Abstract

Head-complement structures in HPSG identify most properties of the phrase with those of the head daughter, except for that valence property (e.g. SUBCAT or COMPS) whose constraints are met by the non-head daughter(s) in the phrase. In this paper I present several phenomena in English syntax where idiosyncratic properties of a non-head daughter in a phrase must remain visible on the phrasal node, in order to preserve the strong version of the principle of locality in subcategorization. I propose a general formal mechanism to effect this occasional transparency of heads with respect to certain properties of their complements.

1 Introduction

Typical head-complement structures in HPSG identify most properties of the phrase with those of the head daughter, except for that valence property (e.g. SUBCAT or COMPS) whose constraints are met by the non-head daughter(s) in the phrase. It is usually assumed that most properties of the non-head daughter in such structures are not visible on the mother, except for those which are propagated by general feature principles such as the Slash Inheritance Principle or the Semantics Principle. In this paper I present several phenomena in English syntax where idiosyncratic properties of a non-head daughter in a phrase must remain visible on the phrasal node, in order to preserve the strong version of the principle of locality in subcategorization, and I propose a general formal mechanism to effect this occasional transparency of heads with respect to certain properties of their complements.

2 Passive verb phrase complements of *as*

One of the most unusual productive syntactic constructions in English involves the word "as" combining with a highly restricted class of verb phrases to form a phrase which can modify sentences, as illustrated in 1.

(1) As has been argued previously, this compound is unstable.
As will be proven in the next section, this compound is unstable.
As argued previously, this compound is unstable.
As shown in the next section, this compound is unstable.
As is being argued here, this compound is unstable.

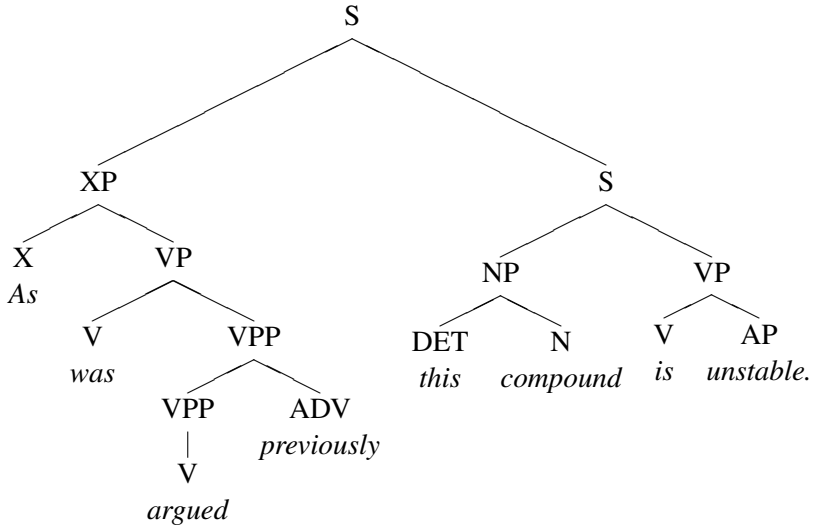
What is interesting about the VP complement of this word "as" is the requirement that it must be either a passive verb phrase of a particular kind, or a VP headed by a finite auxiliary verb which takes such a passive verb phrase as its complement (possibly mediated by the auxiliary "have" in addition to the obligatory auxiliary "be"). The passive verb phrase must be headed by a verb which ordinarily takes just a sentential complement and an expletive "it" subject, as illustrated in 2 The constraints on the permissible complements of "as" are illustrated in 3.

(2) It has been argued previously that this compound is unstable.
It will be proven in the next section that this compound is unstable.
It can be shown that this compound is unstable.

(3) *As been argued previously, this compound is unstable.
*As will prove in the next section, this compound is unstable.
*As has tried to be argued previously, this compound is unstable.
*As was amazed previously, this compound is unstable.
*as argues in the next section, this compound is unstable.

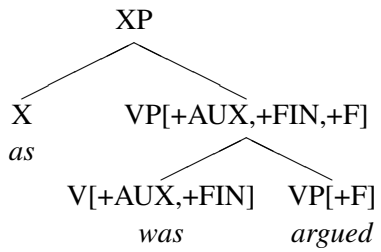
The syntactic structure given in 4 shows the particle "as" combining with its complement VP "was argued previously", thus forming a modifier phrase which combines with the main clause with an instance of the Modifier-Head schema.

(4) *As was argued previously this compound is unstable.*



In the lexical entry for this subordinating particle "as", its sole complement must be constrained to include finite VPs headed by an auxiliary verb just as long as the complement phrase in that VP has the necessary property F. Informally, this constraint seems to have the following structure, where the Head-Complement rule is invoked twice in succession, but where in addition the property `[+F]` propagates from the non-head to the mother.

(5) *as was argued*



Given the desirable highly schematic nature of the Head-Complement rule, it is clear that the auxiliary head should ensure that this property of its complement VP be preserved on the phrase it heads. Before examining the proposed formal mechanism enabling this feature propagation, it will be useful to consider some additional phenomena which exhibit this same transparency of certain properties of non-heads in head-complement structures.

3 Partitive noun phrases

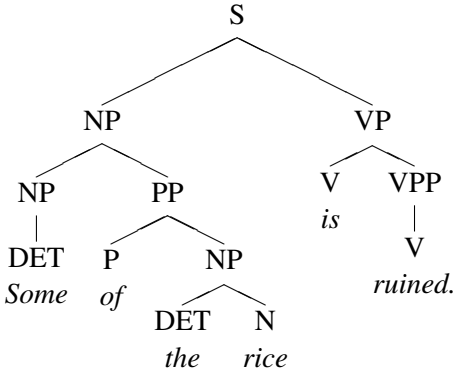
It is well known that in certain partitive phrases like those illustrated in 6, the grammatical number of the full noun phrase is determined by the number of the NP which is the complement of the preposition "of", even though under normal assumptions, that NP cannot be the head of the whole subject noun phrase. This transparency of grammatical number holds for those partitives which can appear equally cheerfully with singular or plural NPs following the preposition "of", as in 7.

(6) Some of the rice is ruined.
Some of the books are ruined.
*Some of the rice are ruined.
*Some of the books is ruined.

(7) All of the rice is ruined.
Most of the books are ruined.
*None of the rice are ruined.

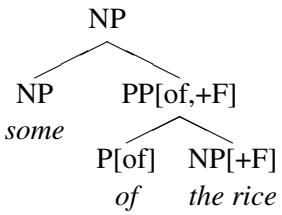
Assuming the syntactic analysis for these partitives shown in 8, the partitive head "some" (here derived from a determiner lexical entry) takes as its complement a prepositional phrase headed by "of", and that "of" preserves the number of its complement NP "the rice" on the phrasal PP node. That number property is thus visible to the partitive head, which unifies that number with its own to determine the number of the full NP, so it can be unified with the constraints imposed by the verb phrase on its subject.

(8) *Some of the rice is ruined.*



Again we have a configuration like the one seen in 5 above: one head-complement phrase serving as the complement in another head-complement phrase, with a property F of the lower non-head phrase preserved on its mother, as sketched in 9.

(9) *some of the rice*



A more careful look at these partitive phrases reveals that more than just number is preserved from the complement noun phrase. In English, certain temporal noun phrases can appear as VP modifiers, a phenomenon which can be analyzed by a unary construction whose daughter is typically an NP headed by a temporal noun (subject to some additional constraints which we ignore here), as in 10.

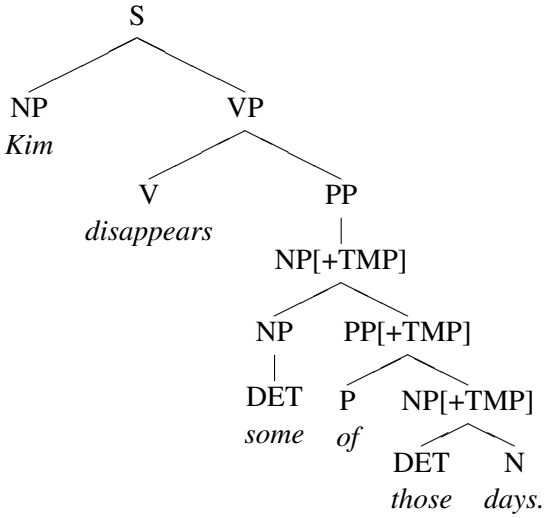
(10) Kim disappears those days.
Kim disappears the days when you're here.
* Kim disappears those appointments.

Interestingly, this same grammaticality pattern holds when the VP modifier consists of a partitive phrase which contains such a temporal noun phrase.

(11) Kim disappears some of those days.
Kim disappears some of the days when you're here.
* Kim disappears some of those appointments.

This property of being a temporal noun phrase, like the number of the NP, must be propagated up through the PP headed by "of", and then still be visible on the full partitive NP, so that this phrase can serve as the daughter of the unary construction which licenses the VP modifier phrase, as sketched in 12 using [+TMP] to signify the presence of this property.

(12) *Kim disappears some of those days.*



4 Additional phenomena

This transparency of one or more properties whose source is the non-head daughter in a head-complement phrase can be observed in several additional phenomena in English, including (1) PPs headed by semantically empty prepositions, a generalization of the partitive "of" discussed above, as illustrated in 13 where the verb "see" selects for a PP complement headed by "to" which contains an expletive "it"; and (2) sentences with tag questions involving verbs like "suppose", as discussed by Bender & Flickinger (1997), and illustrated briefly in 14, where the tag phrase's verb here surprisingly matches that of the complement clause, a property idiosyncratically preserved by "suppose" on the VP it heads.

(13) They saw *to it* that the evidence disappeared.
*They saw to them that the evidence disappeared.

(14) I suppose they can sing, can't they?
*Kim denied that they can sing, can't they?

5 Analysis

For each of these phenomena, a head H selecting for a complement C must preserve some property or properties F of that complement on the phrase it heads, and for at least some of these constructions, that property F must be preserved through multiple headed constructions up to the maximal projection of the head H. We can capture this propagation of F directly by introducing the relevant attribute as a HEAD feature, called MINOR to indicate its secondary effect on the distribution of the phrase it decorates. The heads H which appear in the constructions discussed

above will then include a general constraint identifying their own MINOR value with the MINOR value of their complement. This is illustrated in 15 for the lexical type for auxiliaries, whose VP complement may be a passive VP with the MINOR value *it-psv*, meaning the finite VP the auxiliary verb projects will preserve this value, so the entry for our particle "as" can be as given in 16.

(15)
$$\begin{bmatrix} \textit{fin\_aux\_verb} & \\ \text{SYNSEM} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} & \\ \text{AUX} & + \\ \text{MINOR} & \boxed{1} \end{bmatrix} \\ \text{VAL} & \begin{bmatrix} \text{COMPS} & \langle \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{verb} & \\ \text{VFORM} & \textit{nonfin} \\ \text{MINOR} & \boxed{1} \end{bmatrix} \end{bmatrix} \rangle \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

(16)
$$\begin{bmatrix} \textit{p\_vp\_psv\_le} & \\ \text{SYNSEM} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{particle} \end{bmatrix} \\ \text{VAL} & \begin{bmatrix} \text{COMPS} & \langle \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{verb} & \\ \text{VFORM} & \textit{fin-or-psv} \\ \text{AUX} & + \\ \text{MINOR} & \textit{it-psv} \end{bmatrix} \end{bmatrix} \rangle \end{bmatrix} \end{bmatrix} \\ \text{ORTH} & \langle \textit{as} \rangle \end{bmatrix}$$

The lexically controlled propagation of this HEAD feature MINOR from complement phrases enables the precise control required to capture the necessary grammaticality distributions for phenomena employing transparent heads. Note that this approach bears some similarity to the use of MARKING/MARKED features proposed by Van Eynde (2007) and propagating from non-head daughters, though that analysis did not focus on phenomena involving complementation.

References

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