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Minimalism and Explanation

ROBERT D. VAN VALIN, JR.

1 Introduction

Chomsky's Minimalist Program (Chomsky 1995, 1998) portrays itself as an attempt to simplify generative syntactic theory while enhancing its explanatory potential. This paper explores some of the questions of language design raised in the Minimalist Program, especially in Chomsky (1998), from the point of view of syntactic theories which do not accord syntax a privileged status and which seek to view grammar in terms of the complex interplay of syntax, semantics and pragmatics. In other words, the perspective is non-syntactocentric, to use Jackendoff's (1997) term.

Chomsky (1998) explores the issue of the design of the language faculty and argues for a conception in which there are only two levels of representation, PF and LF, which are the interfaces with non-linguistic cognition. The derivational process which results in LF is aptly named 'narrow syntax', and it excludes many of the phenomena which have been central to syntactic theory, both principles and parameters theories and others, over the last few decades, e.g. binding. Chomsky (1995) maintains that C_{HL}, the computational procedure for human language that derives LF (and PF), is invariant across languages, and since narrow syntax is equated with C_{HL} as a mapping between the lexicon and LF (Chomsky 1998: 13), narrow syntax must also be invariant across languages. This may account for the exclusion of binding from narrow syntax: it clearly shows cross-linguistic variation and therefore cannot be part of the invariable C_{HL}.

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John Moore and Maria Polinsky (eds.).

Within this framework, he addresses the existence of two alleged major 'imperfections' in language design, the existence of uninterpretable features and displacement. He argues that the two go together: displacement exists because of the necessity of movement to permit checking and hence erasure of uninterpretable features, in order to satisfy legibility conditions at the LF interface. Since narrow syntax is invariant across languages, it may reasonably be concluded that displacement and the existence of uninterpretable features are universal features of human language. If the core of human language, narrow syntax, is uniform across languages, why, one wonders, should cross-linguistic syntactic variation exist at all?

The discussion will proceed as follows. First, Chomsky's claims about the necessary cooccurence of two alleged imperfections, displacement and uninterpretable features, will be examined. Second, two central syntactic phenomena, binding and displacement, will be analyzed with respect to what is universal about them and what potentially motivates the cross-linguistic variation they exhibit. Finally, the conclusion raises the issue of possible motivations for cross-linguistic variation in syntax.

2 Issues of Language Design

The existence of uninterpretable features and displacement in human language constitute, for Chomsky, part of narrow syntax, and as such must be universal features of human language. However, it is not obvious that every language has uninterpretable features or displacement phenomena. A language which appears to lack both is Lakhota, a Siouan language. Lakhota has no voice oppositions of any kind, and question words appear *in situ*; this is exemplified in (1).

(1) Lakhota

a. witʃháʃa ki tuwá na-Ø-Ø-xú he?
man the who hear-3sgA-3sgU Q
'Who does the man hear?'

b. tuwá witʃháʃa ki na-Ø-Ø-xú he?
who man the hear-3sgA-3sgU Q
'Who hears the man?', *'Who does the man hear?'

Lakhota is a head-marking SOV language, and the affixes on the verb signal actor and undergoer. (The verb *naxʔu* 'hear' takes its affixes as infixes.) A question word like *tuwá* 'who' is interpreted in terms of its position in the clause; in (1a) it can only be interpreted as the object (undergoer), while in (1b) it can only be interpreted as the subject (actor). Relative clauses do not involve *Wh*-Movement, as they are internally headed. Finally, there is no raising of any kind in the language. Chomsky (1998) characterizes displacement as a situation in which 'the surface phonetic relations are dissociated from the semantic ones' (35), and no such dissociation exists in Lakhota. The only instances of a discrepancy between the occurrence of an overt argument and its interpretation are control structures, which do not involve movement and therefore do not fall into the category of displacement phenomena.

This has important consequences for the relationship between syntactic functions and semantic roles and hence for the linking between syntax and semantics in the language: the syntactic functions in a clause are completely predictable from the semantic role properties of the verb, and vice versa. If a verb, e.g. *naxʔu* 'hear', takes actor and undergoer arguments, then the actor will always function as the subject and the undergoer as the direct object; there is no other possibility. The single argument of an intransitive verb will be subject, regardless of whether it is actor or undergoer. Given the morphosyntactic form of a clause, its semantic roles are completely predictable and directly derivable. There are no grammatical processes akin to passive or dative shift to affect the relationship between syntactic functions and semantic roles. This aspect of the linking between syntax and semantics in such a language is straightforward and uncomplicated. Furthermore, the interpretation of *wh*-expressions presents no difficulties, since they occur in the canonical position for their interpretation. Hence such a one-to-one correspondence between syntactic functions and semantic roles should make for maximum legibility at the interface with cognitive systems.

The second alleged imperfection is the existence of uninterpretable features in a language. Chomsky (1995, 1998) analyzes the person and number features of verb agreement (ϕ-features) in English as uninterpretable. Does this analysis hold for a language like Lakhota? English agreement morphology on verbs has no ramifications for the semantic interpretation of the sentence; is the same true in Lakhota? Consider the following examples.

(2) a. miye witʃháʃa ki na-wítʃa-wa-xʔų.
1sg man the hear-3plU-1sgA
'I hear the men.'

a′. miye witʃháʃa ki na-Ø-wa-xʔų.
1sg man the hear-3sgU-1sgA
'I hear the man.'

b. na-witʃhá-wa-x?ų.
hear-3plU-1sgA
'I hear them.'
b´. na-Ø-wá-x?ų.
hear-3sgU-1sgA
'I hear him/her.'

In (2a) the affixes on the verb look like agreement morphology, duplicating the inherent and interpretable features of the NPs, but in (2b) the situation is very different; here the affixes are crucial to the semantic interpretation of the sentence, because they are the sole overt expression of the arguments of the verb. Hence it would appear that they are in fact interpretable. In GB, the structure of (2b) would be as in (3) (from Williamson 1984).

(3) $[_{IP}\ pro_i\ [_{VP}\ pro_j$ na-witʃhá$_j$-wa$_j$-x?ų$]]$

In such an analysis, *-witʃhá-* '3plUndergoer' and *-wa-* '1sgActor' are simply agreement and presumably carry uninterpretable features, just as in (2a), with the interpretable features being carried by the null pronominals. But such an analysis would seem to be excluded from the Minimalist Program by the Inclusiveness Condition: 'no new features are introduced by C_{HL}'(Chomsky 1998: 27). Chomsky asserts that it excludes any superfluous elements or structure and elaborates its implications as follows:

> It requires that there be no phrasal categories or bar levels, hence no X-bar theory or other theory of phrase structure...It also rules out the introduction of traces, indices, lambda operators, and other new elements in the course of operation of C_{HL}. (28)

The minimal analysis of (2b) requires a lexical array (numeration) consisting of *naxʔų́* 'hear' – *witʃha-* '3plU' and *-wa-* '1sgA', and the derivation of (2a) would simply be combining them. Adding tree branches to carry null pronominals, as well as the introduction of the null pronominals themselves, would seem, at the very least, to run counter to the spirit of this condition. Furthermore, it seems counterintuitive to claim that overt morphemes like *-witʃha-* and *-wa-* are the morphological manifestations of uninterpretable ϕ-features, while the interpretable ϕ-features are carried by phonologically null elements. After all, the basis of the hearer's interpretation is the phonological form of the sentence.

The other major candidate for an uninterpretable feature is the EPP feature of T, and it is not obvious that it is applicable to this language. If the EPP feature is construed as requiring a structural subject (i.e. an external

argument), then it is not satisfied by (2b, b´). The structure in (3) would satisfy this feature, but it is problematic, as we have seen. There are no expletives in Lakhota, and weather expressions consist of a single verb which cannot have 'agreement' morphology and which cannot have any NPs accompanying it, as illustrated in (4).

(4) (*hé/iyé) magádʒu-kte
(that/it) rain-FUT
'It will rain.'

Hence it appears that T lacks the uninterpretable EPP feature in this language.

Lakhota thus appears to be a language without the imperfections of displacement and uninterpretable features, and because of this a language of this type would seem to be, in Chomsky's terms, the optimal solution to the interface legibility conditions.

It is important to recognize that it is of course possible to simply stipulate that person-number features on NPs are always interpretable and the ones on verbs are always uninterpretable and to stipulate that there is always displacement in a language, even if it involves only covert displacement or the displacement of phonologically null elements. This would, however, seem to run counter to the spirit of the Minimalist Program, and in the latter case, displacement of a phonologically null element would not in fact meet Chomsky's definition of displacement, given earlier (1998: 35). The claims in this section are based on the existence (or lack thereof) of *overt* displacement in a language and whether the agreement features on the verb do or do not contribute to the semantic interpretation of the sentence.[1]

One could reasonably argue that the lack of displacement and uninterpretable features is just what the analysis in Chomsky (1998) would predict:

[1] It is important to distinguish 'displacement' from 'movement'. As Chomsky's definitions makes clear, he is referring to a dissociation between overt phonetic elements and their semantic interpretation; hence movement of empty categories or movement after spellout would not count as displacement phenomena. H. Lasnik, in his remarks after this paper was presented, suggested that the existence of verbs like 'die', etc. in the language shows that there must be movement in the language. But such alleged 'movement' would in fact not meet Chomsky's definition of displacement, since there would be no discrepancy in the overt form of the sentence between the position of the NP (or the cross-reference morpheme on the verb) and the position of its semantic interpretation. Displacement is a theory-independent phenomenon which all theories must account for, regardless of whether they posit movement rules or not. Movement, on the other hand, is a theory-internal concept which is distinct from that of displacement.

since the motivation for displacement is the existence of uninterpretable features, if a language lacked uninterpretable features, then it should lack displacement. Lakhota seems to confirm this rather nicely. This immediately raises the question, are there any languages in which there is a dissociation between displacement and the existence of uninterpretable features? It appears that there are. Mam, a Mayan language (England 1983), is a thoroughly head-marking language like Lakhota, and the agreement morphology on the Mam verb leads to sentences exactly like those in (2b, b´), as illustrated in (5).

(5) Mam

a. Ma Ø-tzaj ky-tzyu-7n kab' xiinaq Luuch.
REC 3sg ABS-DIR 3plERG-grab-DIR two man Pedro
'Two men grabbed Pedro.'

b. Ma Ø-tzaj ky-tzyu-7n.
REC 3sgABS-DIR plERG-grab- DIR
'They grabbed him.'

Unlike Lakhota, however, Mam has an extensive variety of displacement constructions, including *Wh*-Movement (in *wh*-questions and topicalization), passivization and antipassivization. The other possibility, a language with uninterpretable features but no displacement, is exemplified by Mparntwe Arrernte (Wilkins 1989), a language of central Australia. This language has optional number agreement with the subject, as well as case features on nominals, which Chomsky argues are also uninterpretable; these are illustrated in (6).

(6) Mparntwe Arrernte

a. Artwe therre-le nwerne-nhe twe-(rlenerre-)ke.
man two-ERG 1pl- ACC hit-(DUAL-) PAST
'The two men hit us all.'

b. Nwerne-Ø re-nhe awe-(rrirre-)ke.
1pl-NOM 3sg-ACC hear-(PL-)PAST
'We all heard it.'

c. Artwe therre-Ø lhe-(rre-)me.
man two-NOM go-(DUAL-)PRES
'The two men are walking away.'

Thus we may conclude that there are uninterpretable features (ϕ-features) in Mparntwe Arrernte syntax. However, unlike English and like Lakhota, Mparntwe Arrernte lacks raising, voice oppositions, and *Wh*-Movement in questions. The only candidate for possible displacement would be externally-headed relative clauses; the language also has internally-headed and headless relative clauses as well. The situation in English, Lakhota, Mam and Mparntwe Arrernte is summarized in Table 1.

Language	Displacement	Uninterpretable Features
English	Yes	Yes
Lakhota	No	No
Mam	Yes	No(?)
Mparntwe Arrernte	No(?)	Yes

Table 1: Interaction of Displacement with the Existence of Uninterpretable Features

The '(?)' indicates that more analysis is needed to fully establish the claim, but nevertheless two conclusions can be drawn from Table 1. First, displacement and uninterpretable features are not necessary facets of language design, and therefore they are not a necessary part of what Chomsky calls the optimal solution to the legibility conditions at the interfaces. Second, both Mam and Mparntwe Arrernte strongly suggest that the two phenomena are not necessarily correlated with each other, as Chomsky claims. Furthermore, since displacement is not a universal feature of human languages, it cannot be part of narrow syntax. It thus would fall outside of I-language, along with other phenomena such as binding, into the extra-linguistic cognitive systems.

Despite the existence of languages like Lakhota and Mparntwe Arrernte, displacement phenomena, as Chomsky notes, are very common cross-linguistically, and it seems highly counterintuitive to exclude these phenomena, as well as binding phenomena, which are likewise pervasive, from the scope of syntactic theory. It would be highly desirable to account for them as principled deviations from the truly universal aspects of syntax, and in the next section we will undertake this task.

3 Binding and Displacement: The Universal and the Language-Specific

Chomsky characterizes the universal core of syntax in terms of his notion of 'narrow syntax', which refers to the syntactic derivational machinery he posits. Van Valin and LaPolla (1997) offers an alternative conception of the universal structural core of human language, formulated in terms of Role and Reference Grammar [RRG] (Van Valin 1993, 2002). They argue that what is truly universal in universal grammar is *semantically driven*, and the grammatical phenomena which show substantial cross-linguistic variation

are not purely semantically driven but involve non-semantic motivating factors. From an RRG perspective, the universal part of what Chomsky terms C_{HL} contains only semantically-driven syntactic phenomena. If the core case of binding is taken to be an antecedent binding a reflexive anaphor, then reflexive binding, like displacement, is not a universal feature of human language, but they nevertheless have universally valid properties in the sense of properties found in all languages that manifest them. We will look at reflexivization first.

There are three main types of reflexive constructions: lexical reflexives, clitic reflexives, and coreference reflexives. The first two types are lexical in nature and do not involve binding, according to the RRG analysis of them in Van Valin and LaPolla (1997). Lexical reflexives are exemplified by the following sentences from Lakhota and Dyirbal (Dixon 1972).

(7) Dyirbal

a. bala yugu-Ø baŋgul yaɽa-ŋgu buyba-n
NM.ABS stick-ABS NM.ERG man-ERG hide-TNS
'The man is hiding the stick.'

a´. bayi yaɽa-Ø buyba-yiri-ɲu
NM.ABS man-ABS hide-REFL-TNS
'The man is hiding himself.'

Lakhota

b. na-ní-Ø-xʔų.
hear-2sgU-3sgA
'She heard you.'

b´. na-n-ítʃ'i-xʔų.
hear-2- REFL
'You heard yourself.'

There is no independent reflexive anaphor in either language; in both cases, a reflexive verb form is derived, and the interpretation is limited to expressing identity between two arguments of the verb, normally the actor and the undergoer. Clitic reflexive constructions such as those in Romance and Slavic languages are also lexical in nature, following the line of analysis initiated in Grimshaw (1982), in that the reflexive clitic signals the suppression of the highest ranking semantic argument in the argument structure of the verb.

True binding is found only with coreference reflexives, the kind found in e.g. English, Norwegian, Japanese and Mandarin. Slavic and Romance languages have coreference reflexives in addition to the clitic reflexives, but languages like Lakhota and Dyirbal do not. Hence reflexive binding is not found in all languages, as noted earlier. Since coreference reflexives in-

volve two independent elements, the antecedent and the anaphor, there are two fundamental issues to be resolved with respect to them: (1) what is the hierarchical relationship between them?, and (2) what is the syntactic domain in which they both must occur? The answer to the second question must be syntactic in nature, but the answer to the first need not be. Jackendoff (1972, 1992) proposed semantic answers to the first question, and his approach has been adopted in RRG, *mutatis mutandem*. One of the universal semantic constraints on reflexivization argued for in Van Valin and LaPolla (1997) can be paraphrased as in (8).

(8) Role Hierarchy Condition on reflexivization:
The reflexive pronoun must not be higher on the following hierarchy than its antecedent: Actor > Undergoer > Other

This says simply that actor arguments always bind undergoer arguments and never the other way around. In most cases, this makes the same predictions as syntactic binding conditions like Condition A of the GB binding theory. There is an interesting set of data from Toba Batak, an Austronesian language of Indonesia (Shugamoto 1984), with reference to which the two types of account make different predictions. The basic Toba Batak facts are presented in (9).

(9) a. Mang-ida si Ria si Torus. 'Torus sees Ria.'
ACT-see PNM PNM

b. Di-ida si Torus si Ria. 'Torus sees Ria.'
UND-see

c. Mang-ida si Torus si Ria 'Ria sees Torus.'
ACT–see

d. Di-ida si Ria si Torus. 'Ria sees Torus.'
UND-see

Toba Batak is VOS with an interesting voice system. In (9a) the verb carries the prefix *mang-*, and the NPs following the verb are interpreted as undergoer-actor; hence in this example *Ria* is the undergoer, and *Torus* is the actor. When the verb carries the prefix *di-* as in (9b), the order of arguments is actor-undergoer; hence in this example *Torus* is the actor and *Ria* the undergoer, yielding the same meaning as in (9a). The two possibilities with *Ria* as the actor and *Torus* as the undergoer are given in (9c,d). The relevant examples involving reflexivization are given in (10), and phrase structure trees for these examples are given in Figure 1.

(10) a. Mang-ida diri-na si Torus.
ACT-see self-3sgPOSS
'Torus sees himself.'
Torus c-commands *dirina* - Actor binds undergoer

b. *Di-ida diri-na si Torus.
UND-see self-3sgPOSS
'Himself sees Torus.'
Torus c-commands *dirina* - *Undergoer binds actor

c. *Mang-ida si Torus diri-na.
ACT-see self-3sgPOSS
'Himself sees Torus.'
**Dirina* c-commands *Torus* - *Undergoer binds actor

d. Di-ida si Torus diri-na.
UND-see self-3sgPOSS
'Torus sees himself.'
**Dirina* c-commands *Torus* - Actor binds undergoer

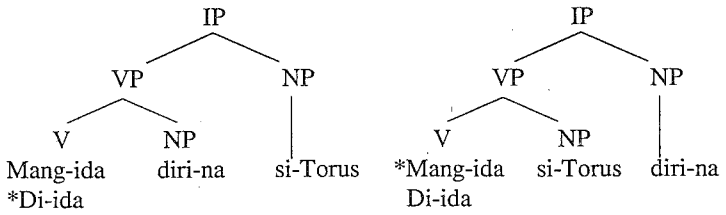

Figure 1: Phrase Structure of Toba Batak Sentences in (10)

Both approaches would predict that (10a) would be grammatical and that (10c) would be ungrammatical, since the first example satisfies both (8) and Condition A and the second one violates both of them. The two approaches diverge with respect to (10b, d) however. Condition A predicts that (10b) should be grammatical, since *Torus* c-commands the reflexive *dirina*, and that (10d) should be ungrammatical, since the reflexive *dirina* c-commands *Torus*, the antecedent.[2] The RRG analysis, on the other hand, predicts just the opposite: (10b) should be ungrammatical, because the undergoer binds the actor, and (10d) should be grammatical, since the actor binds the undergoer. The RRG predictions, not those of Condition A, are correct, and this

[2] See Clark (1985) for arguments that the immediate postverbal NP is in the internal argument position in Toba Batak sentences.

supports the semantic approach to reflexive binding.[3] In terms of the issue of universality, the principle in (8) would be the core principle governing reflexive binding, with the main variation cross-linguistically being whether only subjects (actors) may serve as antecedents or whether non-subjects (undergoer, other) may as well. It would predict that in every case the higher ranking argument would be the antecedent.

But the condition in (8) says nothing about where the antecedent and anaphor have to be in relation to each other: in the same core, the same clause, or the same sentence? This is not a semantic question, and there is no universally valid answer. Indeed, there are several answers, as Dalrymple (1993) shows. They range from being co-arguments within the core to being in different clauses. The restriction to co-arguments within the core is essentially semantic, and highly restricted coreference reflexives like these are very close semantically to lexical and clitic reflexives. When the domain of reflexivization extends across core and even clause boundaries, however, the constraints are no longer semantically motivated. Rather, discourse-pragmatics becomes a potential motivating factor. Coreference involves reference, and reference is ultimately a discourse notion. Hence once reflexivization involves coreference between two referring expressions, the door is open to a potential discourse function for the reflexive, and this is just what is found in languages with long-distance reflexives such as Mandarin, Korean and Japanese (see e.g. Zubin, et al. 1990). Such a discourse function for reflexivization is quite impossible for lexical and clitic reflexives. Thus, it would appear that at least part of the motivation for the cross-linguistic variation in the domain of coreference reflexives is the varying discourse function of reflexives in different languages.

The prime example of displacement phenomena, *Wh*-Movement in questions, clearly involves discourse-pragmatics, since *wh*-words are narrow foci (Lambrecht 1994). There appear to be four main patterns cross-linguistically with respect to *wh*-questions: (1) the *wh*-word remains *in situ*, as in (1) from Lakhota; (2) the *wh*-word is displaced to the unmarked focus position in the clause, as in e.g. Turkish; (3) the *wh*-word is displaced to a special clause-initial position, as in English, and (4) the *wh*-word is displaced to a special clause-final position, as in a number of south Asian lan-

[3] There are a number of other phenomena which have been argued to provide evidence against a semantic approach to reflexivization such as this one. See Van Valin and LaPolla (1997) and Van Valin (2002) for discussion of these phenomena and arguments that they are not in fact problematic for this approach.

guages. The situation in Turkish is illustrated in (11), from Underhill (1976).

(11) Turkish

a. (Siz) Gazete-yi Halil-e ver-di-niz.
2pl newspaper-ACC Halil-DAT give-PAST-2pl
'You (pl) gave the newspaper to Halil.'

b. (Siz) Halil-e ne ver-di-niz?
2pl Halil- DAT what give- PAST -2pl
'What did you (pl) give to Halil?'

b'. *(Siz) ne Halil-e ver-di-niz?
2pl what Halil- DAT give- PAST -2pl

The sentence in (11b) is a *wh*-question with a ditransitive verb, and the *wh*-word *ne* 'what' must occur in the immediate preverbal position; it cannot occur initially or medially, as (11b') shows. The immediate preverbal position is the unmarked focus position in the Turkish clause (Erguvanli 1984), and this is the normal situation in OV languages (Kim 1988). The clause-initial position in which *wh*-words appear in *wh*-questions in English and other languages is associated with contrastive topics and foci, as in sentences like *That book I wouldn't buy*. Perhaps the most surprising pattern is the rightward displacement found in a languages like Dhivehi (Cain and Gair 2000), an Indo-Aryan language of the Maldives. In this language, which is SOV, the *wh*-word may occur either *in situ* or in a special post-verbal position. This is shown in (12).

(12) Dhivehi

a. alī kīkē bunī ta?
Ali what say.PST.FOC Q
'What did Ali say?'

b. alī bunī kīke ta?
Ali say. PST.FOC what Q
'What did Ali say?'

c. māle uluṅīma aharen boṅī
Male be.PST.PROG when 1sg drink.PRES.FOC
aṣis kuṙīmu.
ice cream
'When in Male, it is ice cream that I eat.'

In the question in (12a) the *wh*-word is in the normal object position, which is also the unmarked focus position. However, in (12b) the *wh*-word appears postverbally in what is otherwise a special focus construction with a special form of the verb; an example of this focus construction is given in (12c). Hence in Dhivehi, Turkish and English, displacement of *wh*-words involves positions which are independently associated with pragmatic functions, in this case focus. Here again, as with reflexivization, the breaking of the one-to-one correspondence between syntax and semantics involves discourse-pragmatics.

When languages like Lakhota are analyzed from a standard generative perspective, the question that is inevitably raised is, why don't *wh*-words move (overtly) in this language? The presumption, clearly stated in Chomsky (1998), is that displacement is a universal feature of human language, and therefore the default is for *wh*-words to be displaced. This is, however, the wrong question to ask. A reasonable starting hypothesis regarding the correspondence between the syntactic positions in which arguments appear and their semantic (thematic role) interpretation is that it should be consistent and uniform. From this it follows that the preferred way of expressing *wh*-questions should be with *wh-in situ*, since the *wh*-word would occur in the position appropriate to its semantic interpretation, and therefore this, not displacement, should be the universal default and, one might reasonably expect, the most frequent type. It does seem to be the case that a clear majority of human languages are not like English in this respect; in Matthew Dryer's typological database, only 33% of the languages have obligatory initial *wh* in questions (Dryer, p.c.). Hence the correct question from this perspective is, why do *wh*-words move in languages like English, Turkish and Dhevehi? Given that *wh*-words are focal and that the positions in which they occur are associated with (contrastive) focus, it is clear that a significant part of the answer will involve discourse-pragmatics, as noted above.

Another very important type of displacement phenomena is voice constructions. This is a huge topic, but the following points are relevant to this discussion. Much of the early work in RRG (Foley and Van Valin 1977, 1984, 1985; Van Valin 1980, 1981, 1987) and a considerable amount of typological work during the 1970's and early 1980's (e.g. Li 1976, Givón 1984) was devoted to showing that in at least some languages subject is a kind of grammaticalized topic. In essence, this means that in some languages the choice of which argument of a multivalent verb will serve as subject can be influenced, sometimes very strongly, by discourse-pragmatic factors. From this it has been argued that one of the motivations for the use of voice constructions has been the desire of the speaker to keep the primary topical participant in subject position in a sequence of clauses about that participant.[4] Hence in at least some instances the displacement found in

[4] See e.g. Foley and Van Valin (1984), Van Valin (1987, 1993), Van Valin and LaPolla (1997) for examples from a variety of languages, both accusative and ergative. See Branigan

voice constructions is motivated by discourse-pragmatics. This contrasts strikingly with the situation in Lakhota-type languages, in which the choice of subject with a multivalent verb is completely predictable from its argument structure. Here again the breaking of a potential correspondence between semantics (thematic roles) and syntax (grammatical functions) involves discourse-pragmatics.

4 Conclusion: Language Design and Cross-Linguistic Variation

This paper began with Chomsky's speculations about language design and has presented evidence that the correlation between the existence of uninterpretable features and displacement phenomena proposed in Chomsky (1998) does not hold. This result raises questions about the content of narrow syntax, since it excludes non-universal phenomena, one of which is clearly displacement. It has further argued that the truly universal part of universal grammar is semantically driven and has proposed that deviations from this semantic core are motivated at least in part by discourse-pragmatics. The question that immediately arises is, why should this be the case? Why should the universal core of universal grammar be semantically driven?

Regardless of whether one holds that 'human language is a system for free expression of thought, essentially independent of stimulus control, need-satisfaction or instrumental purpose' (Chomsky 1980: 239) or that its primary function is communication, a crucial function of language is representing states of affairs in the world, and this is accomplished by means of reference and predication. Chomsky's super-engineer, faced with the task of designing a language which is optimal in terms of referring and predicating, on the one hand, and interfacing with other cognitive systems, on the other, would, I would argue, come up with languages of the Lakhota type: displacement-free, lacking uninterpretable features, hence with a one-to-one correspondence relationship between syntactic functions and semantic roles, ensuring maximal legibility at the cognitive interface, as he puts it.[5] If this is so, then we would expect the universal core of C_{HL} be semantically driven, in order to preserve the desired syntax-semantic correspondence. However, this assumes a rather 'solipsistic' view of language: the cognitive interface is the speaker's own. Suppose the super-engineer's task were to

and Prat-Sala (2000) and Heydel and Murray (2000) for cross-linguistic psycholinguistic evidence of a discourse motivation for passives in certain contexts.

[5] See Van Valin and LaPolla (1997), section 6.5, for arguments that the Lakhota-type is in fact the most common language type cross-linguistically.

create a linguistic system that is optimal in terms of referring and predicating by the speaker, on the one hand, and interfacing with the cognitive systems of the hearer, on the other. In this case the issue arises, as it does not in the first scenario, of structuring the utterance in order to facilitate the assimilation of the information by the hearer. Now a conflict may arise between the optimal correspondence between syntax and semantics, on the one hand, and the optimal coding of information for assimilation, on the other. In such a situation, various options must be explored, in order to reconcile the competing concerns. This is what gives rise to the kind of cross-linguistic variation discussed in this paper, in which the optimal syntax-semantics correspondence is undone by the introduction of discourse-pragmatic factors into grammar, and it is a natural consequence of the non-solipsistic view of language.

5 Notes

Abbreviations: A 'actor', ABS 'absolutive', ACC 'accusative', ACT 'actor-as-subject voice', DAT 'dative', DIR 'directional', ERG 'ergative', FOC 'focus', FUT 'future', NM 'noun marker', NOM 'nominative', pl/PL 'plural', PNM 'proper noun marker', POSS 'possessive', PROG 'progressive', PST 'past', Q 'question particle', REC 'recent past', REFL 'reflexive', sg 'singular', TNS 'tense', U 'undergoer', UND 'undergoer-as-subject voice'.

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