Depictive Secondary Predicates in Synchronous Tree Adjoining Grammar

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Issue   Depictive Secondary Predicates (DSPs) in English are subject to a number of constraints on which arguments they can modify. Rapoport (1999) shows that objects of Accomplishment verbs may be modified by a DSP, but not arguments of an Achievement (subject readings for a DSP are always available):

(1)   a. John ate the **meat raw**.   b. *John met **Bill tired**

This alternation is not captured in the analysis of Pylkkänen (2008), where a functional projection DepP allows a DSP to modify any argument that is sister to a node of semantic type $\langle e,\langle s,t\rangle\rangle$. This however does account for cross-linguistic variation in the range of DSP readings via Pylkkänen's Appl typology, and provides a compositional semantic account. Turning to French, Legendre (1997) uses a Gender projection to capture the agreement between a DSP and its modificand:

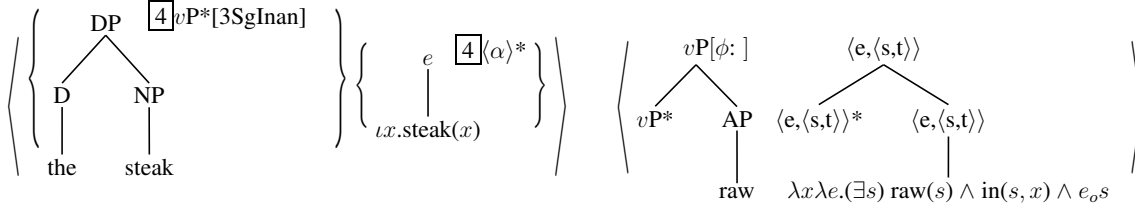(2)   Jean mange **la viande cru*e***

I argue that an analysis of DSPs in the generative framework Multi-Component Synchronous Tree Adjoining Grammar (MC-STAG) captures all of these facts in a way that more easily models variation within and between languages, while allowing for a clearer division of labor between syntax and semantics.

Key Ingredients   MC-STAG (Schabes and Shieber, 1994; Nesson and Shieber, 2006) is a system of tree combination in which two trees are built synchronously: one which can serve as the input to PF, looking like a 'typical' syntax tree, and another feeding LF, a typed lambda tree. I follow the conventions of Frank (2002), where each elementary tree is anchored by a single lexical item. Thus, a verb will project a syntactic tree minimally up to TP, with DP substitution sites for all its arguments. These sites will be linked (indicated by boxed numerals) minimally to type $\langle e\rangle$ nodes in the verb's semantic tree. Again following Frank, the syntactic trees are built in a manner similar to Minimalism; merge and move are applied in the construction of a tree. When two lexical items combine (via operations of substitution or adjoining), the combinations must be licit at the linked nodes in both the syntactic and semantic trees of each. A derivation tree records the combinations, bearing a resemblance to dependency trees initially pioneered by Tesnière (1965).

Proposed Analysis   Departing from existing STAG work, the tree pair for a verb is expanded to show the vP projection, with the parallel semantics showing an Agent role combining with the Neo-Davidsonain predicate via event identification. Note that each argument position is linked with the vP node in the syntax, and its corresponding $\langle e,\langle s,t\rangle\rangle$ sister node in the semantics. This is similar to linking of argument positions to the
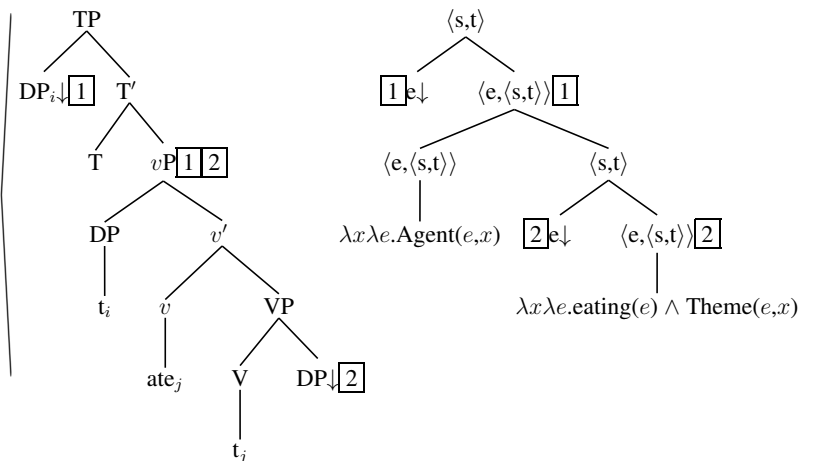
root of a semantic tree for scope reasons, going back to the earliest STAG literature. A DP like *the steak* takes advantage of an augmentation proposed for reflexive DPs in Kallmeyer and Romero (2007). The DP consists of a multi-component (MC) set, with the DP that substitutes at the argument position, and a 'defective' node which adjoins at a point on the verbal projection, here vP.

$$\left\langle \left\{ \left\{ \begin{array}{c} \text{DP} \quad \boxed{4}v\text{P*[3SgInan]} \\ \diagup \diagdown \\ \text{D} \quad \text{NP} \\ | \quad\quad | \\ \text{the} \quad \text{steak} \end{array} \right\} \left\{ \begin{array}{c} e \quad \boxed{4}\langle\alpha\rangle* \\ | \\ \iota x.\text{steak}(x) \end{array} \right\} \right\} \left\langle \begin{array}{cc} v\text{P}[\phi:\ ] & \langle\text{e},\langle\text{s,t}\rangle\rangle \\ \diagup \diagdown & \diagup \diagdown \\ v\text{P*} \quad \text{AP} & \langle\text{e},\langle\text{s,t}\rangle\rangle* \quad \langle\text{e},\langle\text{s,t}\rangle\rangle \\ | & | \\ \text{raw} & \lambda x \lambda e.(\exists s)\,\text{raw}(s) \wedge \text{in}(s,x) \wedge e_o s \end{array} \right\rangle \right\rangle$$

The initial motivation for this was to ensure syntactic agreement for ϕ-features, and I carry this through here, adding a linked un-typed semantic equivalent (shown with α as a variable over all semantic types). Unless another recursive semantic tree adjoins with the DP, this node is essentially vacuous, reflecting the semantic vacuity of ϕ-features. In the tree pair for the DSP, there is no syntactic representation of Pylkkänen's Dep projection; rather, this is shown as embedding the AP predicate within a recursive vP structure. Note that this is specified as requiring a vP node with ϕ-features. While not necessary for English, this would be active in French, where the features are necessary for agreement. On the other side, the semantic contribution of the Dep head is shown having taken the predicate *raw* as its argument. This is for reasons of space; the denotation of the Dep head, as defined by Pylkkänen, would be sister to the base denotation of the predicate *raw*: $\lambda x \lambda s.\text{raw}(s) \wedge \text{in}\,(x,s)$. The tree above shows the result of function application.

The crucial innovation is that this now allows the DSP to combine **directly** with the DP that it modifies. The *raw* trees can adjoin into the linked defective nodes of the *the steak* MC sets. This immediately satisfies the DSP's need to check ϕ-features. When the argument saturates a position in the verb's tree pair, the semantic contribution of the DSP is carried along, adjoining at the linked nodes. Adding a DSP to a DP limits that DP to only adjoining in argument positions linked to type $\langle\text{e},\langle\text{s,t}\rangle\rangle$ semantic nodes. The aspectual difference can be captured at the stage of constructing the verb's elementary tree: an Achievement's tree set would not contain the necessary links to allow felicitous combination of a DP carrying a DSP. In the derivation tree, the DSP is a direct dependent of its modificand, more closely reflecting Tesnière's pre-Minimalism account.

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