On the uninterpretability of interpretable features

Traditional minimalism (Chomsky 1995) takes syntactic operations (Move/Agree) to be driven by feature checking requirements, where those features that are said to be uninterpretable at LF need to be checked off against those features that carry a matching LF-interpretable feature. The heuristic power of this mechanism is that it reduces all syntactic operations to one underlying property of language: semantic redundancy.

As is well-known, though, this version of minimalism suffers from a major look ahead problem. For Chomsky (1995), uninterpretable features must be deleted at the level of LF and feature checking is a necessary condition for feature deletion. However, at the stage in the derivation where feature checking takes place, it is not yet known that the feature, if remained unchecked, would cause the derivation to crash at a later stage, as has been pointed out by Epstein et al. (1998), Epstein and Seely (2002) and others. In order to circumvent this look ahead problem, Chomsky (2001) argues that interpretable features are already valued in the lexicon, whereas uninterpretable features must be valued during the derivation. Since valuation, as opposed to determining uninterpretability, takes place in syntax only, feature deletion can then be taken to be a purely syntactic process.

However, the introduction of valuation and its alleged relation to LF-interpretability of lexically valued features, is only necessary on the basis of the tacit assumption that it is the interpretable feature [iF] must be the carrier of the semantics of F (e.g. an interpretable T-feature is interpreted as a Tense operator). In this paper I argue that this hypothesis is incorrect and should be replaced by (1).

At first sight, (1) seems to be an unwelcome modification of the theory, since it can no longer account for (i) the strong correlation between semantically activity and the ability of checking uninterpretable features; and (ii) for the fact that this correlation be motivated as a result from the principle of Full Interpretation.

However, as discussed before, the current theory can only do so under two stipulations. The first one being the connection between (un)interpretability and valuedness (see also Pesetsky & Torrego 2007); the second one, being the assumption that uninterpretable features must be erased at LF. However, nothing principled motivates why feature checking should lead to deletion/erasure. Moreover, one may even wonder why the appearance of [uF]s at LF should make the derivation crash. Take for instance the structure in (2). Now suppose that A is semantically empty, i.e. it contains only formal features at LF. In that case, the denotation of D is identical to the denotation of B. If no other grammatical condition is violated and D can be a semantic complement of C (or vice versa), nothing renders (6) illegible at LF. Hence, the presence of uninterpretable features does not a priori violate FI. Note that in a way such a stipulation is even counterintuitive. Saying that the presence of some element blocks the interpretation of a structure that would otherwise receive a proper interpretation at LF presupposes that this element has interpretational effects and as such cannot be said to be fully uninterpretable.

Both stipulations become unnecessary under the proposal in (1), where [iF] and [uF] are both features that are only visible for syntax, where [uF] must stand in a c-command relation with [iF] features. As long as these requirement are fulfilled, the syntactic configuration is well-formed. However, the proposal opens up two new questions, as the original connection between feature status and LF-interpretability is now weakened.

First, what motivates the correlation between the syntactic feature [iF] and the semantics of F? And, second, how do language learners know which element is to carry [iF] if that no longer follows directly from its lexical semantics? The solution to these problems lies in the fact that the correlation must follow from the process of language acquisition, i.e. language learners determine on the basis of their language input, which lexical item carries which feature. In short, I propose that the learning algorithm in (3), originally proposed in a slightly different version in Zeijlstra (2008), addresses both questions. The fact that [iF] and F often correspond (i.e. elements meaning F carry [iF] and vice versa) is not a property of grammar but the result of the acquisition mechanism of formal features.

This view on feature-checking maintains the heuristically powerful assumption that syntactic operations are driven by LF-uninterpretability (elements that are semantically contentful will never be acquired as carrying [uF] features), without alluding to any stipulations, such as valuation or feature erasure/deletion. Moreover, it adheres to a more symmetric view on syntax, namely a view where the set of phonological, syntactic and semantic features no longer overlap (see (4)-(5)).
A lexical item $L$ carrying $[iF]$ must be taken to have $F$ as part of its lexical semantics; it is not the feature itself that is being interpreted at LF.

- Assume a 1:1 correspondence between morphemes and semantic content
- If some morpho-syntactic element $\alpha$ manifests the presence of some semantic context $F$, but cannot be assumed to be the carrier of $F$ itself, then assign a feature $[uF]$ to $\alpha$.
- Assign $[iF]$ to all morpho-syntactic elements that introduce the semantic context responsible to the assignment of $[uF]$. If no overt morpho-syntactic element is responsible, assume that some covert element must carry the semantic of $F$ and must therefore be assigned $[iF]$.
- Assign $[iF]$ to all those elements that are responsible for the rest of the grammatical occurrences of $[uF]$.

Phonological features  Formal features  Semantic features

\[\begin{array}{c}
\bullet \\
[P]
\end{array} \quad \begin{array}{c}
\bullet \\
[uF: \_]
\end{array} \quad \begin{array}{c}
\bullet \\
iF: \text{val}
\end{array} \quad [S]
\end{array}\]

Grammatical features under Chomsky (2001)

Phonological features  Formal features  Semantic features

\[\begin{array}{c}
\bullet \\
[P]
\end{array} \quad \begin{array}{c}
\bullet \\
uF
\end{array} \quad \begin{array}{c}
\bullet \\
iF
\end{array} \quad [S]
\end{array}\]

Grammatical features under this proposal

References: