Variations in English Object Extraposition

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1 Extraposition: the Issue

English allows a pattern where a finite or infinitival clause appears in sentence-final (or 'extraposed') position (cf. Quirk et al. 1985):

(1) a. I made it my objective [to settle the matter].
b. I owe it to you [that the jury acquitted me].

This pattern involves the introduction of expletive (or 'dummy') *it* which, though morphologically identical to the third person singular pronoun, is not referential, and hence cannot be assigned a semantic role.

According to the Projection Principle (which was proposed initially by Chomsky (1981) and has been widely assumed within mainstream generative grammar), the expletive pronoun, which has no semantic content, cannot occur in a theta-position. This entails that expletives cannot appear in strictly subcategorized positions. However, it is well known that there are overt cases where the expletive *it* does occur in a strictly subcategorized object position, as in (2) (Postal & Pullum 1988):

(2) a. Sometimes I find it difficult to read my own writing.
b. She's put it in their mind that it's going to be really tough.
c. I take it for granted that there will be an appeal.

There exist a number of attempts to account for these exceptions (e.g. the case-based analysis of Authier (1991), the predication analysis of Rothstein (1995), and the Specifier analysis of Stroik (1991, 1996)): all posit movement of the expletive from a non-theta marked position to direct object position. However, these analyses have so far been unsuccessful in capturing several important contrasts.[1] For example, observe the following:

(3) Group I: I blame *(it) on you [that we can't go].
Group II: Nobody expected (it) of you [that you could be so cruel].
Group III: John thought (?it) to himself [that we had betrayed him].

[1] See Kim and Sag (2006) for detailed discussion of the problems inherent in such analyses.

With respect to the occurrence of the expletive *it* in object position, there is a clear contrast here: the expletive is obligatory in Group I, optional in Group II, and of questionable status in Group III. To our knowledge, no one has provided a satisfactory account of the contrast that we find here (cf. Authier 1991, Iwakura 1991, 1994). In this paper, we show that such a contrast, in addition to the distributional possibilities of *it* in object position, follows naturally from the interaction of diverse constraints in our lexicalist, constraint-based analysis.

2 A Lexicalist Analysis

2.1 Lexical Classes

It is sometimes thought that the verbs allowing object *it*-extraposition form a restricted class. For example, it is clear (v. Authier 1991) that verbs allowing a choice between a clausal complement and an NP object will license object extraposition:

(4) a. They didn't even mention his latest promotion/that he was promoted recently.
b. They demanded justice/that he should leave.
c. He said many things/that I was not the person he was looking for.

(5) a. They never mentioned it to the candidate that the job was poorly paid.
b. They demand it of our employees that they wear a tie.
c. He wouldn't dare say it that I am not the right man for the job.

Unlike these, it seems, at least at first blush, that propositional object verbs like *hint* and *think*, which select a single CP complement, cannot undergo extraposition:

(6) a. I think *(of) you all the time.
b. He hinted *many things/that I was not the person he was looking for.

(7) a. I think (??it) that John had an accident.
b. He wouldn't dare hint (?it) that I am not the right man for the job.

However, more detailed investigation reveals many naturally occurring examples of object extraposition with such verbs, as can be seen from the following examples found on the internet:

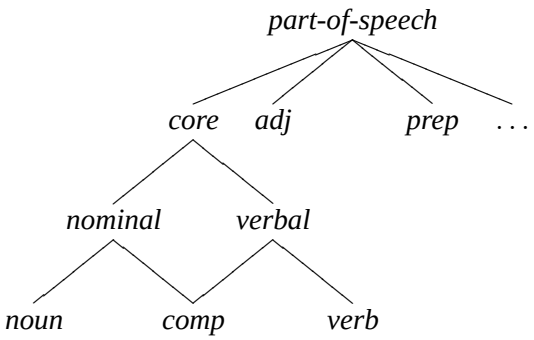
(8) a. ...because he really obviously thought it that it was somehow going to work out to his benefit.[2]
b. The Auditor would not be able to pick it up unless somebody hinted it that the account existed.[3]

[2] www.bazima.com/archives/before/2004/12/not-only-is-she.htm [April 15, 2005]
[3] www.stkittsnevis.net/archives/commission/coiday70.html [April 15, 2005]

We speculate that the true generalization is that all verbs (modulo certain qualms about verbs taking interrogative complements) that allow CP (or sentential) objects also allow object *it*-extraposition.

To reflect such lexical patterns, we will assume, following much work in HPSG (Pollard and Sag 1994, Sag et al. 2003), that parts of speech come in families and can profitably be analyzed in terms of typed feature structures. The part-of-speech types we will assume form the hierarchy illustrated in (9):[4]

(9)



The type *nominal* is a supertype of both *noun* and *comp*. In accordance with the basic properties of systems of typed feature structures, an element specified as [HEAD *nominal*] can be realized either as [HEAD *noun*] or [HEAD *comp*]. These will correspond to the phrasal types NP and CP, respectively.

The hierarchy implies that the subcategorization pattern of English verbs will refer to (at least) each of these types. For example, we can easily identify verbs whose subcategorization restrictions make reference to *noun*, *comp*, and *nominal*:

(10) a. She pinched [his arm] as hard as she could.
b.*She pinched [that he feels pain].

(11) a. We hope [that such a vaccine could be available in ten years].
b.*We hope [the availability of such a vaccine in ten years].

(12) a. Cohen proved the independence of the continuum hypothesis.
b. Cohen proved that the continuum hypothesis was independent.

The *part-of-speech* type hierarchy in (9) allows us to formulate simple lexical constraints that reflect these subcategorization patterns. That is, we can assume that English transitive verbs come in at least the following three varieties:

[4]Following Postal (1966), we assume that determiners are really pronouns that select common NP complements and hence have *noun* as their part of speech type.

(13) a. $\left[\text{SUBCAT} \quad \langle\ \text{NP}\ ,\ \text{NP}[\text{HEAD}\ \textit{noun}],\ldots\rangle\right]$

b. $\left[\text{SUBCAT} \quad \langle\ \text{NP}\ ,\ \text{CP}[\text{HEAD}\ \textit{comp}]\ ,\ldots\rangle\right]$

c. $\left[\text{SUBCAT} \quad \langle\ \text{NP}\ ,\ [\text{HEAD}\ \textit{nominal}]\ ,\ldots\ \rangle\right]$

In each class, the SUBCAT list specifies the dependent elements that the verbs select (in the order ⟨ Subject, Direct Object, ... ⟩). The HEAD value of a given element is the part-of-speech type that a word passes on to the phrases it projects. NP and CP are abbreviations for feature structure descriptions that include the information [HEAD *noun*] and [HEAD *comp*], respectively. For example, *pinch* can select only an NP complement while verbs like *hope* select either a CP, an S, or an infinitival VP. This means that the complement of *hope* is specified as [HEAD *verbal*]. *Try* allows only a [HEAD *verb*] complement (one that is also required to be [SUBCAT <NP>]). Verbs like *prove*, *forget*, and *regret*, however, can cooccur with either NP or CP complements, because the part-of-speech type *nominal* subsumes both *noun* and *comp*.

2.2 HPSG: Background Assumptions

In the version of HPSG we assume here, complex phrases are licensed by grammatical constructions: schemata imposing constraints on how component signs can combine to build larger signs. The well-formed signs defined by our grammar are those that instantiate the mother of some construction. Two constructions of English will suffice for present purposes: the head-complement construction and the subject-predicate construction, given in the form of the construction types of Sag (2001, to appear), Sag et al. (2003), and related work:

(14) a. *hd-comp-cxt* ⇒

$$\begin{bmatrix} \text{MTR} & \left[\text{SYN}|\text{CAT}|\text{SUBCAT}\ \boxed{A}\langle\boxed{1}\rangle\right] \\ \text{DTRS} & \left\langle \boxed{0}\begin{bmatrix}\textit{word}\\ \text{SYN}|\text{C}|\text{SUBCAT}\ \boxed{A}\end{bmatrix}\right\rangle \oplus\ \boxed{B} \\ \text{H-DTR} & \boxed{0} \end{bmatrix}$$

b. *subj-pred-cxt* ⇒

$$\begin{bmatrix} \text{MTR} & \left[\text{SYN}|\text{CAT}|\text{SUBCAT}\ \langle\ \rangle\right] \\ \text{DTRS} & \left\langle \boxed{0}\left[\text{SYN}|\text{CAT}|\text{SUBCAT}\ \langle\ \boxed{1}\ \rangle\right], \boxed{1}\right\rangle \\ \text{H-DTR} & \boxed{0} \end{bmatrix}$$

These constructions interact with general principles and the various (partly parocheal) linear precedence constraints to license complex phrasal signs:

(15) Three English Linear Precedence Constraints:

LP1: **Hd-Dtr**[*word*] ≺ X

LP2: $\boxed{1} \prec [\text{SYN}|\text{CAT}|\text{SUBCAT} \langle \boxed{1} \rangle]$

LP3: NP $\prec$ PP

LP1 says that a lexical head must precede all of its sisters, whereas LP2 ensures that a predicate selecting its subject follows that subject. Finally, LP3 requires that an NP precede any sister that is a PP.

The various SUBCAT constraints posited above for the different verb classes interact with the construction inventory, the general principles of HPSG theory, and with the LP constraints to account for the data we observed earlier. This basic picture sets the stage for our consideration of more complex data relevant to object extraposition.

2.3 Two Regularities of English

English exhibits a systematic alternation between pairs of non-extraposed and extraposed sentences like the following:

(16) a. [That Chris knew the answer] occurred to Pat.
b. It [occurred [to Pat] [that Chris knew the answer]].

The relation is productive. As English acquires new expressions, e.g. *freak out*, *weird out*, *suck*, or *bite*, it acquires both extraposed and non-extraposed sentence types (cf. Jackendoff 2002):

(17) a. It really freaks/weirds me out that we invaded Iraq.
b. That we invaded Iraq really freaks/weirds me out.

(18) a. It really sucks/bites that we invaded Iraq.
b. That we invaded Iraq really sucks/bites.

To capture the systematic relationship in subject extraposition, Pollard and Sag (1994) [see also Sag et al. 2003] introduced a lexical rule that turns the sentential subject in (17b) and (18b) into a sentential 'complement' of the verb in (17a) and (18b), respectively. However, as pointed out by Keller (1995), Bouma (1996), and van Eynde (1996), this complement analysis alone is incomplete. It does not allow for cases like the following:

(19) a. They regret it [very much] [that we could not hire Mosconi].
b. It struck a grammarian last month, [who analyzed it], [that this clause is grammatical].

Given the general assumption that VP modifiers cannot intervene between the head and its complement, the intervening occurrence of the VP adjunct *very much* or the appositive clause *who analyzed it* argues against taking extraposed clause as the complement. In addition, as noted in Van Eynde (1996), the complement analysis fails to account for the following well-known contrast in extractability:

(20) a. That Kim would lose to Pat, nobody had expected _ .
b.*That Sandy snores, it bothers Kim more and more _ .

The clausal complement can be freely topicalized from complement position, but not from extraposed position.

Following in critical respects Bouma (1996), we take English extraposition to be a nonlocal dependency and introduce the feature EXTRA together with the following lexical construction:[5]

(21) Extraposition Construction

$$\begin{bmatrix} \text{MTR} & \begin{bmatrix} \text{PHON } \boxed{0} \\ \text{S|C} \begin{bmatrix} \text{SUBCAT} & \boxed{A} \oplus \langle \text{NP}[\textit{it}] \rangle \oplus \boxed{B} \\ \text{EXTRA} & \langle \boxed{1} \rangle \end{bmatrix} \end{bmatrix} \\ \text{DTRS} & \left\langle \begin{bmatrix} \text{PHON } \boxed{0} \\ \text{S|C|SUBCAT } \boxed{A} \oplus \langle \boxed{1}[\textit{verbal}] \rangle \oplus \boxed{B} \end{bmatrix} \right\rangle \end{bmatrix}$$

This rule creates new words whose feature specifications are minimally different and systematically related to those of other words that select S and/or CP complements. These new words select their S or CP complement not via the SUBCAT feature, but rather via EXTRA, a separate selection feature that will also be used in the analysis of other kinds of extraposition phenomena. An expletive NP (NP[*it*]) holds the place of the extraposed complement in the new word's SUBCAT list.[6]

EXTRA specifications will be passed up to a higher structure and discharged by the following Head-Extraposition Construction:[7]

(22) Head-Extraposition Construction:

$$\textit{hd-extra-cxt} \Rightarrow \begin{bmatrix} \text{MTR} & \left[\text{S|C|EXTRA} \quad \langle\,\rangle \right] \\ \text{DTRS} & \left\langle \boxed{0}, \boxed{1} \right\rangle \\ \text{H-DTR} & \boxed{0} \left[\text{S|C} \left[\text{SUBCAT } \langle (\text{X}) \rangle \text{ EXTRA } \langle \boxed{1} \rangle \right] \right] \end{bmatrix}$$

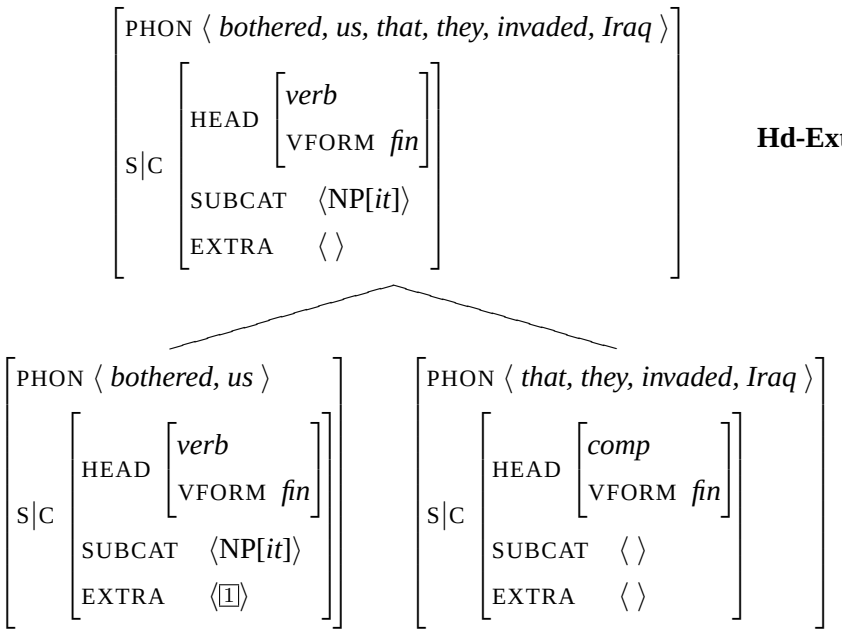
This construction reflects the fact that English independently allows phrases constructed by a head combining with an extraposed element, as illustrated in (23):

[5] Lexical constructions, as used here, are quite similar to phrasal constructions ('Phrasal Schemata' in the sense of Pollard and Sag 1994). For more discussion, see Sag et al. 2003, Chap. 16.

[6] This lexical construction may need to include a semantic restriction on the extraposed clause.

[7] The percolation of the feature EXTRA is either guaranteed by the Generalized Head Feature Principle of Ginzburg and Sag 2001 or else, making slightly different theoretical assumptions, by the Valence Principle of Sag et al. 2003.

(23)



Hd-Extra-Cx

English freely employs this kind of construction for the extraposition of adjunct elements, as well (cf. Culicover and Rochemont 1990):

(24) a. [[A man came into the room] [that no one knew]].
b. [[A man came into the room] [with blond hair]].
c. I [[read a book last week] [which was about Chomsky]].

All these examples are licensed by the Head-Extraposition Construction.

One additional constraint relevant to extraposition phenomena involves the possible orderings of CPs and Ss with respect to other constituents. The essential insight was formulated by Kuno (1987) as his Ban on Non-sentence Final Clause (BNFC), which prohibits a CP or S from having any element to its right:

(25) a.*Would [that John came] surprise you?
b. Would it surprise you [that John came]?

(26) a.*Would [to pay now] be better?
b. Would it be better [to pay now]?

(27) a.*I explained that the world is round to them.
b. I explained to them that the world is round.

The BNFC constraint basically bars any argument from appearing after a sentential argument. In the present context, we can incorporate the insight of this functionally motivated constraint via a (language-particular) LP constraint like the following:

(28) LP4: Complement $\prec$ [SYN|CAT|HEAD *verbal*]

LP4 says that any sign whose HEAD value is *verbal* must occur after any of its complement sisters.

Group I. As noted earlier, verbs like *blame* require the presence of the expletive *it* in object position:

(29) a. I blame [the case] on you.
b.*I blame [that we can't go].
c.*I blame [that we can't go] on you.
d. I blame it on you [that we can't go].
e.*I blame on you [that we can't go].

These data imply that verbs like *blame* will have the following SUBCAT information:

(30)
$$\left[\text{S|C|SUBCAT}\left\langle \text{NP}\ ,\ \boxed{1}\left[\text{S|C|HEAD}\ \textit{nominal}\right],\ \left[\text{S|C}\left[\begin{array}{l}\text{HD|PFORM}\ \ \textit{on}\\ \text{SUBCAT}\ \ \langle\boxed{1}\rangle\end{array}\right]\right]_{\text{PP}}\right\rangle\right]$$

The verb *blame* selects for a *nominal* object and a PP[*on*] argument. Note that the PP is predicational, i.e. it has a single element on its SUBCAT list and this element is identified with the object, its (raising) controller. This analysis of PP[*on*]s is motivated by examples like (31a,b):

(31) a. They placed the blame on us.
b. The blame was on us.

In these examples, the predicational nature of PP[*on*] is clear and plays a key role in our semantic analysis, e.g. in explaining why (31a) entails (31b).

In (30), the object's part of speech is required to be of type *nominal*. Hence that element can be resolved to NP, as in (29a). It can also be resolved to CP, yet this resolution cannot give rise to any linearization. The CP–PP ordering in (29c) is a violation of the BNFC constraint LP4 (see (28) above) and the PP–CP ordering in (29e) violates LP2, which requires a controller to precede any sister that it controls, e.g. the PP[*on*]. Hence any attempt to resolve the object in (30) to CP leads to a violation of some independently motivated constraint.

Notice here that when the *nominal* is realized as its subtype *comp*, which corresponds to that can project into a CP, it can get 'pumped' by the Extraposition Construction (since *comp* is a subtype of *nominal*), as shown in (32):

(32)

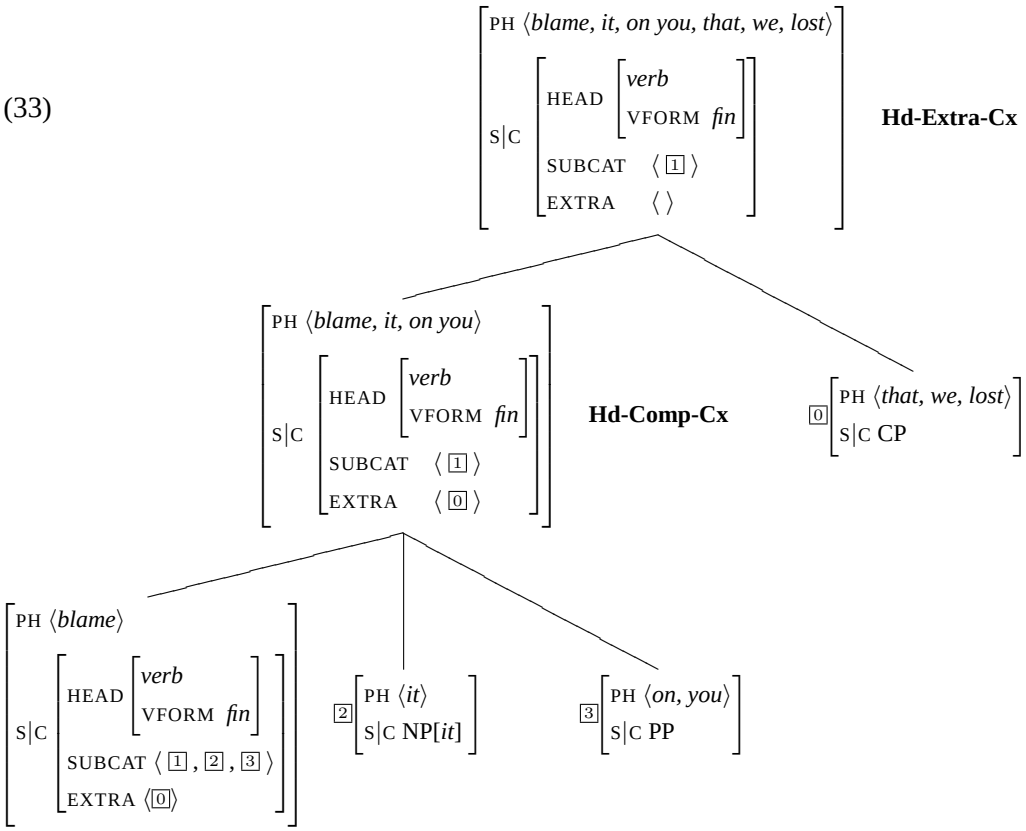
$$\left[\begin{array}{l}\text{PHON}\ \langle\ \textit{blame}\ \rangle \\ \text{S|C}\left[\begin{array}{l}\text{SUBCAT}\quad \left\langle \text{NP}\ ,\ \text{NP}[\textit{it}]\ ,\ \left[\text{S|C}\left[\begin{array}{l}\text{HD|PFORM}\ \ \textit{on}\\ \text{SUBCAT}\ \ \langle \boxed{1}\rangle\end{array}\right]\right]^{\text{PP}}\right\rangle \\ \text{EXTRA}\quad \langle\ \boxed{1}[\text{S|C|HEAD}\ \textit{comp}]\ \rangle\end{array}\right]\end{array}\right]$$

$$\Big|$$

$$\left[\begin{array}{l}\text{PHON}\ \langle\ \textit{blame}\ \rangle \\ \text{S|C|SUBCAT}\left\langle \text{NP}\ ,\ \boxed{1}\ ,\ \left[\text{S|C}\left[\begin{array}{l}\text{HD|PFORM}\ \ \textit{on}\\ \text{SUBCAT}\ \ \langle \boxed{1}\rangle\end{array}\right]\right]^{\text{PP}}\right\rangle\end{array}\right]$$

The lexically constructed word (the mother) in (32) gives rise to the example in (29d), whose partial structure is given in (33). As noted, in order for the verb *blame* to realize its complement as a clause (CP), it must first get pumped by the Extraposition Construction, which will ensure that an expletive *it* object is also present.

(33)



Most of the object extraposition examples, in addition to selecting an object argument, subcategorize for a predicative XP complement. If this predicative XP is obligatory and the object complement is realized as a CP, then we expect the object will have to be extraposed in order to avoid the effects of the BNFC Constraint – LP4. This prediction is borne out:

(34) a. I made it my objective [to settle the matter].
b.*I made [to settle the matter] my objective.
c. I made [the settlement of the matter] my objective.

(35) a. I owe it to you [that the jury acquitted me].
b.*I owe [that the jury acquitted me] to you.
c. I owe [my acquittal] to you.

Verbs like *made* and *owe* select an object and a non-optional predicative XP. This means that when the object is realized as a CP and extraposed to the sentence final position, the expletive also must occur.

Group II. In the Group II examples, expletive *it* is optional, as noted earlier. The behavior of a verb in this group is illustrated by the following data set:

(36) a. Nobody expected [his success].
b. Nobody expected [anything] of me.
c. Nobody expected [that you could be so cruel].
d.*Nobody expected [that you could be so cruel] of you.
e. Nobody expected it of you [that you could be so cruel].
f. Nobody expected of you [that you could be so cruel].
g. Nobody expected [you could be so cruel].
h.*Nobody expected [you could be so cruel] of you.
i.?Nobody expected of you [you could be so cruel].
j.?Nobody expected it of you [you could be so cruel].

These examples suggest that the lexical entries of verbs like *expect* include the following specification:

(37) $\left[\text{S|C|SUBCAT } \langle \text{NP, [S|C|HEAD } \textit{core}\text{] (, PP[}\textit{of}\text{]) } \rangle\right]$

According to the SUBCAT information in (37), the verb *expect* takes three arguments: a subject NP, an object whose part of speech is specified only as *core*, and an optional PP. Given this information, and depending on the resolution of the [HEAD *core*] value, we will have the following three realizations:

(38) a. $\left[\text{S|C|SUBCAT } \langle \text{NP, NP (,PP[}\textit{of}\text{])} \rangle\right]$

b. $\left[\text{S|C|SUBCAT } \langle \text{NP, CP (,PP[}\textit{of}\text{])} \rangle\right]$

c. $\left[\text{S|C|SUBCAT } \langle \text{NP, S (,PP[}\textit{of}\text{])} \rangle\right]$

Let us first consider the predictions when the PP is not realized. (38a) will allow for sentences like (36a); (38b) will accommodate sentences like (36c); and (38c) will accommodate sentences like (36g). When the PP is realized, the options are more limited, as LP4 will rule out (36d) and (36h).

How then can we generate examples like (36f), whose Group I analogues are ungrammatical? These are possible with Group II verbs, since no LP rule blocks the PP-CP sequence when the PP is nonpredicative (i.e. when the PP's SUBCAT value is the empty list rather than a singleton list). As we saw earlier PP[*on*] is predicative as the complement of *blame*. PP[*of*] is different, however, as the following contrast indicates:

(39) a. The blame was on me.
b.*The expectation is of me.

There is thus no constraint barring the order instantiated by (36f). The difference in functional type of the PP interacts with other aspects of our analysis to explain this difference between Group I and Group II. Nothing rules out (36i), though it is judged somewhat less acceptable by many speakers, a fact we would explain by appeal to interacting nonsyntactic factors.

Of course a feature structure like the one in (37) can be pumped by the Extraposition Construction, just as the Group I verbs were. The result is sketched in (40):

(40)
$$\begin{bmatrix} \text{PHON } \langle \textit{ expected } \rangle \\ \text{S|C} \begin{bmatrix} \text{SUBCAT } \langle \text{NP, NP[}\textit{it}\text{] (, PP[}\textit{of}\text{]) } \rangle \\ \text{EXTRA } \langle \text{ [S|C|HEAD } \textit{verbal}\text{] } \rangle \end{bmatrix} \end{bmatrix}$$

This can then give rise to both (36e) and (36j). The latter type is somewhat less acceptable (*that*-less clauses prefer to be adjacent to the verb), but nonetheless occurs in spoken language data.

Verbs like *mention* and *require* also belong to this group. As noted in (41), these verbs can combine with either an NP or a CP complement:

(41) a. They never mentioned the issue before/that he liked contemporary music.
b. They require further information/that the information be available soon.

Just like *expect*, the expletive NP[*it*] is also optional with these verbs:

(42) a. They never mentioned (it) to the candidate that the job was poorly paid.
b. We require (it) of our employees that they wear a tie.

The present analysis predicts that when a verb selects a [HEAD *verbal*] element as its SUBCAT element, we allow sentences where nothing intervenes between the expletive *it* and the extraposed clause. Such verbs will have the SUBCAT value shown in (43) and hence can be pumped by the Extraposition Construction, as shown in (44):

(43) $\left[\text{S|C|SUBCAT}\left\langle \boxed{1}\text{NP}, \boxed{2}[\text{S|C|HEAD } \textit{verbal}]\right\rangle\right]$

(44)
$$\left[\text{S|C}\left[\begin{array}{ll}\text{SUBCAT} & \left\langle \boxed{1}\text{NP} \text{ , NP}[\textit{it}]\right\rangle \\ \text{EXTRA} & \left\langle \boxed{2}[\text{HEAD } \textit{verbal}]\right\rangle\end{array}\right]\right]$$
$$\Big|$$
$$\left[\text{S|C|SUBCAT}\left\langle \boxed{1}\text{NP}, \boxed{2}[\text{S|C|HEAD } \textit{verbal}]\right\rangle\right]$$

In addition, the expletive would then be optional in such cases. As shown in the following examples, such verbs can select an NP alone or else a sentential complement with an optional expletive *it*:

(45) a. I regretted the comments/regretted (it) that he was late.
b. I should resent their loss of power/resented (it) that you did not call.
c. They suspected the gesture/suspected (it) that he was a spy.

In such examples, even when nothing separates the expletive from the clause, the clause is treated as extraposed in our analysis.[8]

Group III. Group III verbs appear not to allow object extraposition, given the unclear status of examples like (46):

(46) a. John thought to himself that Mary was coming.
b.?John thought it to himself that Mary was coming.

However, when the PP complement does not appear, we can find clear examples of object extraposition:

(47) I thought it that it would be nearly impossible for the filmmakers to sustain such a level of excitement through the rest of the movie[9]

[8]Rothstein (1995) takes such cases as dislocation of the clause rather than extraposition. But, as far as we are aware, there are no significant differences between such cases and those with something separating the two phrases.

[9]http://www.peyups.com/article.khtml?sid=2504[April 3, 2005]

And there are also attested examples with a parenthetical that is probably best analyzed as extraposition with the PP present, e.g.:

(48) - and I think it's great when Nessa says (or maybe she just thinks it to herself) that Eyvind, unlike Somerled, is wise.[10]

Note that, unlike Group II verbs, these verbs do not allow an NP, but select a VP[*inf*] or a CP clause as object:

(49) a. *John thought the problem.
b. He didn't think to find him in the kitchen.
c. Everyone thinks that they're going to get their lyrics.

These observations imply that such verbs have the SUBCAT information shown in (50):

(50)
$$\begin{bmatrix} \text{PHON } \langle \text{think} \rangle \\ \text{S|C } \left[\text{SUBCAT } \langle \text{ NP, [HEAD } \textit{verbal}\text{] (, PP[}\textit{to}\text{]) } \rangle \right] \end{bmatrix}$$

Group III verbs can get pumped by the Extraposition Construction, which allows our grammar to generate sentences like (47) and (48).

3 Conclusion

English object extraposition sentences provide a serious challenge for Chomsky's Projection Principle. Though several attempts have been made to save this principle, no extant transformational analysis offers a satisfactory account of the various properties of English object extraposition constructions that have been discussed in the literature, including the three lexical classes we have isolated.

As we have seen, these three verbal classes display a number of intriguing patterns with respect to object extraposition constructions. To account for these patterns, we have suggested that English object extraposition is lexically modulated and that the lexical variations interact with other independently motivated constraints, some of which are particular to English, and some of which are more deeply embedded in the lexicalist, constraint-based approach to language that we assume.

[10] http://www.council-of-elrond.com/forums/showthread.php?t=1055 [April 15, 2005]

References

Authier, J. Marc. 1991. V-Governed Expletives, Case Theory, and the Projection Principle. *Linguistic Inquiry* 22.4: 721–740.

Bouma, Gosse. 1996. Complement clauses and expletives. In G. Durieux, W. Daelemans and S. Gillis (eds.), CLIN VI. Papers from the Sixth CLIN Meeting, pp. 1-17.

Chomsky, Noam. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.

Collins, Peter. 1994. Extraposition in English. *Functions of Language* 1.1: 7–24.

Culicover, Peter W. and Michael S. Rochemont. 1990. Extraposition and the Complement Principle. *Linguistic Inquiry* 21.1: 23–47.

Ginzburg, Jonathan and Ivan Sag. 2001. *Interrogative Investigations* CSLI Publications, Stanford.

Huddleston, Rodney D. and Geoffrey K. Pullum. 2001. *The Cambridge Grammar of the English Language*. Cambridge University Press.

Iwakura, Kunihiro. 1991. Expletive *it* and CP-Trace. *Linguistic Analysis* 21: 97–115.

Iwakura, Kunihiro. 1994. The Distribution of CP-Trace and the Expletive *it*. *Linguistic Analysis* 24.2: 122–141.

Jackendoff, Ray. 2002. *Foundations of Language*. Cambridge: Cambridge University Press.

Kayne, Richard. 1981. ECP extensions. *Linguistic Inquiry* 12.1:93–133. [Reprinted in: Kayne, Richard. 1984. *Connectedness and Binary Branching*. Dordrecht: Foris Publications.]

Keller, Frank. 1995. Towards an Account of Extraposition in HPSG. *Proceedings of the EACL*.

Kim, Jong-Bok, and Ivan A. Sag. 2006. English Object Extraposition: A Constraint-Based Approach. In Stefan Mueller (ed), *Proceedings of the HPSG05 Conference*, University of Lisbon. CSLI Publications, Pp. 192–212.

Kuno, Susumo. 1987. *Functional Syntax*. Chicago: The University of Chicago Press.

Pollard, Carl, and Ivan A. Sag. 1994. *Head-driven Phrase Structure Grammar*. Chicago University Press and CSLI Publications.

Postal, Paul M. and Geoffrey K. Pullum. 1988. Expletive Noun Phrases in Subcategorized Positions. *Linguistic Inquiry* 19.4: 635–670.

Postal, Paul M. 1966. On so-called 'pronouns' in English. In F. Dinneen, ed., *The 19th monograph on Languages and Linguistics*. Washington, D.C.: Georgetown University Press. Reprinted 1969 in D. A. Reibel & S. A. Schane (eds.) *Modern studies in English: Readings in transformational grammar*. Englewood Cliffs, NJ: Prentice-Hall. Pp. 201–224.

Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech, and Jan Svartvik. 1985. *A Comprehensive Grammar of the English Language.* London: Longman.

Rothstein, Susan D. 1995. Pleonastics and the Interpretation of Pronouns. *Linguistic Inquiry* 26.3: 499–529.

Sag, Ivan A. 2001. Six Dimensions of Natural Language Locality. Invited Presentation: Eighth Annual Conference on Head-Driven Phrase Structure Grammar. NTNU. Trondheim, Norway.

Sag, Ivan A. to appear. Remarks on Locality. *Ohio State Working Papers in Linguistics*, edited by Detmar Meurers and Robert D. Levine.

Sag, Ivan, Tom Wasow, and Emily Bender. 2003. *Syntactic Theory: A Formal Introduction*. 2nd Edition. Stanford: CSLI Publications.

Stroik, Thomas S. 1991. Expletives Revisited *Linguistic Analysis* 21.1: 23–33.

Stroik, Thomas S. 1996. Extraposition and Expletive-Movement: A Minimalist Account. *Lingua: International Review of General Linguistics* 99.4: 237–251.

Van Eynde, Frank. 1996. A monostratal treatment of it extraposition without lexical rules. In G. Durieux, W. Daelemans and S. Gillis (eds), *Papers from the Sixth CLIN Meeting*, 231-248.