

Building and Merging, not Checking:
The nonexistence of (Aux)-S-V-O languages *

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Standard views about the factors that determine verb position and subject position predict that there should be Subject-Verb-Object languages in which tense and aspect are indicated by a particle or auxiliary that comes before the subject. Julien's (2000) large-scale survey of the languages of the world, however, indicates that this word order is never found. This striking gap suggests that the theory of how verbs are related to tense needs to be rethought. I suggest that the gap can be explained by abandoning Chomsky's (1993, 1995) Checking theory, in which the relationship between the T node and the inflected verb can be established abstractly. The correct word order typology follows if the computational system of human language can combine tense and verb only by overt head movement (Baker 1988, Pollock 1989) or by the PF merger of morphemes under adjacency [Marantz, 1988 #516; Bobaljik, 1994 #754]

1. An Expected Word Order

Current thinking about the order of subjects, tenses, and verbs has been fixed by two minimal contrasts: the position of subjects in English vs. the Celtic languages, and the position of inflected verbs in English vs. the Romance languages. Although the overall

word order in languages like Welsh is quite similar to English (both are head-initial languages), simple tensed verbs come before the subject in Welsh but after it in English:

- (1) Bryn-odd y dyn gar. (King 1993)
buy-PAST the man car.
'The man bought a car.'

In complex tenses in Welsh, the main verb comes between the subject and the object, as in English. The tense-marked auxiliary still comes before the subject, however, yielding an Aux-S-V-O order not found in English declarative clauses:

- (2) Naeth y dyn brynu car. (King 1993)
did the man buy car
'The man did buy a car.'

Since Koopman and Sportiche 1991, these facts have been taken to show that the subject occupies a lower position in the Celtic languages than in English. In English the subject is in the specifier of TP/Agr_SP, whereas in Welsh it is in the specifier of VP or some functional head below T. Floated quantifiers and other considerations suggest that the English subject starts out at least as low as the surface position of the Welsh subject (Sportiche 1988; McCloskey 1997), but the English subject moves to Spec, TP, presumably for Case theoretic reasons. The Case relationship between T and the nominative subject is established in some more abstract way in Welsh, without overt NP movement: either the subject moves only in the LF part of the derivation (Chomsky 1995), or only its features move, or some kind of Agree relationship is established

between the two apart from movement (Chomsky 2000). Whatever the technical details, some version of the following parameter is at work:

(3) *Subject Movement Parameter:*

The subject moves overtly to the (A-)specifier of the highest functional head:

Yes: English, French, No: Welsh, Irish...

Consider next the English/French contrast. These languages do not differ in the position of the subject, which comes before finite verbs, auxiliaries, and tense particles:

- (4) a. Jean a souvent embrassé Marie.
b. John has often kissed Mary.

However, adverbs and floated quantifiers reveal a difference in the position of the tensed verb in the two languages. VP-adverbs in English come between the subject and the verb, whereas comparable adverbs in French must come after the tensed verb:

- (5) a. Jean *embrasse souvent* Marie.
b. John *often kisses* Mary.

Following Emonds (1978), Pollock (1989) and Chomsky (1991), this has been taken to show that the main verb moves to T in French, but not in English. Nevertheless, the English verb does bear a tense suffix. Chomsky (1993) analyzed this by claiming that tense morphology is added to the verb in the lexicon and then checked against the features in the T position in some abstract way. Again, the abstract relation can be verb movement at LF (Chomsky 1995), feature movement (Roberts 1998), or the establishing of an Agree relation without concomitant movement (cf. Chomsky 2000). Whatever the details, some version of the following parameter is also at work:

(6) *Verb Movement Parameter:*

The main verb moves overtly to the highest functional head:

Yes: French, Italian, Welsh, ... No: English, Edo, ...

Consider now the interaction of these two parameters. All things being equal, two logically independent, binary valued parameters should define four different language types. English and French illustrate two of these, and Welsh is a third: in addition to the “No” setting for the Subject Movement Parameter, Welsh must have the “Yes” setting for the Verb Movement Parameter, the tensed verb coming before the subject, in a different position from the nonfinite verb.¹ Thus, we expect the following range of possibilities:

(7)

	Subject Raises Overtly	Subject Doesn't Raise
Tensed Verb Raises Overtly	French, Italian,	Welsh, Irish,
Tensed Verb Doesn't Raise	English, Edo,	???

This familiar typology predicts that there should be a fourth type of language, one in which neither the subject nor the tensed main verb raises. It is not hard to imagine what such a language would look like. When tense is realized as an independent particle or an auxiliary, it would come before the subject, as in Welsh:

(8) Will Chris win the prize.

Has Chris won the prize.

However, when tense is realized as an affix on the main verb, the verb would maintain the same position it has in (8), coming after the subject as in English:

(9) Chris won the prize.

Now the standard pantheon of languages does not include an instance of this type. This could, however, be an accidental gap, caused by the relatively small number of languages considered in this literature. If so, a bit of searching should produce such a language, to the credit of the theory that predicts such languages to exist.

2. Evaluating the Prediction

There is evidence that the gap is *not* accidental, however. Generative linguists have recently started to follow the lead of functionalists by working with large databases that sample from all the major language groupings of the world (e.g., Cinque 1999). Julien's (2000) study of the interactions of word order and morphological structure is an instance of this genre. Julien collected materials from 530 languages, representing 280 distinct genera drawn from every linguistic area. Her appendix summarizes the basic word order of each language in her sample, including information on the position of tense/aspect particles and auxiliaries, making it an excellent resource for checking the prediction.

Among the head initial languages, Julien reports 197 SVO languages (the second most common type), 62 VSO languages (the third most common type), and 8 VOS languages. These relative frequencies are in keeping with the many studies of word order since Greenberg 1963. She does not supply data on where a separate tense/aspect particle or auxiliary goes for all these languages. (Some, like Mohawk, presumably have no such elements.) However, for those that do, the following patterns are attested:

(10) a. S – T/Aux – V – O: 76 languages

- b. T/Aux – V – S – O: 14 languages
- c. V – T/Aux – S – O: 3 languages
- d. S – V – O – T/Aux: 2 languages
- e. S – V – T/Aux – O: 1 language
- f. T/Aux – S – V – O: 0 languages

Only two genera are listed as ever having T/Aux – S – V – O order (Celtic and Gude, an African language), and in both cases that order alternates with V-S-O order, not with S-V-O order. The survey contains not a single candidate for a stable (T)-S-V-O language; indeed, it is virtually the only missing type.²

One might object that Julien’s survey underreports the true number of Tense/Aspect/Auxiliary positions found in the languages she lists. This is certainly true, perhaps because there was inadequate information about this in some of her sources. However, a certain amount of under-reporting only clouds our interpretation if there is reason to think that Aux-S-V-O languages might have been differentially affected by Julien’s methodology or by that of her sources. Otherwise, we would simply correct our estimates upward across the board, without changing the relative frequency of the types. Is there then any reason to think that tense particles and auxiliaries would be especially easy to miss in Aux-S-V-O languages? I think not. On the contrary, tense particles and auxiliaries should be *more* salient in such languages. The most obvious way that free tense or aspect particles could be missed is by misconstruing them as affixes on the verb. This might explain why Julien found relatively few tense/aspect auxiliaries in SOV languages: only 30 languages out of 220 have them (14%), as compared to 76 out of 194

SVO languages (39%). Normal word order principles say that a tense/aspect auxiliary should come immediately after the verb in these languages, so it could easily be mistaken for a tense suffix rather than a particle. This potential for misanalysis is not a factor in Aux-S-V-O languages, however: since the subject would separate the tense/aspect element from the verb, there would be no temptation to treat it as a verbal affix. Thus, we would expect *less* under-reporting of auxiliaries in this language type than in either S-Aux-V-O languages or Aux-V-S-O languages. Nevertheless, many fewer Aux-S-V-O languages (0) are reported than either of these other types. I conclude that the standard theory's prediction that this kind of language should exist is not confirmed.

3. Building and Merging as Alternatives to Checking.

Is there another way to look at the differences between Welsh, French, and English that does not wrongly predict the existence of a fourth type of language? The answer is yes.

Chomsky's (1995) checking theory, in which tense morphology is generated on the verb in the lexicon and checked against an abstract T node without overt movement, is only one of three existing theories about how inflected verbs relate to syntactic structure. One alternative, suggested by Baker 1988, is to say that there is relatively little word formation in the lexicon. The verb root and the tense affix are inserted into the syntactic structure independently, one in V and the other in T. The verb can then undergo overt head movement, adjoining to T to create a complex word (the inflected verb). In contrast to the checking theory, this can be called the *building theory*. Head movement, like phrase movement, can only be upward, to c-commanding positions. Therefore, the

verb root can appear attached to T as a result of movement, but T cannot appear attached to V for this reason. The building theory thus works fine for French and Welsh, but not for English. The need to include English is precisely why Chomsky (1993) moved from a building theory to a checking theory in the first place.

The typological result reported here suggests, however, that there is an asymmetry between the “upward” relation of the verb appearing in T and the “downward” relation of tense appearing on V. Adverbs do not reveal the difference, but low-positioned subjects do: V can raise over the subject to appear in T, but T cannot lower past the subject to appear in V. This suggests that the alternative to overt head movement is not some abstract equivalent (such as LF head movement or the movement of features), but rather a relation of merger at PF conditioned by string-adjacency. Bobaljik [, 1994 #754] uses data from several languages to argue that this kind of merger does exist, reviving an old view of Chomsky (1957) (see also Marantz [, 1988 #516] and (Halle and Marantz 1993:116)). A salient fact about Merger is that it is blocked by intervening specifiers and complements but not by traces or by adjoined elements, including adverbs. (11) illustrates the key contrast.³

- (11) a. Chris *PAST* catch a pink elephant → caught
b. What *PAST* Chris catch? -/-> *caught
c. Who *PAST* t catch a pink elephant? → caught
d. Chris *PAST* almost catch a pink elephant. → caught

Given this, merger can accomplish the union of T and V in languages like English, where the subject has moved out from between them, but not in a language with low subjects

like Welsh. Therefore, a theory that contains building-style head movement and merger under adjacency is rich enough to account for the attested languages, but does not wrongly predict the existence of (Aux)-S-V-O languages. This is summarized in (12).⁴

(12)

	Subject Raises Overtly	Subject Doesn't Raise
Verb Raises to T in Syntax	French, Italian,	Welsh, Irish,
T Merges with V in PF	English, Edo,	* (T and V not adjacent)

4. Further Discussion

Although the typology in (12) fits the observed data better, it retreats from the conceptually attractive early-Minimalist position that what happens overtly in some languages happens covertly in all languages. However, Chomsky himself has gradually gone away from this vision, first saying that LF movement moves features rather than phrases (Chomsky 1995), and then that there is no LF movement after all (Chomsky 2000). Indeed, my use of Bobaljik-style merger under adjacency agrees in part with Chomsky's 2000:30-31 suggestion that "a substantial core" of verb movement effects should be attributed to the phonological component.

Inasmuch as (12) represents a partial return to a building theory, it also converges with two other lines of research. Baker's original (1988) building theory was designed to account for "Mirror Principle" effects, in which the order of morphemes in a complex word reflects the natural syntactic embedding of the heads that correspond to those morphemes. Baker 1988 talked little about inflectional morphology, in part because it

was not clear whether it followed the Mirror Principle or not. Cinque (1999), however, has shown that the Mirror Principle does hold of inflectional morphology over a very wide domain (see also Julien 2000). It is therefore that much more desirable that this effect follow from the basic structure of the grammar. The building theory is designed to accomplish this, whereas the checking theory must either deny the Mirror Principle or work it in extrinsically (see Chomsky 1993:28-29, Halle and Marantz 1993:167-170).⁵

Second, an attraction of the building theory is that applies equally to the kind of Verb-Tense relation found in French and Welsh and to the Noun-Verb relation exhibited by noun incorporation in Mohawk and other languages. Within the building theory, nouns can move to adjoin to the verb and create a kind of compound by the same principles that verbs move to adjoin to Tense and create the inflected verb (Baker 1988, Baker 1996: sec. 1.7). In contrast, the checking theory does not extend to the noun incorporation cases. The parallel analysis would be to say that a lexically formed noun-verb compound is generated as the head of the direct object in Mohawk. It then undergoes movement (or the abstract equivalent) in order to check its verbal features against an abstract V node. This derivation is implausible, and has never been proposed seriously. The checking theory is therefore forced to divide the two major subcases of head movement, whereas the building theory can maintain a more unified view of this domain.

The building theory of head movement thus has inherent conceptual advantages over the checking theory, in that it explains the Mirror Principle and treats all kinds of syntactically relevant word formation in a similar way. In this squib, I have shown that,

when combined with a theory of merger-under-adjacency, it also explains the otherwise mysterious fact that there are no (Aux)-S-V-O languages.

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* I wish to thank Jonathan Bobaljik, Chris Collins, Marit Julien, and two anonymous reviewers for their input and suggestions on this squib. The errors are all mine.

¹ See McCloskey [, 1991 #676;, 1996 #782] for arguments that the tensed verb is not in C in the Celtic languages.

²The only conceivable candidates is Yapese, which Julien lists as (T)-S-(T)-V-O, with some tenses apparently coming before the subject and some after. Perhaps the initial T is really a complementizer position that reflects the tense of the clause indirectly. Julien [, to appear #781] independently observes the same empirical gap; she sketches a different possible account for it in terms of how the c-selection properties of heads are checked.

³ Floated quantifiers also do not block merger (*The children (T) all caught a pink elephant*). This is because they too are adjuncts, adjoined either to VP (like adverbs) or to the trace of the internal subject (see Sportiche 1988).

Exactly why adjoined elements are invisible to merger is not clear. The most attractive view would be that adjuncts are not in the representation when merger takes place (cf. Lebeaux 1989)). However, this would require giving a complex internal structure to the PF derivation, the implications of which are unexplored.

⁴ One might wonder if there could be languages in which neither verb movement nor merger takes place. If such a language had low subjects, it would always have Aux-S-V-O order, just as Welsh does in complex tenses. Julien [, 2000 #753;, to appear #781] suggests that this kind of language also does not exist either. However, this is not too surprising, since there are few or no languages of any kind in which T is always an independent word.

⁵ Of course, one must also explore the implications of Bobaljik-style merger for the Mirror Principle. While this has not been done in any depth, merger probably does create words that fit the Mirror Principle because it is tightly constrained by adjacency.