

“The Silence of Projecting Heads”

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I. The claim that languages are uniform with respect to syntactic hierarchy/external merge order, as argued strongly by Cinque (1999), can be dissociated from the question of the exact form of that hierarchy, as well as from the question of which morphemes in a given language correspond to which functional heads in the hierarchy. Directly relevant to the latter question is that of silent elements, which in a sense compete with overt elements for filling the role of a given functional head.

If a certain candidate morpheme fails to match a given functional head, that morpheme might turn out to match another head position in the same hierarchy. A second possibility is that the morpheme in question occurs in a specifier position, i.e. that it is not a member of the relevant hierarchy at all. If single morphemes/heads are barred from specifier positions, then this second possibility translates into the possibility that the morpheme in question is a subpart of a phrase in specifier position. The specifier phrase in question might then contain other overt morphemes, or it might only contain other silent morphemes.

II. A. sentence-final particles

Take a colloquial English sentence like:

(1) We're on the list, right?

with an interpretation close to that of a tag question. One possible analysis would have *right* analyzed as a 'sentence-final particle', meaning that it is merged high in the sentential hierarchy and that (given antisymmetry) the phrase *we're on the list* is moved to its left to some higher specifier position, thereby producing a structure in which *right* has come to look 'final'.

A second possibility, though, is to relate (1) more directly to:

(2) We're on the list, isn't that right?

by attributing to (1) a derivation containing, in addition to what is visible/audible, a silent counterpart of ISN'T THAT (whose silence might be licensed as a whole, or piecemeal).

If (1) contains silent ISN'T THAT, then *right* in (1) is not a sentence-final particle in the usual sense of the term, but rather an adjective akin to the adjective *correct* as in:

(3) That is correct/right.

More precisely put, *right* in (1) is then not merged as a high head in the sentential hierarchy at all; it is rather an adjective as in (3) or as in:

(4) Isn't it correct/(?)right that we're on the list?

A fairly safe conjecture is:

(5) Various elements that could be taken to be sentence-final particles in various languages actually have the status that *right* has in (1)/(2).

It may of course still be the case that in (1), and also in (2), the phrase *we're on the list* moves leftward, past *isn't that right* in (2), and now past 'ISN'T THAT *right*' in (1).

The conjecture in (5) is to be interpreted loosely. It states that various other so-called sentence-final particles will turn out not to be simple functional heads merged high in the sentential hierarchy, but instead will turn out to be subparts of some more complex structure; however, that structure may or may not closely match 'isn't that X'.

Various sentence-final particles have been noted to occur only in root sentences. This seems to be true of (1), but also of (2):

(6) *That we're on the list, right, is the question.

(7) *I wonder if we're on the list, right.

(8) *John would like to know whether (or not) we're on the list, right.

(The last of these is possible if *right* is associated with the matrix predicate, but not if *right* is associated with the embedding.)

The preceding three examples indicate that the *right* in question cannot occur within an embedded sentence. The next three make the same point for *isn't that right*:

(9) *That we're on the list, isn't that right, is the question.

(10) *I wonder if we're on the list, isn't that right.

(11) *John would like to know whether (or not) we're on the list, isn't that right.

(Again, the last of these is possible, but only if *isn't that right* is associated with the matrix part of the sentence.)

Consequently, the restriction to root sentences seen in (6)-(8) is compatible with the linking of (1) to (2).

Another potentially relevant example is the Taiwanese sentence-final particle *kong* (cf. Simpson and Wu (2002)), which may match fairly closely English non-particle *I'm telling you*, as in:

(12) He's here, I'm telling you.

which also seems limited to root sentences. In other words, *kong* may correspond to one subpart of *I'm telling you*, rather than being merged as a 'sentence-final particle' in a high sentential head position.

As a final example, consider:

(13) Where do they live, again?

in which *again* might initially be thought to be a sentence-final particle. But a more promising alternative that would transparently capture the interpretation of (13) would be to relate (13) directly to:

(14) ?Where do they live, tell me again?

by taking (13) to contain silent TELL and silent ME.

A possible post-final example would come from Quebec French, as discussed by Vinet (2000), in which one has sentences like:

(15) Ils dorment-tu? ('they sleep-you' = 'are they sleeping?')

with a postverbal *tu* that looks like the second person singular subject clitic, yet doesn't seem to have any place in the interpretation. Unless, of course, we take such Quebec French sentences to be akin to English:

(16) Are they sleeping, do you know?

with *tu* in (15) now matching the *you* of (16), although in QF there would be no auxiliary inversion (and there would be remnant movements of an interesting sort).

If, in the preceding set of examples, *right*, *kong*, *again* and *tu* are not sentence-final particles merged as high heads in the sentential hierarchy, then what sentential heads are needed in these examples would appear to all be silent.

B. complementizers

Kayne (2010a) argues that English *that* is not a complementizer merged high in the CP area, but rather a relative pronoun, in pretty much the same sense in which *which* is a relative pronoun. Both *that* and *which* are to be analyzed as determiners that have 'lost' their associated noun, whether by raising or deletion. They are of course two different kinds of determiners; if Leu (2008) is correct, both are phrasal determiners, rather than simple heads. If all of the preceding is correct, then taking *that* to be a complementizer, i.e. to be a simple head merged high, would be to mistake a phrase for a head, much as in the discussion of *right*.

Kayne (2010a) argues that Romance *che/que* is also a relative pronoun, with the difference (compared with *that*, *which*) that the morpheme *che/que* is a subpart of a complex determiner of the *was...für* type.

For *that*, *which*, and *che/que*, the claim in that paper is that the same holds for their occurrence in sentential complements, i.e. that they are determiner-based relative pronouns even when introducing sentential complements, not complementizers in the usual sense of the term.

Relative pronouns are absent from prenominal relatives, as noted by Downing (1978, 392-4) and Keenan (1985, 149) - for principled reasons, if Kayne (1994) is correct in taking relative pronouns to interfere with the leftward movement of the relative that is necessary to derive a prenominal relative.

There are also many languages (e.g. Polynesian) whose postnominal relatives seem to consistently lack (visible) relative pronouns. From the above perspective, it may be that those languages are unable to strand a determiner in relatives in the way that English can strand *which* or *that*, or Italian *il quale* or *cui*, etc.

It is not logically necessary that this approach to finite-clause complementizers, i.e. taking them to be relative pronouns that are not heads in the sentential hierarchy, should carry over to non-finite-clause complementizers like English *for* (which is found introducing both relative clauses and apparently non-relative sentential complements). Yet one can't help but wonder if *for*, too, could not be taken to be a subpart of a determiner, again of the *was...für* type - cf. Kayne (to appear, sect. 8). A similar question arises for French *de* and for Italian *di* (despite their differing in syntactic behavior in certain respects from *for*).

If *for*, *de*, *di* also turn out not to be simple projecting heads in (the CP area of) the sentential hierarchy, we will have reached the disturbing conclusion that (in the languages under consideration) there are no visible such heads at all, and we would need to ask why not (cf. to some extent Starke (2004) and Jayaseelan (2008) on specifiers not needing heads). (For (at least) European languages, this is related to the observation that the elements we call complementizers usually look like something else (determiners, prepositions), a surprising fact if complementizers were really a category of their own.)

If complementizers are not really that, and are therefore to be subtracted from the set of visible projecting heads in the CP area, then the CP area will have few, if any, visible projecting heads, in a way that converges with the earlier discussion of sentence-final particles.

C. Germanic (and Romance) particles of the *up/down/away* type

Another case in which we may be mistaking phrases for heads is that of particles of the English type, as in:

(17) They put it away.

(18) They put it aways. (dialectal, recalling *It's quite a ways from here*)

and the similar:

(19) They put ashore the boats.

(20) They took aboard the supplies.

(21) They set aside some money.

where it's in fact quite plausible to take *away(s)*, *ashore*, *aboard*, *aside* to be PPs, rather than simple heads, with a clitic-like P close to non-clitic P *on*, as suggested, among other considerations, by the pair:

(22) They sent him away.

(23) They sent him on his way.

Somewhat similarly:

(24) They put together the toys.

with *together* = 'to' + 'gether', not just diachronically, but also synchronically.

It doesn't follow that all particles of the English (et al.) type must be phrasal, rather than being simple heads, but we must now begin to wonder. Consider, for example:

(25) She jumped in.

(26) She jumped into the pool.

The first of these might well contain a silent TO (cf. Collins (2008) on *home*) and a silent DP.

We might even consider taking a stronger position, namely:

(27) Particles of the English (et al.) sort must involve phrasal structure, within the (extended) VP.

The next question would then be, why would (27) hold, and to what extent does this fit in with the conclusion of the preceding two sections that more projecting heads are silent than we might have thought?

D. *need*

Since *need* in English can have modal-like behavior:

(28) He needn't leave so early.

(29) *He needsn't leave so early.

(30) *He needn't to leave so early.

it would be natural to think that it should be one of the sentential functional heads in the IP area, in the sense of Cinque's (1999) work.

Yet Kayne (2007) for English and Harves and Kayne (2012) from a cross-linguistic perspective argue, respectively, that modal-like *need* and transitive verbal *need* are not

primitive elements, but arise via incorporation, in (approximately) the manner of Hale and Keyser (1993; 2002), of nominal *need* to a silent counterpart of *have*.

If we combine this claim with the one defended in Kayne (2008) to the effect that nouns cannot take complements (or specifiers), then it follows that in (28) the infinitive phrase *leave so early* cannot be the complement of *need*. Rather it must be part of a relative-clause structure with *need* as 'head' of the relative (despite the absence of *to*), in which case *need* cannot be part of the sentential hierarchy at all, despite initial appearances.

Cattaneo (2009) proposes that all modals, including in Italian, should have a derivation a la Kayne (2007) and Harves and Kayne (2012), i.e. akin to what is described for English *need* above. (If Cattaneo is correct, then clitic climbing cannot be restricted to monoclausal environments in quite the sense of Cinque (2006). The extent to which the non-monoclausal approach to clitic climbing of Kayne (1989) is compatible with the proposed syntactic complexity of modals remains to be seen.)

If this approach to *need* and other modals is on the right track, then instead of being headed by *need*, the modal VP in question will be headed by a silent light verb, much as English *They laughed*, in the Hale & Keyser perspective, has a VP headed by a silent light verb, rather than by any pronounced element.

E. Person agreement

Assume that Rizzi (1982) is correct to take the person(+number) agreement morphemes in Italian-like languages to be pronoun-like. Assume further that pronouns, in particular 1st and 2nd person pronouns, are noun-like, rather than verb-like. Assume, finally, that, as mentioned above, nouns cannot have complements (i.e. cannot project).

Then it follows that Italian person agreement morphemes are noun-like; and that, consequently, they cannot take complements, in which case they cannot be members of the sentential hierarchy. (This leaves open the question whether these person agreement morphemes are pure heads or not.)

Rizzi's proposal that the person(+number) agreement morphemes found with finite verbs in Italian are pronoun-like was not intended to extend to all agreement morphemes and there is in fact good reason to think that the agreement morphemes found with Italian past participles are not pronoun-like, to judge by their inability to by themselves license silent objects:

(31) *Ho vista. ('I-have seen(f.sg.) - intended 'I have seen her')

This is not immediately expected from the familiar phi-feature perspective that takes person, number and gender to be parallel to each other. It suggests, rather, that there is more structure associated with the finite agreement morphemes than with the past participle ones, i.e. that the finite ones have structure of the sort associated with what we call pronouns (as in Rizzi's core idea), whereas the past participle ones do not (even if, as in the third person, the distinction is not visible).

F. Aspect

English progressive sentences like:

(32) They're playing baseball.

were argued by Bolinger (1971) to contain a silent preposition, in effect:

(33) they are AT playing baseball

If so, then *-ing* is very unlikely to correspond to an aspectual head, in which case any aspectual head present in such sentences must itself be silent (assuming that *be* is also hardly likely to count as an aspectual head). (Bolinger's approach to aspect is indirectly supported by Laka (2006) and Coon (2010)).

G. Tense

Thinking of Partee (1973) on analogies between tenses and pronouns, and bringing to bear the point from section E above, to the effect that pronouns, being nominal, can't be projecting heads, we reach the conclusion that Tense may not be a projecting head, either.

This will hold even if Partee's idea should be revised to focus on analogies between tenses and demonstratives (as suggested by languages with multiple past or future tenses distinguished by distance from the present, in analogy to demonstratives being distinguished in terms of distance from the speaker), with the demonstrative in question being accompanied by a silent noun TIME.

H. Adjectives and adverbs

Cinque's (1999; 2010) work on adverbs and adjectives has led to the conclusion that both adverbs and adjectives sit, for the most part, in specifier positions whose head is silent.

I. The Silence of Projecting Heads

Why are so many projecting heads silent, as in all the subareas of syntax discussed above? The simplest answer would be:

(34) All projecting heads are silent.

This would require reanalyzing all the remaining candidates for pronounced projecting heads. For example, the Gungbe topic head discussed by Rizzi (1997) might be a form of copula, thinking of (the imperfect analogy with) English cleft sentences. Of course the copula itself would then look like a projecting head, as do other light verbs, even from the perspective of Hale and Keyser (1993; 2002). Unless one takes their position to the extreme and analyzes even pronounced light verbs like *be*, *have*, *go*, *do*, *take*, *cause* as all involving a pronounced nominal element plus a light verb that is silent.

Taking the above light verbs to involve a nominal element receives some support from sentences like:

(35) Let's have a go at it.

(36) Their take in the second robbery was small.

(37) The cause of the accident is unknown.

and fits in with Postma's (1993) argument that copula *be* is a pronoun that combines with tense.

J. Why?

(The ideas in this section stem from joint work with Chris Collins. Mistakes in this presentation are my own.)

We have to ask, of course, why the language faculty would be put together in such a way as to have the property stated in (34) (if (34) is correct).

Before attempting to begin to answer this question, let me digress briefly to a proposal that is complementary to (34), namely:

(38) Every phrase and every non-projecting head have phonological content when merged.

This formulation is intended to allow, of course, for deletion (or some counterpart as in Kayne (2006)) in the course of the derivation. For example, the silence of PRO must, if (38) is correct, be due either to deletion or to movement (à la Hornstein (1999) or à la Kayne (2002)), and cannot be intrinsic to PRO as in Chomsky (1981).

Returning to (34), let us begin by asking what the atomic elements are that Merge applies to, and let us consider the answer given in various ways by Baker (1988), Pollock (1989), Halle and Marantz (1993), Koopman and Szabolcsi (2000), Julien (2002) and others, namely that Merge (initially) applies to morphemes (rather than to words). Let us then agree with the part of this answer that favors morphemes over words, and subsequently ask whether morphemes themselves are atomic with respect to Merge.

The answer is 'maybe', which would become a 'yes', even though morphemes themselves are composed of phonological segments, only if we thought that phonology and syntax must be kept separate.

However, in the spirit of 'government phonology' work (e.g. Kaye, Lowenstamm and Vergnaud (1990)) updated to reflect the transition in syntax from 'government' to bare phrase structure, the answer to the question whether morphemes are atomic with respect to Merge becomes 'no' if we take Merge to be the mechanism that puts phonological segments together to produce morphemes. (This idea builds in part on conversations with Michal Starke that I had in 2002.) (Merge could also be taken to build phonological segments from phonological features - see below.). Taking Merge to apply to phonological segments (which leads to the possibility that phonological metathesis might reduce to internal Merge) is not by itself sufficient, however, to derive (34).

To reach that result, we need to be more specific about how the building up, by Merge, of morphemes from phonological segments interacts with the application of Merge to those morphemes. More exactly, we need to see the language faculty as having the property that Merge starts (in bottom-to-top fashion) with phonological segments (whose content in some cases is just tonal) and proceeds seamlessly through to the syntax. A morpheme built by Merge out of phonological segments will subsequently be merged with other material as part of one extended phonosyntactic derivation.

For example, let's say we have reached /dog/ as the result of merging three phonological segments, probably via two applications of binary Merge. Assume that we now want to merge /dog/ (strictly speaking {d {o g}}, if nucleus and coda form a constituent) with, say, the indefinite article /a/.

The key question is, how does the language faculty distinguish 'a dog' from 'adog'? That is, how do we distinguish the building up of a syntactic phrase 'a dog' from the building up of a bigger morpheme 'adog'?

I take the notion 'morpheme' to reflect a transition from phonology to syntax. If 'dog' counts as a morpheme (in some derivation) then subsequent merger with something else will yield a syntactic phrase. But what does it mean to 'count as a morpheme'? The proposal is as follows.

(39) An array of phonological segments built up by Merge counts as a morpheme (is in effect shunted into the syntax) only if it is itself merged with something non-phonological. where 'non-phonological' means 'has no phonological content/is not a phonological segment'. The intuition is that as long as we keep merging phonological segments, we're just building up a bigger morpheme.

We can think of the ‘non-phonological something’ of (39) as having something in common with the traditional notion of morpheme boundary. In terms of Merge, we might try thinking of it as the null set. But let us instead take this ‘non-phonological something’ to be a syntactic feature, say a phi-feature (associated, necessarily, with no phonological content whatsoever).

This constitutes the beginning of an account of (34). Heads that project in the syntax project syntactic features. By (39), the element/head that effects the transition from the phonology to the syntax must be silent. If we try to merge a pronounced head with a pronounced morpheme as complement, (39) will be violated.

The next question is how to scale (39) up to the phrasal syntax. If we try to merge a pronounced head with a complement that is phrasal (at least some of whose pieces must be pronounced, by (38)), what happens? We can take ‘array’ in (39) to be this pronounced head, in which case (39) is again violated, since it is attempting to merge with a phrase that does have phonological content.

In this way, (34) can be seen to reflect the workings of (39), i.e. to reflect a certain property of the phonology/syntax interface.

Conclusions.

(34) has some plausibility, despite initial appearances. It follows from (39), which rests on the idea that Merge applies to phonological segments to form morphemes and that phonological instances of Merge feed directly into the syntax, mediated by a silent projecting head.

This view of Merge as being seamlessly shared by phonology and syntax indirectly supports, since phonology centrally involves temporal order, the view that syntax centrally involves temporal order - cf. Kayne (2011).

This view of Merge as being seamlessly shared by phonology and syntax has no place in it for ‘late insertion’ in the sense of DM, i.e. it has no place in it for DM’s distinction between morphemes and vocabulary items. More specifically, it has no place in it for morphemes whose phonological content has been ‘factored out’. (This is similar to antisymmetry not allowing for the factoring out of temporal order from syntax.)

The perspective outlined here is compatible with Chomsky’s probe-goal framework as long as the probe is silent. (There can be no pronounced Agr heads, nor any pronounced aspect or tense heads.) But it is not compatible with the idea that valuation in Chomsky’s sense leads to the late insertion of phonological features.

Whether silent projecting heads can have more than one syntactic feature is left an open question. If the answer is ‘no’, as in Kayne (2005), the reason must presumably be sought in the notion of ‘bundling of syntactic features’, which would seem to be a form of merger of syntactic features with no linear order established between them, which is, in the spirit of Kayne (1994; 2011), possibly not available to the language faculty.

The extent to which spellout (by phase) is affected by the proposals made here needs to be looked into.

In the spirit of the above, there should be no ‘zero’ phonological segments.

As a final point regarding phonology, note that if we combine a) the idea that Merge applies to phonological features to form a phonological segment (developed in discussions with Chris Collins, and primarily due to him) with b) the antisymmetry-related idea that Merge always introduces temporal order (Kayne (2011)), we reach:

(40) Phonological features within a phonological segment must be temporally ordered.

Although the details and the range of application are different, the above arguments have something in common with Chomsky's (2001) argument against LF.

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