I argue against the possibility that verbs raise overtly from VP but stop short of $AgrS^0$.

One logical possibility is that the verb raises to $AgrO^0$, but waits until LF to raise further. However, if there is a strong V feature in $AgrO^0$ that drives overt verb movement, the most parsimonious assumption is that $AgrS^0$ should have the same feature, driving the verb to raise that far. I pointed out in Section 3.1 that if the verb raises to $AgrS^0$, we predict that a sentential adverb can fall between the verb and object, counter to fact. So it is clear that overt verb raising to $AgrS^0$ does not occur. From this I conclude that Agr projections do not have strong V features in ASL. So, overt verb raising, if it occurs at all, targets T^0.

If the verb raises overtly to T^0 while the direct object remains inside the VP, we will have an S–O–V surface order like that in (19). While Fischer (1974) claims that the S–O–V is possible in ASL with non-reversible subject and object, Liddell (1980) reported that this order was unacceptable to his consultants unless there is overt agreement on the verb, even when the subject and object are non-reversible.[11] Our consultants, too, consistently reject sentences like (19).

(19)   * MAN MOVIE SEE   (Liddell, 1980: 89)

Given that the S–O–V order (with a non-agreeing verb) is not grammatical, a derivation combining overt verb raising with the object remaining in situ can be ruled out without an appeal to adverb distribution.

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[10] The interaction of NOT with other VP adverbs awaits further investigation. It seems likely that the structural relationship between negation and VP adverbs in general is determined, at least in part, by semantic considerations.

[11] Liddell (1980: 88–92) does report that for certain combinations of verb and object the unacceptability of the S–O–V order can be ameliorated. He speculates that the acceptability of such sentences is related to how well the relationship between the verb and object is depicted.

Finally, consider the possibility that both the verb and the direct object raise overtly, to T^0 and spec-AgrOP respectively. The resulting order will be either S–O–V or O–S–V, depending on whether or not the subject is allowed to raise overtly as well. We established earlier in this section that S–O–V is ungrammatical, and O–S–V was shown to be ungrammatical in Section 2.1, (1c). The distributional facts follow directly from the clause structure in (3) together with the assumptions adopted earlier for the various adverbs, and the assumption that neither the verb nor the object raise overtly in the canonical ASL clause. The latter assumption is consistent with most previous work on ASL.

Briefly, consider the Matsuoka (1997) claim, following Romano (1991), that the S–O–V order is grammatical if the verb is aspectually inflected. She cites (20), adapted from Romano (1991: 246).[12]

(20)   S-H-E R-A-D-I-O LISTEN[CONT]   (Matsuoka, 1997: 130)
         'She was continuously listening to the radio'

However, in judgements elicited for this study, the S–O–V order is rejected even when the verb carries aspectual inflection. Following the judgements of our consultants, I assume that S–O–V[ASP] is ungrammatical.[13]

In this section, I have argued that Matsuoka's (1997) hypothesized clause structure entails that neither the verb nor the object raise overtly in canonical ASL clauses. In the next section, I use the distributions of adverbs to probe the structure of the object-fronted construction.

5. Adverbs and object fronting

In this section, I will derive predictions for the distribution of adverbs in object-fronted clauses from Matsuoka (1997), and show that some of these predictions are not consistent with the facts.

5.1. VP adverbs

Matsuoka's analysis, in conjunction with my assumptions about the distribution of adverbs of quantification, predicts that the word orders (21b) and (21c) should be grammatical. Example (22) shows the relevant structures.

(21)   a.   (?) Adv–O–S–V[ASP]
        b.   ✔ O–Adv–S–V[ASP]
        c.   ✔ O–S–Adv–V[ASP]
        d.   (?) O–S–V[ASP]–Adv

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[12] Romano (1991) indicates that the pronoun was finger-spelled.

[13] It may be that the difference between judgements collected for this study and those reported in other work represents a dialectal distinction. If so, it would be desirable to collect a larger body of data on the construction in order to establish its range of use. I will touch on this point again in Section 8.

(22)   a. $[_{AspP} [_{AgrOP} Adv [_{AgrOP} NP_O [_{VP} NP_S t_V t_O] t_V']] V + Asp]$
        b. $[_{AspP} [_{AgrOP} NP_O [_{VP} Adv [_{VP} NP_S t_V t_O]] t_V'] V + Asp]$
        c. $[_{AspP} [_{AgrOP} NP_O [_{VP} [_{VP} NP_S t_V t_O] Adv] t_V'] V + Asp]$
        d. $[_{AspP} [_{AspP} [_{AgrOP} NP_O [_{VP} NP_S t_V t_O] t_V'] V + Asp] Adv]$

The facts do not support these predictions. Sentence (23b) is completely unacceptable, which is quite unexpected on Matsuoka's analysis. Sentences like (23b), with the structure shown in (22b), should not be even marginally deviant.

(23)   a.   * ALWAYS PAPER IDX_a $TYPE_{[CONT]}$
        b.   * PAPER ALWAYS IDX_a $TYPE_{[CONT]}$
        c.   ✓ PAPER IDX_a ALWAYS $TYPE_{[CONT]}$
        d.   ?? PAPER IDX_a $TYPE_{[CONT]}$ ALWAYS
              'She is typing papers constantly'

On the other hand, the contrast between (23b) and (23c) is expected if overt subject raising is obligatory in ASL, and fronted objects are in some position higher yet.

A clause-final VP adverb also results in an unacceptable object-fronted sentence. Sentences like (23d) are reliably judged to be degraded, contrasting both with canonically ordered S–V–O–Adv clauses like (17a), and with object-fronted clauses, O–S–Adv–V, like (23c). The judgements are consistent with the verb having raised (rightward) out of the VP past a right-adjoined VP adverb. Matsuoka's model might explain (23d) by adopting the premiss that an adverb of quantification cannot adjoin to AspP. Her analysis might also accommodate (23b) if we stipulate that ALWAYS can adjoin to AgrOP but not to VP. However, this would be an ad hoc move not consistent with common assumptions, and would leave the deviance of (23a), with the structure in (22a) unexplained.[14]

In Section 3.2 I argued that overt subject raising is obligatory in sentences without aspectual inflection on the verb. The null hypothesis is that this is also true of sentences in which the verb carries aspectual inflection. The paradigm in (23) supports this conclusion. Obligatory overt subject raising entails that fronted objects must be considerably higher than spec-AgrOP.

5.2. Sentential adverbs

Now consider the predictions Matsuoka's analysis makes for sentential adverbs. Example (24) shows the predicted grammaticality for each possible constituent order. Relevant structures are shown in (25).

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[14] As observed in fn 9, judgements for VP adverbs in initial position are somewhat inconsistent. This is true whether object shift has applied or not. I take (23a), without a head nod accompanying the adverb, to be ungrammatical.

(24) a. ✓ Adv–O–S–V$_{[ASP]}$
      b. * O–Adv–S–V$_{[ASP]}$
      c. * O–S–Adv–V$_{[ASP]}$
      d. ✓ O–S–V$_{[ASP]}$–Adv

(25) [$_{AgrSP}$ Adv ... [$_{AspP}$ [$_{AgrOP}$ NP$_O$ [$_{VP}$ NP$_S$ t$_V$ t$_o$] t$_V'$] V + Asp]]
      [$_{AspP}$ [$_{AgrOP}$ NP$_O$ [$_{VP}$ Adv [$_{VP}$ NP$_S$ t$_V$ t$_o$]] t$_V'$] V + Asp]
      [$_{AspP}$ [$_{AgrOP}$ NP$_O$ [$_{VP}$ [$_{VP}$ NP$_S$ t$_V$ t$_o$] Adv] t$_V'$] V + Asp]
      [$_{AgrSP}$ ... [$_{AspP}$ [$_{AgrOP}$ NP$_O$ [$_{VP}$ NP$_S$ t$_V$ t$_o$] t$_V'$] V + Asp] Adv]

The paradigm in (26) shows that these predictions are largely consistent with our data. Judgments on sentences like (26b) do vary somewhat, ranging from slightly degraded to quite bad. But native ASL signers consulted for this study never accept sentences like (26b) without some ambivalence. A temporal adverb between the subject and aspectually inflected verb, as in (26c), is always judged to be quite bad. The degree of contrast between (26b) and (26c) is not entirely clear, but it is certain that both of these examples are deviant.

(26) a. ✓ TODAY PAPER JOHN LOSE$_{[CONT]}$
          'John is (keeps) losing his paper today'
      b. ?? PAPER TODAY JOHN LOSE$_{[CONT]}$
      c. * CANDY KIDS TODAY EAT$_{[CONT]}$
      d. ✓ CANDY KIDS EAT$_{[CONT]}$ TODAY
          'The kids are constantly eating candy today'

This section presented evidence from the distribution of VP adverbs showing that both the subject and the object must be higher in ASL object-fronted clauses than allowed for under Matsuoka's analysis. While distribution of sentential adverbs sheds no additional light on the matter, the following section presents evidence from the distribution of modals that supports the VP adverb data.

6. The distribution of modals

In this section I argue that the distribution of modals in object-fronted clauses supports the hypothesis that subjects are higher than spec-VP. In a clause where the main verb does not carry aspectual inflection, ASL modals occur in any of three positions: initial, medial, and final. There is also a doubled (medial and final) modal construction.

(27)   hn
      a.   ‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾
           MUST IDX$_1$ STOP SMOKE$_{[CONT]}$
                                          hn
      b.   ‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾
           IDX$_a$ WILL READ BOOK

$$\overline{\hspace{3cm}}^{\text{hn}}$$

c.   NANCY BUY COMPUTER WILL   Petronio (1993: 153)

$$\overline{\hspace{1.5cm}}^{\text{hn}}$$

d.   JOHN MUST GO MUST   Aarons (1994: 89)

Petronio (1993) points out that related M–S–V–O and S–M–V–O sentences have the same truth conditions. However, a modal-first clause, like (27a), is felicitous only under a highly constrained set of discourse conditions. For example, it can be used in answer to a question, but not as a simple statement. Predictions about the intersection of the modal-first construction with object fronting are difficult to test due to the discourse constraints on the former. For that reason I restrict the present discussion to clauses with medial or final modals only.

The preferred placement for a modal without particular focus or emphasis is the medial position exemplified in (27b) where it is commonly assumed to head TP (e.g. Aarons et al., 1992; Petronio, 1993), or possibly a specialized verb phrase (Matsuoka, 1997). The modal-final, (27c), and the double modal constructions, (27d), have the effect of focusing or emphasizing the modal. In Section 6.1 I discuss three accounts of clause-final modals. Section 6.2 covers the distribution of modals in object-fronted clauses.

6.1. Clause final modals

There are several analyses of clause final modals in the literature and it is likely that final modals do not represent a unified phenomenon. I review two existing proposals for the positions of medial and final modals, in addition to that of Matsuoka (1997). It is not my intention to argue for any one of these, but to point out that all of them face difficulties in accounting for the distribution of modals in object-fronted clauses. The first two treatments of final modals discussed are those of Petronio (1993), as elaborated in Petronio and Lillo-Martin (1997), and of Aarons et al. (1992). They share the common assumption that medial modals occupy the head of TP, taken to be a head initial category. Both analyses assume clause structures that differ from (3) in that ASL phrase structure is take to be uniformly head initial (at least below CP), and that TP dominates AgrSP.

Petronio and Lillo-Martin (1997) contend that final modals without a significant prosodic break between the modal and the rest of the clause are instances of a general, focus driven, phenomenon of final doubling that can apply to verbs and *Wh* elements as well. They argue that the final modal in sentences like (28) is in C^0 with the medial twin in T^0 (CP is a head-final category, in their analysis).

(28) $\overline{\hspace{3cm}}^{\text{hn}}$

ANN CAN'T READ CAN'T   Petronio (1993: 135)

'Ann *can't* read'

Where sentence final modals appear without overt medial twins, as in (29a), the medial copy is assumed to be phonologically null, (29b). Petronio (1993: 83–84) does observe that not all speakers accept a final modal without the presence of a medial twin, but it is clear that for some speakers, a sentence like (29a) is grammatical.

(29)   _____neg
      a.   ANN READ CAN'T

                        _____neg
      b.   ANN e READ CAN'T   Petronio and Lillo-Martin (1997: 21)
         'Ann *can't* read'

The Petronio and Lillo-Martin analysis of modal distribution, in conjunction with Matsuoka's treatment of object fronting, leads to the prediction that modals might occur at either the right or the left edge of an object-fronted clause, but not internal to it.

Aarons et al. (1992) distinguish two types of sentence final modals, observing that in some cases the final modal is set off from the rest of the clause by a significant prosodic break. They argue that prosodically disjunct modals are best treated as components of a tag clause (with the same polarity as the matrix clause) in a CP adjoined position. The modal, they propose, heads TP in the tag.

(30)   JOHN MUST EAT, MUST   (Aarons et al., 1992: 129)

Aarons et al. (1992) also propose an analysis of final modals not separated from the rest of the clause by a prosodic break, the same type of construction dealt with by Petronio and Lillo-Martin. They assert that this should be treated as movement of a constituent containing the verb and direct object to a position between the subject, posited to be in spec-TP, and the modal, posited to be in T^0 (recall that TP is higher than AgrSP in their model). As observed in Petronio (1993) this would entail adjunction to T′, an option that is not standardly considered legitimate. Given the problematic nature of the Aarons et al. analysis, I will simply put it aside. We are left with the Petronio and Lillo-Martin prediction that modals should occur at the edges of object-fronted clauses.

Lastly, Matsuoka (1997) adapts Romano's (1991) suggestion that final modals are in the head of TP, which is argued to be a head final projection. This leaves the problem of locating medial modals. Matsuoka solves the problem by hypothesizing that ASL modals are lexical in nature, and project a head initial Modal Verb Phrase. Modals raise to T^0 when it contains an emphatic affix. This analysis has medial modals in MV^0, and final modals adjoined to T^0 at spell-out. While Matsuoka (1997) does not explicitly distinguish different types of final modals, I assume she intends this analysis for those which are not prosodically set off from the rest of the clause. The analysis predicts that non-emphatic modals should precede the object in object-fronted clauses, while emphatic modals should occur in final position, as shown in (31). In the next section, I will show that these predictions are at odds with the facts.

(31) a. $M–O–S–V_{[ASP]}$
      b. $O–S–V_{[ASP]}–M$

6.2. Modals and object fronting

Modals without special emphasis occur between the subject and verb in object-fronted clauses, as shown in (32). This presents a problem for Matsuoka's treatment, which predicts that the unemphatic modal should precede a fronted object.

(32) a. ✓ PAPER SALLY MUST TYPE$_{[CONT]}$
      b. * PAPER MUST SALLY TYPE$_{[CONT]}$
      c. * MUST PAPER SALLY TYPE$_{[CONT]}$
          'Sally must type and type her paper'

Given the structure in (3), and any of the analyses of final modals in Section 6.1, there is no possible derivation for (32a), which our consultants judge perfectly acceptable. There would seem to be two possible ways to accommodate (32). On the one hand we might retain an analysis of object-fronting with the object in spec-AgrOP and the subject in spec-VP. This would lead to the conclusion that the verb in (32a) must have raised rightward over the modal, which would also occupy a rightward head. Accounting for (32a) in this way requires two modifications to (3). First, AspP must be higher than the position occupied by modals, and, second, the unmarked position for a modal must be a rightward head, presumably T^0. The first modification seems unproblematic, but the second leaves the medial position of modals in canonical S–V–O clauses unaccounted for. This quandary is what motivated Matsuoka to introduce the (left-headed) MVP. If we retain the MVP as the canonical position of modals, however, we need to give some explanation for why, in object-fronted clauses, unemphatic modals apparently must raise from MV^0 to T^0. As there is little motivation for such a surmise, we will explore other possibilities.

The alternative I will argue for here is that the subject in (32a) has raised leftward over the modal. This has some initial plausibility, as we already have independent evidence from the distribution of adverbs that overt subject raising is obligatory in ASL. If the subject has raised out of spec-VP, then a consequence, as observed in Section 5, is that the object must be higher than spec-AgrOP.

An ostensible objection to this line of argument arises from a semantic distinction between root and epistemic modals. Root modals typically denote permission, obligation, or ability, specifying characteristics of the subject of the sentence. Epistemic modals typically indicate possibility or entailment. One treatment of this distinction has it that root modals assign a theta role to the subject (Zubizarreta, 1982), while epistemic modals do not. This type of analysis is problematic if the main verb also assigns a theta role to the subject, as it runs afoul of the Chomsky (1981) theta criterion, which requires that every theta role be assigned to exactly one argument and that every argument receive exactly one theta role. So, in an English sentence like (33a), the verb theta marks its subject.

(33)   a.   John laughs
        b.   John can laugh

If, in (33b), both the main verb and the root modal, *can*, theta mark the subject, there will be a violation of the theta criterion. The conventional solution to this problem is to have the modal alone theta mark the overt subject of (33b), while the main verb discharges its theta role on a covert element, PRO, in the VP internal subject position.[15]

The potential problem this raises with respect to the matter at hand is obvious. If modals in sentences like (32a) theta mark a subject inserted into the derivation in a VP external position, then the positions of subjects and modals in such sentences do not provide evidence of subject raising, as such. If ASL modals, like their English counterparts, were ambiguous between root and epistemic readings, then we could abstract away from the problem by restricting our attention to the epistemic senses, but the ASL signs conventionally treated as modals, CAN, MUST, and SHOULD, have only root readings (Wilcox and Wilcox, 1995).

The problem, however, is superficial. Consider that the argument for the object being higher than spec-AgROP in object-fronted clauses hinges, in part, on the surface position of the subject being higher than spec-VP. The only claim here is that the distribution of modals provides good evidence that the surface position of subjects in ASL is higher than spec-VP. Nothing in this paper relies on subjects being raised to that VP external position, as opposed to being initially generated there. Nonetheless, the argument for the VP external status of subjects in object-fronted clauses might profit if it could be shown that ASL has modals with an epistemic sense and that these have a distribution similar to that of the root modals.

Wilcox and Wilcox (1995) observe that epistemic modality can be conveyed in ASL with the sign alternately glossed MAYBE or MAY, and the sign POSSIBLE. Our data indicate that these signs are considerably freer in their distribution than CAN, MUST, and SHOULD. For example, they can occur in sentence initial position without the heavy contextual support typically needed to license modals in that position.

(34)   a.   MAYBE JOHN PASS TEST
        b.   JOHN MAYBE PASS TEST
              'Maybe John will pass the test'
              'John may pass the test'
        c.   POSSIBLE JOHN TYPE PAPER
        d.   JOHN POSSIBLE TYPE PAPER
              'It's possible that John typed his paper'
              'John could (conceivably) type his paper'

---

[15] Bošković (1994) points out some problems with this approach to root modality that arise in the context of a Case theoretic approach to the distribution of PRO (Martin, 1992, 1996), ultimately arguing that the overt subject in a sentence like (33b) does originate in spec-VP, where it is theta marked by the verb, but later in the derivation is theta marked by the modal as well. His approach retains the conception of root modals as theta markers, and so accounts for the selectional restrictions that they impose, at the expense of the bijective formulation of the theta criterion.

The relatively free distribution of the sign MAY/MAYBE is an indication that perhaps we are dealing with a pair of homophones. Additional evidence for this possibility comes from the fact that at least some ASL speakers distinguish between the two signs through a concomitant oral articulation. The medial sign in (34b) has a single oral movement, like a silent [ba] associated with it. The initial sign in (34a) has a reduplicated form of this movement [baba]. I take the sign glossed MAYBE in (34b) to be an epistemic modal, distinguished 'phonetically' from the adverbial MAYBE in (34a) by the non-manual component. So, (34a) and (34b) might be more appropriately glossed as in (35).

(35) $\underline{\text{ba}}$
     a.   JOHN MAYBE PASS TEST
        'John may pass the test'
        $\underline{\text{baba}}$
     b.   MAYBE JOHN PASS TEST
        'Maybe John will pass the test'

In data collected for this study, the sign glossed MAYBE[ba] in (35a) occurs in modal position in the object shift construction, as shown in (36a), but the sign MAYBE[baba] does not. The sign that occurs between the object and subject in the object shifted (36b), has the reduplicated non-manual marker associated with the adverbial MAYBE[baba] in (35b).[16]

(36) $\underline{\text{ba}}$
     a.   TEST JOHN MAYBE PASS[PRED]
        $\underline{\text{baba}}$
     b.   TEST MAYBE JOHN PASS[PRED]

My claim is that, contrary to common assumptions, ASL has at least one lexical item, MAY/MAYBE[ba], that can plausibly be treated as a modal with epistemic force. This sign arguably occurs in the same position as the root modals CAN, MUST, and SHOULD. In object-fronted clauses, subjects occur to the left of this modal, as shown in (36a). This is consistent with the argument, based on the distributions of root modals and VP adverbs, that the subject is higher than spec-VP.

7. The target of object fronting

I have shown that the Matsuoka (1997) model has difficulty accounting for the distributions of VP adverbs and of modals in object fronted clauses. The distributions of adverbs and modals indicate that both objects and subjects are higher in the clause

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[16] We have already seen that the position between object and subject in the object shift construction is not generally available to adverbs or modals. I will address the question of why MAYBE[baba] can occupy that position in Section 8.

than predicted under her analysis. In this section I will consider the character of the position occupied by the object, concluding that it is plausibly an A'-position in COMP.

I assume that the subject is in one of the two VP external subject positions made available by the split-INFL hypothesis, spec-TP or spec-AgrSP. If the subject is in the lower of these two positions, spec-TP on present assumptions, then it is possible that the fronted object is in spec-AgrSP. It might be the case that ASL object fronting is somewhat analogous to English passivization in which the presence of specific verbal morphology triggers object raising to subject position.

If the fronted object is in a subject position, it should be able to raise when embedded under a raising verb like SEEM.

(37)   a.   ✓ SEEM BILL LIKE MARY
             'It seems (that) Bill likes Mary'
      b.   ✓ BILL SEEM LIKE MARY
             'Bill seems to like Mary'

Example (37) shows that raising constructions exist in ASL. In (38a) we see that there is no general constraint preventing a sentence with an aspectually inflected verb from serving as the complement to SEEM and (38b) shows that the subject of an aspectually inflected verb can raise to subject position in the matrix clause.

(38)   a.   ✓ SEEM BOY ALWAYS EAT$_{[CONT]}$ APPLE
             'It seems the boy is always eating apples'
      b.   ✓ BOY SEEM ALWAYS EAT$_{[CONT]}$ APPLE
             'The boy seems to be always eating apples'
      c.   ✓ BOY ALWAYS EAT$_{[CONT]}$ APPLE
             'The boy is always eating apples'

However, when an object-fronted clause is embedded under SEEM, the sentence is completely unacceptable to our consultants even without raising.

(39)   a.   * SEEM APPLE BOY ALWAYS EAT$_{[CONT]}$
             'It seems the boy is always eating apples'
      b.   * APPLE SEEM BOY ALWAYS EAT$_{[CONT]}$
             'The boy seems to be always eating apples'

The fact that a fronted object cannot raise, as shown in (39b), indicates that fronted objects are not in a canonical subject position. The unacceptability of (39a) is a particularly interesting fact, especially in contrast with (38a), which shows that the propositional content of the sentence in question can be felicitously embedded under SEEM.

We might build an explanation for the contrast between (38a) and (39a) on the premiss that fronted objects are in an A'- position above the canonical subject position. It is, however, difficult to carry out some of the traditional tests that would provide converging evidence for the A' status of fronted objects. The availability of null arguments (Lillo-Martin, 1986) and of the role-shift mechanism (Aarons et al.,

1992) make it difficult to determine, for example, whether a fronted object can bind an anaphor in subject position. Neither is it clear that parasitic gaps occur in ASL. However, the unexpected deviance of (39a/b) follows if the landing site of the fronted object is in COMP, and if the selectional properties of SEEM are sensitive to the presence of the feature that drives object raising. Further evidence for this possibility can be found in the interaction of object fronting and Wh-movement.

I assume without discussion the Petronio and Lillo-Martin (1997) analysis of Wh-movement in ASL, in which the (optional) movement targets a leftward spec-CP when it occurs. Matsuoka's analysis of object fronting should allow a Wh-element to move to spec-CP in an object-fronted clause. But sentences like those in (40a) are routinely rejected by our consultants.

(40)

                              _____whq

  a. * WHO PAPER TYPE[CONT]

                                _____whq

  b. * PAPER WHO TYPE[CONT]

                                  _____whq

  c. ✓ PAPER WHO TYPE[CONT]

        'Who types papers (all the time)?'

Not only must the *Wh* subject follow the fronted object, but the *whq* non-manual marker cannot extend over the fronted object. The Petronio and Lillo-Martin (1997) account of the *whq* non-manual has it that this marker is the realization of [+wh, +focus] features of C^0, and that *whq* spreads over the c-command domain of those features (see Chomsky (1986: 8) for the relevant formulation of c-command). The paradigm in (40) implies that either (a) this account of the spreading domain of *whq* is wrong, or (b) fronted objects are high enough in the clause to be outside of that domain. The latter possibility would place fronted objects in the CP adjoined position at the lowest. This is the position that Petronio and Lillo-Martin assume for topicalized constituents, which are also outside of the spreading domain of *whq*.

Example (41b) shows that a fronted object cannot follow a clause initial Wh-adjunct. This is so even though, as (41a) shows, there is no general incompatibility of Wh-adjuncts and clauses containing aspectually inflected verbs.

(41)

                                          _____whq

  a. ✓ WHEN SALLY TYPE[CONT] PAPER

                                        _____whq

  b. * WHEN PAPER SALLY TYPE[CONT]

Indications that fronted objects are relatively high in the clause have been noted in earlier work as well. Liddell (1980: 103) observed that in the case of yes/no question formation, the relevant non-manual marker (which differs from that of Wh-questions) does not extend over a fronted object. This is shown in (42). Liddell considered fronted objects to be in an S adjoined position.

(42)
$$\overline{\text{TOMATO }\underline{\text{GIRL}}\text{ EAT}_{[\text{CONT}]}}^{\text{q}}$$
TOMATO GIRL EAT_{[CONT]}   (adapted from Liddell, 1980: 103)

The juxtaposition of question formation and object fronting points toward the objects being quite high in the clause. The extent of the interaction between object fronting and question formation has yet to be fully explored, but the available data supports the proposal that fronted objects are higher than spec-AgrOP. From this point on I assume that fronted objects are above INFL. In the next section I develop an analysis in which the target of object fronting is a projection inside an articulated COMP layer.

8. A revised analysis of object shift

In this section I present an analysis in which the target of object fronting is a component of an articulated COMP[17] layer. Taking Matsuoka's model as a point of departure, including the structure in (3), I adopt the following four modifications. First, I carry forward Matsuoka's (1997) proposal that aspectual verbal inflection is due to the presence of an independent head, Asp^0, to which the verb raises overtly, but I consider AspP to be a component of COMP rather than of INFL.

Second, while Matsuoka (1997), following Romano (1991), assumes that the distinction between head initial and head final categories in ASL tracks the lexical/functional dichotomy. I propose that it is not functional categories, but A′ categories that are head-final. This proposal lets us maintain a systematic division between head-initial and head-final categories in ASL, and is consistent with, for example, the Petronio and Lillo-Martin (1997) conception of CP.
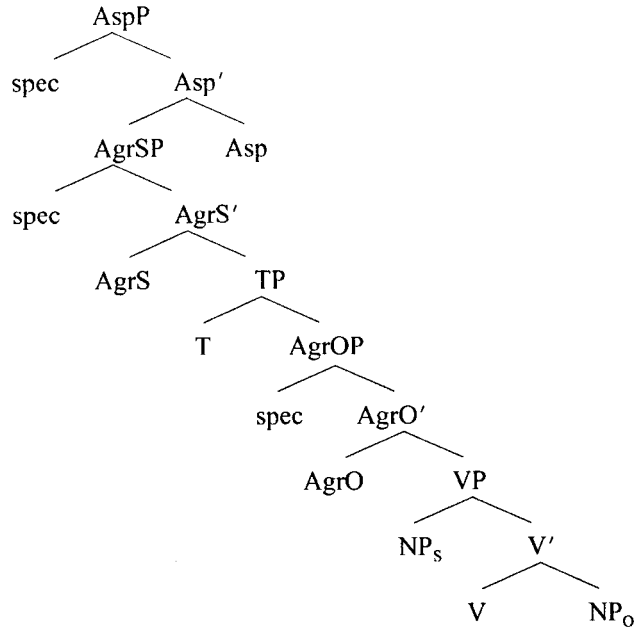
Third, I place modals in T^0, rather than head of a modal-verb phrase. Matsuoka (1997) argued for a distinct modal verb phrase motivated by her assumption that TP is a head-final category, an assumption that I have dispensed with. With these three modifications to (3) in mind, I propose the clause structure in (43) for ASL, leaving aside, for the moment, the ordering of elements in the CP layer.

Finally, in addition to these structural issues, I also differ with Matsuoka with respect to the motivating force for verb raising. I assume that verb raising is motivated by a strong V feature in Asp^0, rather than an affixal property as argued by Matsuoka. Verb raising is then driven by the featural requirements of Asp^0 under the Lasnik (1995a) conception of last resort, *enlightened self interest*. I also assume that Asp^0 has a strong D feature, which must be checked against an NP in spec-AspP.[18]

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[17] I will use the term COMP to refer collectively to clausal components above the layer of functional projections traditionally referred to as INFL. In the present grammar model INFL consists (at least) of AgrSP, TP, and AgrOP shown in (3).

[18] The featural requirement that motivates object raising to spec-AspP may ultimately prove to be other than a simple D feature in Asp^0. Another possibility is that the NP moving to spec-AspP has a feature assigned to it at lexical insertion which must be checked against a matching feature of Asp^0. Either subject or object would raise depending on which has the relevant feature, and the issue of the relative distance of subject and object from spec-AspP becomes irrelevant. I leave this possibility aside for the moment as it seems to have no independent motivation.

(43)

```
                    AspP
                  /      \
              spec        Asp'
                         /    \
                   AgrSP        Asp
                  /     \
              spec       AgrS'
                        /     \
                   AgrS        TP
                              /   \
                             T    AgrOP
                                 /     \
                             spec       AgrO'
                                       /     \
                                   AgrO       VP
                                             /   \
                                         NP_s      V'
                                                  /   \
                                                 V     NP_O
```

(44)   *enlightened self interest*: The movement of α to some target β must be driven
       by the feature checking requirements of either α or β.

   In placing AspP in COMP I hypothesize that it is but one component of an
articulated COMP layer, and an A'-projection.[19] A number of recent proposals
argue for a more complex layer of projections above INFL than the simple CP
conventionally assumed. For example, Müller and Sternefeld (1993) argue that the
landing site of verb movement in verb-second phenomenon in German is the head of
a projection between CP and IP. ASL object shift is more limited in scope than V2

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[19] Chomsky (1995) derives the A/A' distinction from the property of L-relatedness. The spec position of
a head that has L-features is an A-position, while the spec of a head that does not is an A'-position. The
paradigmatic example of L-features are the features of T and Agr, which serve to satisfy morphological
requirements of V. That is to say that V has features that need to be checked by appropriately matched
features in T and Agr. As T and Agr have L-features, their specs are L-related positions. This derives the
A-position properties of spec-TP and spec-AgrP. In contrast, C does not have features that satisfy any
requirement of V. V raising to C, when it occurs, is driven solely by the featural requirements of C itself.
So, as C has no L-features, spec-CP is not L-related. On present assumptions, V to Asp^0 raising is driven
solely by the featural requirements of Asp^0. V has no features that require the movement. So, spec-AspP is
not an L-related position. From this we derive the prediction that spec-AspP will have the properties of an
A' position.

movement in German, but their analysis provides precedent for both a complex COMP layer and overt verb raising into it.

Rizzi (1997) argues extensively that COMP is more complex than a CP projection alone. Among the functions encoded in COMP Rizzi counts expressions of 'Force' and of 'finiteness'. The Force/finiteness field is the one obligatory component of COMP. The Force component of this field encodes the categorial character of the clause, those properties that allow it to be selected for by a higher predicate. The finiteness property relates to the temporal properties of INFL (and therefore of the verb).

The Force/finiteness functions of COMP parallel the properties of object-fronted clauses that require explanation, their behavior in embedded contexts and the participial-like character of their verbs. One clear conflict between Rizzi's proposal and the ASL data is his speculation that functions of COMP are never realized as (affixal) verbal morphology (Rizzi, 1997: 284–285). This is necessarily wrong if the proposal to be put forward in this section is on the right track, insofar as there is clearly overt morphology associated with aspectually inflected verbs in ASL.

On this new proposal, the derivation of an object-fronted clause, from the point at which $AgrS^0$ is merged into the structure, proceeds as follows. First, the strong D feature of $AgrS^0$ induces subject raising to Spec-AgrSP. Next, Asp^0 is merged into the structure. The strong V feature of Asp^0 induces verb raising via $AgrO^0$, T^0, and $AgrS^0$. The last step of V raising involves the adjunction of the complex head [$_{AgrS}$ AgrS [$_T$ T [$_{AgrO}$ AgrO V]] to Asp^0. The two-membered chain resulting from this movement, [AgrS, t], includes in its minimal domain spec-AgrSP and spec-AspP. Therefore these two positions are equidistant from any feature targeting Asp^0. Asp^0 must check its strong D feature against an appropriate category; both NP_O and NP_S are candidates. I will consider each of these cases in turn.

If the object raises to spec-AspP, the resulting order will be $O–S–V_{[ASP]}$, with the structure in (45), AgrOP omitted. This yields an object-fronted clause.

(45)   [$_{AspP}$ NP_O [$_{AgrSP}$ NP_S [$_{TP}$ T [$_{VP}$ Adv [$_{VP}$ t_S t_V t_O]]]][$_{Asp}$ V]]

The structure in (45) makes correct predictions for the distributions of VP adverbs and modals. VP adjoined adverbs will fall between the subject and verb. When they occur in any other position, the object-fronted clause should be at least somewhat degraded. That is the case, as the paradigm in (23) shows. Also, (45) places modals between the subject and verb, adjoined to T^0. This is correct as shown in (32).

However, on our earlier assumption that sentential adverbs can adjoin to either AgrSP or to TP, we seem to make incorrect predictions for their distribution. The paradigm in (26) shows that temporal IP adverbs like TODAY are preferred in either initial or final position in the object shift construction. When they occur in any other position the sentence is at least somewhat degraded. Consider that in (26), the verbs are inflected for continuous aspect, denoting an ongoing activity. However, the adverb delimits the duration of the activity. The adverb takes wider scope than aspect. On the assumption that this scope relationship must be represented structurally, then we expect the adverb to command Asp^0. I hypothesize that,

although the syntax of sentential adverbs will allow them to appear in any of the four positions indicated in (26), the semantic properties of the temporal adverbs and of the aspectual head require that the adverb command aspect. It is this semantic interaction that restricts the temporal adverbs to initial and final position.

An interesting prediction derivable from this surmise is that an adverb with clausal scope may occur between the object and subject in an object fronted clause if the semantic properties of the adverb and aspectual head allow it. The prediction is born-out in the distribution of MAYBE[baba], discussed in Section 6.2. We have seen (examples repeated below) that the post-object position is unavailable to adverbs of quantification, (23b), to temporal adverbs, (26b), and to modals, (32b), and yet the putative epistemic adverb MAYBE[baba] can occur there, (36b). The data in (46) is much more in line with the predictions of the present analysis than with those of the Matsuoka (1997) model.

(46)   a.   * PAPER ALWAYS SHE TYPE[CONT]   (23b)
       b.   ?? PAPER TODAY JOHN LOSE[CONT]   (26b)
       c.   * PAPER MUST SALLY TYPE[CONT]   (32b)
                        baba
       d.   ✓ TEST MAYBE JOHN PASS[CONT]   (36b)

Now consider the case in which the strong D feature of Asp^0 is checked through subject raising to spec-AspP. The resulting order will be S–O–V[ASP]. Matsuoka (1997) reports this order to be grammatical, but our primary consultant would not accept it, judging it to be quite bad. For speakers with the latter judgement, there seems to be a contingency between verb raising and object raising such that if a copy of the verb is not realized inside of VP, then the object must raise. This contingency remains somewhat mysterious, but the analysis presented here does account for the judgements of speakers whose intuitions track those reported by Matsuoka.

Finally, recall from Section 2.1 that our consultants accept the S–V[ASP]–O order, shown in (2b), repeated as (47a). Matsuoka (1997, fn. 5) observed that this order is considered grammatical by some researchers (Romano, 1991; Aarons et al., 1992), but that there is variation among speakers, with many not accepting this word order when the verb is aspectually inflected. Matsuoka considers the S–V[ASP]–O order to be ungrammatical in ASL and attributes the judgements of speakers who accept it to the influence of English. Her analysis does not allow for the generation of S–V[ASP]–O sentences. It is by no means certain that this is the correct approach. I would like to allow for the possibility that the variation in acceptability is due to true dialectal differences. I propose that speakers who allow the S–V[ASP]–O order have the option of drawing verbs from the lexicon with aspectual inflection already in place, in which case Asp^0 is, by hypothesis, absent from the clause altogether. The structure of (2b)/ (47a) at *spell-out* will be as shown in (47b). I assume that such lexically inflected verbs have exactly the same licensing requirements as verbs that are not aspectually inflected at all. This means that some speakers of ASL will have two options for generating aspectually inflected verbs, a lexical option, as in (47), and a syntactic option.

(47) a. BOY EAT$_{[CONT]}$ APPLE

      b. [$_{AgrSP}$ BOY$_S$ [$_{TP}$ [$_{AgrOP}$ [$_{VP}$ t$_S$ EAT$_{[CONT]}$ APPLE]]]]]

Under the syntactic option, verb raising is induced by a strong V-feature in Asp^0. The aspectual content of the clause is a property of Asp^0. The structure of (2a), repeated as (48a), is shown in (48b). The presence of Asp^0 induces both the verb and the object to raise, as detailed earlier in this section.

(48) a. APPLE BOY EAT$_{[CONT]}$

      b. [$_{AspP}$ APPLE$_O$ [$_{AgrSP}$ BOY$_S$ [$_{TP}$ T [$_{VP}$ t$_S$ t$_V$ t$_O$]]][$_{Asp}$ CONT EAT$_V$]]

Under the lexical option, the verb is drawn from the lexicon with aspectual morphology in place. In this case Asp^0 is never a part of the derivation and so neither the verb nor the object raise beyond the positions that they occupy in a canonical S–V–O clause. Speakers who produce both (48) and (47) allow both syntactic and lexical derivation of aspectually inflected verbs. Speakers who do not accept the S–V$_{[ASP]}$–O order exemplified in (47) simply do not have the option of lexically deriving aspectually inflected verbs.

Lasnik (1995b) argues in detail that both lexical and syntactic options for verbal inflection are needed to account for facts of English verbal morphology, as well as cross-linguistic facts concerning the distribution of verbs and negation. However, Lasnik does not posit that both options for inflection are available for the same verb. The claim made here is that, in ASL, the same verb can be either lexically or syntactically inflected for aspect. The question arises as to how, or even whether, to block a derivation that contains both a lexically inflected verb and AspP. It is worth observing in this context that Klima and Bellugi (1979: 263) show that certain combinations of the various aspectual inflections are permissible. The range of possible combinations has yet to be explored, but I note that all of Klima and Bellugi's examples involve exactly two aspectual inflections. I suggest that the syntax can freely generate clauses containing both lexical and syntactic aspect, and that the interpretive component of the language faculty determines which of these combinations are acceptable.

The structural differences between clauses with syntactic aspect, (48), and those without, (49), suggest an account of the contrast between (38a) and (39a). The contrast follows if we assume that AspP dominates CP and that SEEM sub-categorizes for IP and CP complements, but not for AspP complements. I assume the structure of the embedded clause in (38a) to be as shown in (47). Lexical aspectual inflection allows for the embedded clause to be realized as either a bare IP or a CP, and so a felicitous complement to SEEM. On the other hand, the structure of the embedded clause in (39a) is as shown in (48), projecting to AspP. By hypothesis AspP is not a possible complement to SEEM and this accounts for the ungrammaticality of (39). This explanation of the contrast relies crucially on the mechanism of c-selection since the embedded clauses in (38) and (39) are semantically identical.

Syntactic derivation of aspectually inflected verbs is a crucial component of the Matsuoka (1997) account of verb-sandwiches. The present account of object-fronting

retains the possibility of syntactically derived aspectual inflection, and so allows the connection between the verb-sandwiches and object fronting to carry over. Recall from the discussion in section 1, that a verb-sandwich clause contains two copies of the main verb, one with and one without aspectual inflection. Matsuoka proposed that the bare copy is inserted directly, while the inflected copy is created by raising the bare verb to Asp^0. The phonological matrix of the verb trace fails to delete, allowing both the inflected and uninflected copies to reach spell-out. This derivational account of the verb sandwich explains the contrast between (49a) and (49b). At spell-out, the object and the bare copy of the verb are in their original VP internal positions, while the inflected copy of the verb is adjoined to Asp^0. The subject is either in spec-VP or optionally raised to spec-TP (see (3)).

(49) a. ✓ SALLY TYPE PAPER TYPE$_{[CONT]}$
      b. * SALLY TYPE$_{[CONT]}$ PAPER TYPE$_{[CONT]}$

The essence of Matsuoka's analysis of verb sandwich can be preserved under the hypothesis proposed here, with the verb leaving a bare copy behind when it raises to Asp^0. Recall that Matsuoka relied on object raising being fully optional to derive the verb sandwich construction, but in the present model AspP always has a strong D feature that must be checked. However, both the subject NP and the object NP are available as checking categories. In the case of the verb-sandwich construction it must be the subject that raises to check the D feature of Asp^0. Thus the current proposal correctly allows for the generation of sentences like (49a).

One challenge for the present theory is to rule out sentences like (49b). A sentence very much like (49b) would be derivable on present assumptions, if an Asp^0 carrying continuative aspect were inserted into a structure that already contained a verb lexically inflected for continuative aspect. As noted earlier, we must appeal to the interpretive component of the language faculty to rule out such redundancies.

Both Matsuoka's proposal and the present one predict that a sentence which combines object shift with the verb sandwich, should be good. Example (50) shows that this prediction is borne out. Matsuoka observed that sentences similar to (50), but without an adverb separating the two copies of the verb, are not acceptable, and speculated that this has to do with a pragmatic constraint against having two nearly identical items adjacent to one another.

(50) ✓ PAPER SALLY TYPE ALWAYS TYPE$_{[CONT]}$

Matsuoka's account of verb-final clauses also carries over. The verb-final construction is identical to the verb-sandwich except that the trace of the raised verb is not phonologically realized. My proposal predicts that the verb-sandwich and verb-final constructions cannot be embedded under the raising predicate SEEM, regardless of whether the object has fronted or not, since these constructions entail the presence of AspP. However, the accuracy of this prediction awaits further investigation.

9. Summary

In this paper I discussed the relationship of aspectual inflection to overt verb raising and overt object fronting in ASL. Data presented here shows that an analysis of ASL object fronting as overt movement to spec-AgrOP licensed by verb raising to an affixal head in INFL leads to difficulties in accounting for the distributions of adverbs and modals in that construction. It is also demonstrated that object fronting interacts with question formation processes and that the raising verb SEEM cannot take an object-fronted clause as a complement. These facts are shown to pose additional problems for an A-movement account of object fronting. I proposed an alternative analysis in which AspP is part of an articulated COMP layer. Object fronting is argued to be A′ movement targeting spec-AspP.

The new model put forward in this paper makes use of technology developed against the backdrop of the minimalist program for linguistic theory of Chomsky (1995), including Lasnik's (1995b) hypothesis that both lexical and affixal options for verbal inflection are available in Universal Grammar. This model retains much of the spirit of Matsuoka's analysis, but has the advantage of broader empirical coverage. It is shown to provide an adequate account of the distributions of adverbs and modals in object fronted clauses. I have also extended Lasnik's hypothesis regarding verbal morphology with the proposal that, for verbs in ASL that can carry aspectual inflection, both lexical and affixal options are available at the same time. The model also makes crucial use of the categorial status of object fronted clauses and mechanism of c-selection to account for the distribution of such clauses in embedded contexts. The correlation between aspectual inflection, verb raising, and object fronting, as well as verb final and verb sandwich constructions, originally observed by Matsuoka (1997), retains a straightforward explanation under the present proposal.

Acknowledgements

Appendix

IDX_1	I/me
IDX_2	you
IDX_{a-z}	he/she/him/her
IDX_{plural}	they/them

R-A-D-I-O   Dashes indicate that a word was finger-spelled.

$$\overline{\text{SIGN SIGN SIGN}}^{\text{x}}$$

SIGN SIGN SIGN   An overline terminating in a diacritic is used to indicate a non-manual component. The extent of the overline indicates which particular manual signs that the non-manual occurs with. The terminating diacritic indicates the nature of the non-manual marker: t: topic, neg: negation, hn: head nod, whq: wh-question, q: yes/no question

VERB$_{[ASP]}$ The subscript indicates the verb is modified with an aspectual modulation. In the examples in this paper ASP can range over CONT, for continuative aspect, or PRED for predispositional aspect.

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