Poznań Studies in Contemporary Linguistics 38, 2002/2003 pp. 197-219

OPTIMAL DESIGN, IMPERFECTIONS, AND DISLOCATION

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ABSTRACT

One of the current issues in the Minimalist Programme has been the question of the optimal design of language faculty for meeting the requirements of the external systems. A displacement property may be thought of in this context as one of the imperfections, or conversely, part of the optimal design. The paper, which discusses an instance of movement known as Object Shift (OS), favours the latter position. Object Shift is considered here to be a computational option operative in the formation of a structure legible for an external system. Unlike in Chomsky (1999), I propose that OS is parametrically driven by the presence of EPP in v*, and not by the parametric assignment of the feature [INT] to a shifted object in Spec of v*P. Some other issues raised in the paper are the question of the autonomy of formal grammar in view of the discussion of legibility conditions, the interpretation of "external motivation" for narrow syntax, and the status of optional rules.

1. Introduction

The central topic of recent explorations in the minimalist program has become the question of how well language is designed (cf. Chomsky 1998, 1999, 2000). Language is defined here as a specific language faculty, an internalised, individual property of every user of a language, which constitutes an autonomous structure/system of the modular human mind/brain. This system interacts with the other human systems external with respect to language faculty, specifically with the two systems referred to generally as the sensorimotor system, and the system of thought. To interact with the external systems, the language faculty uses so-called interface levels which are linguistic representations legible to these external systems, where *legible* means roughly *construed only from the elements interpretable at the interface levels*. The two interface levels are PF (Phonetic Form) and LF (Logical Form). The former provides instructions to the sensorimotor system used in performance, the latter to the system of thought for the use in the elaboration of meaning. Alternatively, the two external systems are often referred to as the articulatory-perceptual, and conceptual-intentional, respectively.

The question of good design directly concerns the interaction of the internalised language faculty and the external systems. The essence of the issue is the assumption that evolutionarily the language organ has been designed to meet the needs of the human mental architecture and sensorimotor apparatus in that it generates structures which are usable by the other systems. "Other systems of the mind/brain have to be able to access expressions generated by states of FL (language faculty) ((I-) languages), to "read" them and use them as "instructions" for thought and action" (Chomsky 1998: 7). The question of good design is actually the question of how the language system meets the legibility conditions at the interface level. The better the design is, the more legible the instructions are, and by extension, the more successful the language faculty is in meeting the requirements of the external systems.

Our concern in the present paper will be a range of questions related to the issue of the good design of the language system and the form and status of the real or alleged imperfections. First we will address the question of the autonomy of language, which has to be confronted with the recent postulations. Next, we will examine the elements of the language design which deserve the status of imperfections, whether real or apparent, their nature, and their location with respect to interface levels. We will then focus on the property of movement, an alleged imperfection of the language system. The instance of movement we will put under some scrutiny is object shift (OS), present in Scandinavian languages. We will consider Holmberg's and Chomsky's recent accounts of the phenomenon, and briefly discuss how Chomsky's proposals might extend to other instances of Movement. We will then propose an alternative account along the lines proposed in Tajsner (1998) for Polish scrambling. Finally, we will cross the formalist's demarcation line and show how syntactic displacement and word order variation might be accounted for from the functionalist's and cognitivist's perspectives, with reference to the terms and notions discussed by Kubiński (1999).

2. The question of autonomy

Before we proceed with the discussion of the 'good design' of the language faculty we cannot evade a more general remark on the question of autonomy. There has been much argument in the camp of formalist linguists in defence of the so-called Autonomy Thesis, which Newmeyer (1998) interprets as a composite of three independent small autonomy theses; the autonomy of syntax thesis, the thesis of the autonomy of knowledge of language with respect to language use, and the thesis of the autonomy of grammar as a cognitive system. The first of these is defined by Newmeyer (1998) in the following terms: "Human cognition embodies a system whose primitive terms are nonsemantic and nondiscourse-derived syntactic elements and whose principles of combination make no reference to system-external factors". The second specifies the position that "Knowledge of language ('competence') can and should be characterised independently of language 'use' ('performance') and the social, cognitive, and communicative factors contributing to use", while the third

subsumes the assumption that "Human cognition embodies a system whose primitive terms are structural elements particular to language and whose principles of combination make no reference to system-external factor" (Newmeyer 1998: 23f).

The question arises of whether the recent refinements of the goal of the minimalist program do not jeopardise the Autonomy Thesis so defined. If the good design of the language faculty is to meet the legibility conditions of the external performance systems, is it not against the three autonomy theses, or at least against any one of them? Let us consider them in turn. The essence of the autonomy of syntax hypothesis is that formal syntax does not make use of semantic and pragmatic categories, and uses only its own primitive terms. Furthermore, it should make no reference to extra-linguistic factors and categories used to refer to these factors in explaining syntactic facts. It seems obvious that the question of good design and the postulate of meeting legibility conditions do not undermine the autonomy of syntax. The question of good design is an empirical question. There is no pre-determination of what good design is on the basis of the properties of the external factors. The thesis behind the question of good design is that there may be some optimal way in which the language system could interact with the performance system, and this might be explored, but this does not mean that the properties of the language faculty may be explained **in terms of** extralinguistic factors. Likewise, the fact that the interface levels contain elements which are interpretable by the other systems does not entail that these elements are not primitive and arbitrary but derived from performance factors. Chomsky's frequent analogy is with bodily organs; the fact that they have a function or a set of functions to perform in a body does not preclude a profitable description of a bodily organ exclusively in terms of its molecular or cellular structure. The formal elements of the interface levels may have a function ascribed to them by external systems. What is more, they may be designed to perform this function optimally, but the function itself, or its description, are irrelevant to the question of the organisation of the interface levels, "narrow (or formal) syntax", or the whole of the language faculty.

Let us now turn to the autonomy of the linguistic knowledge thesis. The essence of the postulate is that the knowledge of language must be clearly distinguished from the use to which it is put. Let us note first that there is no doubt that the use of language is motivated by extralinguistic factors. Thus, for example, the pressure from the parser, a part of the external processing system, may be shown to motivate the preference to use a perticular form, not another. As exhaustively discussed by Hawkins in his impressive book *A performance theory of order and constituency* some performance choices are preferred because they meet the requirements of the parser. Central to Hawkins' system is the principle of Early Immediate Constituents (EIC) by which "for performance it is predicted that IC orderings will be preferred in the unmarked case whose ratios are most optimal (...)" (Hawkins 1994: 415). This conclusion cannot challenge the thesis of the autonomy of knowledge of language simply because it does not relate to the knowledge of language at all, only to language use. Then Hawkins makes a further claim with respect to grammar: "For

grammars EIC makes a corresponding unmarked and marked case predictions for basic order" (Hawkins 1994: 415). Thus, it is not only language use but also the language system itself which responds to the pressure of the parser. This appears to be a problem for this thesis, but I would like to claim that this only appears to be so. The fact that over time there has been pressure from performance on grammar has only diachronic and evolutionary dimensions. A principle of grammar might have been shaped as a response to a parsing pressure, but once it entered the language faculty it is no longer a performance constraint but a principle of grammar, or a parameter value, and as such it must be part of Universal Grammar, or be acquired by a child, who has no access to the evolution or history of language.

How do these considerations relate to the question of good design and legibility conditions? For Chomsky the answer is not as straightforward as for Hawkins. In his own words "insofar as the thesis (that language is an optimal solution to legibility conditions) is true, information about other matters (sound-meaning connections, neurophysiology, etc.) may be helpful in practice–even indispensable–for discovering the nature of FL and its states" (Chomsky 1998: 9). If the nature of external systems was well understood, then the knowledge about them could, and should be used in the characterisation of the language faculty. However, external systems are not well understood, in fact they are rather poorly understood. As a result, the task of determining the optimal design to satisfy the legibility condition must be undertaken without any substantial help from the description of the external systems, and hence must be autonomous. The thesis of the autonomy of linguistic knowledge is thus not challenged by the recent goal of minimalist inquiry.

Finally, consider the thesis of the autonomy of grammar. The essence of the thesis is a conviction that the human mind embodies an autonomous cognitive system dedicated to language. At the same time, this system has always been believed to interact with other cognitive systems: "a grammar is a cognitive structure interacting with other systems of knowledge and belief" Chomsky (1975: 86). The language faculty has never been claimed a priori to be independent of general cognitive capacities. Rather, the relation between grammar and the other cognitive capacities has been an object of empirical research. Generative research has always paid much attention to the attested cases of speech deficits, aphasia, brain damage, developmental deficits, cases of linguistic deprivation and isolation, illustrating the disparity between linguistic knowledge on the one hand, and cognitive capacities, learning strategies, general intelligence, pragmatic competence, and the like, on the other. The literature is abundant in descriptions of relevant cases.[1]

[1] Cf. e.g. Pinker (1994), Newmeyer (1983), Smith (2000), Bickerton (1995), Calvin and Bickerton (2000), etc. For an opposite view, cf. Lieberman (2000), who presents a total critique of Chomsky's positions on modularity of mind/brain, the relationship of mind to body, the autonomy of grammar, language acquisition, Universal Grammar, and other related issues.

The autonomy of grammar is thus empirically verifiable. But, the possibility that the internal structures of the language faculty, or the principles operative in it, have parallels within cognitive systems external to language is not a threat to the thesis of the autonomy of grammar. Such parallels may exist, and their nature should be the object of empirical inquiry. Frequent criticism from the Cognitive Grammar camp, that generativists a priori claim that "human beings do not make use of general cognitive capacities in languages" (Lakoff 1987: 187) seems unwarranted. The thesis that "general cognitive capacities" are really used in languages, though plausible, has to be first empirically verified, but this is particularly difficult if it is quite unclear what these general cognitive capacities in fact are. Instead of starting the explanation of the facts of language with reference to alleged general cognitive strategies, the proponents of the thesis of autonomous grammar scrutinise the linguistic facts in their own terms. If the scrutiny results in the postulation of a good, optimal, or perfect design of the language system for the task of meeting the legibility conditions of the external systems, significant generalisations may be drawn. Hence, clearly, the goal of recent minimalist research is in full accordance with the postulate of the autonomy of grammar, just as are the other sub-components of the Autonomy Thesis.

3. The strong thesis

Let us now return to the question of how well language is designed in order to meet the legibility condition. If it were designed in an optimal way, we could talk of perfect or optimal design. This option would be expressed by the strongest minimalist thesis (1) below:

(1) Language is an optimal solution to legibility conditions.
(Chomsky 1998: 9)

As Chomsky notes, if the strongest minimalist thesis (1) were really true this would be a surprising and intriguing fact. A weaker thesis, and less surprising that (1), is that language is well designed to meet legibility conditions, but it still displays some imperfections, departures from the optimal design. Instances of imperfections would be characterised by one (or some) of the following (imperfect) postulates under (2):[2]

(2) Imperfect postulations

(i) there are significant linguistic levels beyond interface levels,
(ii) there are features different from those properties of sound and meaning interpreted at the surface,
(iii) there may be new features introduced by a syntactic computation,

[2] Such imperfect postulations have all been included in earlier, non-minimalist, generative models.

(iv) there may be relations entering syntactic computations different from those imposed either by legibility conditions, or by the natural features of the computational process.

There are two major alleged types of imperfections discussed by Chomsky (1998);

(3) Types of imperfections
(3a) imperfections involving the phonological component, and
(3b) imperfections involving narrow syntax.

Our major concern in the present context will be the set (3b), but we shall start from a brief consideration of the set (3a).

4. Phonological imperfections

The features of the phonological component seem to breach the optimal design in two distinct ways; first there is a global, conceptual imperfection arising from the relation of the phonological component to narrow syntax, and its role in the language faculty. Next, there are some standard postulations related to the internal organisation of the phonological component and PF, which are instances of (2). Let us consider first the second class.

Syntactic computations are initiated with the operation known as initial numeration, which is a single operation of lexical selection. Lexical items are selected from the mental lexicon, along with the array of features they represent. A subset of features represented by initial numeration are "lexical" phonological features (morphophonemes, phonological units). These phonological properties are not, however, the ones which have to be interpreted at the relevant interface level, i.e. PF. The latter is better characterised as a "narrow" phonetic representation, which has to account for the properties of the combinations of "lexical" phonological features. We have a typical instance of a violation of the interpretability condition, through the postulation (2a), i.e. the presence of the "lexical" phonological features which are not interpretable at PF.[3] Next, the properties typical of the PF level such as prosodic structure and "narrow" phonetic features have to be introduced at the level of PF, which, in turn, is a violation of the inclusiveness condition, through the postulation of (2iii).[4]

The fact that the above specific "inherent" properties of the phonological component and PF exist is not surprising. Chomsky assumes that they are real imperfections of the language design, but they are understandable, if phonology is related to the Language Faculty in the way it is. In fact, the specific relation of the phonological component to LF is where the second, global, imperfection involving phonology may be found. Phonology has traditionally been considered a part of grammar, where grammar characterises the system of linguistic knowledge (competence) at different levels (syntax, semantics, phonology). With the introduction of a new term I-language (internalised language) in Chomsky (1986), there appeared a certain ambiguity of the term I-language, which has only recently been properly explicated. Chomsky (1999) notes that "there is a clear conceptual distinction between the state of the language faculty, on the one hand, and the instantiation of the initial state with parameters fixed, on the other. (...) The actual state of one's language faculty is the result of interaction of a great many factors, only some of which are relevant to inquiry into the nature of language" (Chomsky 2000: 123).

The study of language regarded as an empirical, cognitive science focuses on the I-language in the latter sense, the instantiation of the initial state (e.g. Universal Grammar) and the parameters fixed in some specific way.[5] Phonology appears to fall out of the scope of a thus (narrowly) defined I-language, and it only constitutes a part of I-language in its broader sense. The phonological component has a specific role to reflect the properties of the sensorimotor system; it is a part of competence located at the frontline, directly facing the performance system. Furthermore, it constitutes a subsystem of a broadly defined I-language, which is largely language-specific, and part of a marked periphery, not core grammar, to use some more traditional terminology. As part of idiosyncratic periphery, it neighbours mental lexicon, and as part of competence it neighbours pragmatic knowledge, which interacts with the other performance system at the conceptual-intentional interface.

The faculty of language, the mental organ, is characterised exclusively in terms of the narrowly defined I-language. Hence, there is sense in talking of language (specifically defined) without phonology. Sign languages used by deaf people are perfect examples in this respect. They represent all the features of natural languages except for the sound system, which is replaced by a different medium. They are expressions of the mental organ, the language faculty, which represent the instantiations of the initial state (UG).[6] Writing systems are another, trivial example of "soundless languages". The relation of the language of thought to natural lan-

[3] Chomsky's (1998) Interpretability condition: "LIs (lexical items) have no features other than those interpreted at the interface, properties of sound and meaning" (Chomsky 1998: 27.)

[4] Chomsky's (1998) Inclusiveness condition: "No new features are introduced by C_{HL} (syntactic computation)".

[5] Parameters may be understood in a different sense than in a P&P model to refer to a category we might call *lexical parameters*. Thus, the properties of expressions are completely drawn from the lexicon through the selection of (possibly inflected) lexical items. The idiosyncratic, language-specific lexical features determine the process of grammar selection in language acquisition.

[6] Sign languages may be pidgins and creoles, as discussed by Pinker (1994). Only the latter have characteristics of natural languages, of course.

guages is also an issue pertaining to the question of the isolation of phonology from the language faculty.[7]

The presence of the phonological component in the broadly defined I-language may thus be seen from the above characterised perspective as an imperfection of the language design itself. On the other hand, the presence of the phonological component per se may be envisaged as the language faculty's answer to the needs of one of the external systems – the articulatory-perceptual system. It should, then, rather be seen as a fulfilment of a legibility condition, hence a means of meeting the strong thesis (1). As such, the presence of the phonological component should be part of the optimal design, not an imperfection. After all, it is the phonological component which in some way makes structures "usable" by the performance system. These conceptual matters, which display some theoretical tensions internal to Chomsky's system, are not settled and require further elaboration.

5. Syntactic imperfections

As already noted, narrow syntax is not free from (apparent) imperfections either. Chomsky considers two examples of possible syntactic imperfections: (i) uninterpretable features of lexical items, and (ii) the "dislocation" property (movement). In the present context we will consider only the latter property. The postulation of movement may be seen as an imperfect postulation of the type (2i) above, since in its pre-minimalist version at least, it implies a pre-movement level of structure (D-structure), which is different from any of the interface levels. Furthermore, the displacement property, i.e. the rule *Move*, may be seen as a computational complexity, which should be avoided on general grounds. Specifically, it should give way to a simpler operation *Merge*, by virtue of the conclusion that "simple operations pre-empt more complex ones" (Chomsky 1998: 18).

A specific case which could be used to illustrate the preference for *Merge* (combined with *Agree*) over *Move* is in the case of a pair of structures like (4)-(5), below:

(4) I believed [$_T$ a solution to be found].
(5) I believed [$_T$ there to be a solution found].

Sentences (4) and (5) are the two options derivable from the earlier computational stage (6)

(6) [e to be a solution found]

The displacement at this stage of derivations has to meet the EPP requirement that some nominal phrase occupies the position of Spec of T. Hence either *there* is merged in Spec. T, or *Move* applies. The grammar prefers *Merge* over *Move*, thus (5) is derived on condition that the expletive is available in the initial numeration, i.e. that it has been originally selected from the lexicon. If the expletive is not available then *Move* applies and the phrase *a solution* is moved to Spec. T to satisfy the EPP and (4) is derived.[8]

Nevertheless, the interpretation suggested in Chomsky (1998) and Chomsky (1999) is that movement, which has been part of the descriptive apparatus of generative grammar since its early days, is the grammar's response to the legibility conditions. This is a statement of great importance, since as such, by virtue of (1), it should not be considered an imperfection at all, but rather a part of optimal design. Very significantly, displacement is now believed to have external motivation in terms of the properties of semantic interpretation. This is a radically new perspective for the analysis of syntactic movement.

6. Movement, external motivation, and object shift

Recently, Chomsky has become more explicit about the nature of this external and semantic motivation for movement. Until the publication of the Minimalist Programme, these issues had only been vaguely hinted at, as problems of considerable importance, which stayed clearly outside the immediate interest of any competence-oriented inquiry. They had often been claimed to be purposefully 'swept under the rug', and left for some future study. Presumably, with the postulation of the idea of optimal design and interface legibility conditions the time for this kind of study has finally come. Thus, properties of topic-comment structures, presupposition, focus, specificity/non-specificity, new/old information, which have always been discarded as simply discourse-oriented, hence without any relevance for the description of I-language, are now given more significance as properties involving the "edge" of constructions, hence linked with formally determined properties of structures.

The external motivation of movement is, however, significantly delimited. A very comprehensive exposition of what Chomsky thinks of the role of this external motivation is given in his discussion of Holmberg's recent proposals with respect to an instance of displacement known as Object Shift. The content of Holmberg's generalisation, a well-known principle of the P&P framework is that "Object shift is possible only if the main verb raises out of VP".[9] Given the minimalist framework in which the functional projections AgrO and AgrS have been eliminated, the verb raising out of VP might only be to Tense, and thus object shift to the edge of VP would have to be counter-cyclic. The counter-cyclicity of this operation would fol-

[7] Cf. e.g. Pinker (1994), and Smith (2000) for discussion on the relation thought-language.

[8] The interpretation of Move as being more complex that Merge is derived from the fact that Move in fact is a combination of three more primitive computations: Agree, Pied-Pipe, and Merge.

[9] This is the form of Holmberg's Generalisation provided by Bobaljik (1995).

low from the fact that after the verb is moved out of VP to Tense, the derivation cannot involve any element of the VP (unless it is already at the edge of VP), according to the Phase Impenetrability Condition (PIC).[10] Holmberg anyway suggests that object shift is a phonological operation driven by the semantic interpretation of the shifted object, and the semantic interpretation is associated with such discourse-defined notions as new information, specificity/definiteness, focus, etc.

Chomsky finds such a formulation of object shift highly questionable, and his reasoning is very clear: "A 'dumb' computational system shouldn't have access to considerations of this kind, typically involving discourse situations and the like. These are best understood as properties of the resulting configurations, as in the case of semantic properties associated with raising of the subject to SPEC-T, which well may be related to those of OS constructions." Further he notes that "We may also say informally that he's running to the left to catch the ball, but such functional/teleological accounts, while perhaps useful for motivation and formulation of problems, are not to be confused with accounts of the mechanisms of guiding and organising motion. The same approach seems sensible in the case of OS. The computational system presumably treats it as an option (...), feature-driven by properties of v*, with the option expressed as optional choice of an EPP-feature" (Chomsky 1999: 26).

The above quotation may be taken as the exposition of Chomsky's view on the interaction between grammar and discourse. The motivation for a syntactic operation is not yet the explanation of the operation. The operation has to be found within the grammar itself in the formal properties of the computational system. The system has to accommodate means for deriving the options to be selected at the discourse level. In the case considered the formal properties are the presence of the feature EPP in prominent syntactic positions. Traditionally, one such prominent syntactic position has been the subject position, defined formally as Spec. of Tense. The presence of the EPP feature in Tense triggers the fronting of the subject, hence the movement is (formal) feature-driven, even if there is a teleological/functional motivation for this movement.[11]

Chomsky (1999) extends the EPP analysis to the cases of object shift. Thus, object shift is an optional operation which applies only in a specific case. The starting point is the assumption that the grammar contains two formal features, called INT, INT'. These features may be optionally assigned to a formal syntactic object, for example a direct object. If INT is assigned to an object, then it is interpreted in one way by the external (or interface) systems. If it is assigned INT', it will be interpreted in a different way. The parametric difference between OS languages (e.g. Scandinavian) and non-OS languages (e.g. English, or Romance) is that in the former, the object which stays in the VP in which there is no c-commanding phonological material (when the verb has been raised to the outside of v*P, and there is no phonological subject in Spec. v*P, i.e. when the object is at the phonological border of v*P) has to be assigned only the feature INT', while the feature INT is unavailable for it *in situ*. It may only receive the feature INT if it moves to the edge of the v*P by object shift. But this is only possible if v* is assigned an EPP feature to be checked, hence the movement has to be feature driven. In turn, the EPP feature may be assigned to v* if there is a purpose for it, i.e. if it has an effect on the outcome. In this case, there is a purpose for the feature EPP to be assigned to v*, because as a result the object may be shifted and get a different interpretation, i.e. INT.

The grammar is designed in such a way as to allow all the possible options. In an analogous situation in a non-OS language, an object within the VP may be assigned either the feature INT, or INT', hence there is no purpose for the feature EPP to be assigned to v*, and consequently there is no object shift to satisfy EPP of v*. Likewise, there is a reason for the EPP feature to be assigned to v* also in a non-OS language if the object carries a *wh*-feature. Then, its successive cyclic movement has an effect on the outcome, and therefore the object first moves to the edge of v*P. Finally, in a OS-language, there is no need for object shift to apply in an instance when the object is not at the phonological border of VP (i.e. when the verb does not rise out of v*P[12]). Then, the INT feature may be assigned to the object *in situ*, just like in non-OS languages. Thus the effect of the Holmberg's Generalisation linking the raising of the verb with DP object shift to the outside of VP is accounted for without the questionable external motivation.

To sum up, the parametric difference between OS and non-OS languages lies in that two different interpretations INT and INT' are available in the *in situ* position of the object which appears at the phonological border of v*P in the latter type of language, and not in the former type of language. The movement of the object is conditioned however by the assignment of the EPP feature to v*, which, in turn is possible only when the assignment of the EPP feature has an effect on the outcome. The latter formulation is an exposition of a general economy principle that "an optional rule can apply only when necessary to yield a new outcome" (Chomsky 1999: 28).

Let us consider what might be meant by "a new outcome" in the present instance. Within Chomsky's (1999) framework, a level for the evaluation of "new outcome" is the next strong phase, i.e. CP containing *vP. It is at this CP phase that the Spell-Out effects of object shift must be determined. What might be the "new out-

[10] Phase Impenetrability Condition: "For strong phase HP with head H: The domain of H is not accessible to operations outside HP, but only H and its *edge*, the edge being the residue outside of H-bar, either SPECs or elements adjoined to HP" (Chomsky 1999: 10).

[11] The functional motivation may be, for example, for the subject to be theme, even if indefinite (but specific), as in the contrast between *A boy was crossing the street* and *There was a boy crossing the street*.

[12] In the instances when the verb is raised to v* but the subject remains in situ in the Spec. of VP, v* is permitted to have an optional EPP feature, hence object shift is permitted, and it is in fact necessary due to a principle that "In transitive constructions, something must escape VP" (Chomsky 1999: 16).

come" of object shift in OS languages? Surely, the new outcome is some new functional interpretation assigned to the object in a new position. It is clear that a proper account of the intricacies of this new interpretation call for an analysis within a different domain, i.e. the domain of discourse. There certainly are subtle and complex matters to be considered which fall outside the scope of the internalist approach to language. These matters would have to be considered as part of the theory of performance with reference to both discourse-based and processing categories and notions. We postpone a brief discussion of such issues to the concluding section. For the present purposes, we will tentatively define this new functional interpretation as "thematic", dwelling on the standard "theme-rheme" opposition. Shifted objects in OS languages are interpreted as *thematic*, non-shifted objects as *non-thematic*, or *rhematic*. Consistently, non-shifted objects in non-OS languages may be either *thematic* or *non-thematic*.

There are two issues which have to be more carefully considered in the present discussion. First, there is the question of the relation of the so-defined "new outcome" to the concept of Logical Form. Second, there is the question of the status of optional rules. Let us start with the former issue.

7. Functional interpretation and Logical Form

Functional interpretation has standardly been considered independent of the formulation of LF. The domain of LF has been confined to the formulation of the syntactically determinable aspects of meaning. Thus, it has a role in deriving such concepts as recoverability of movement and deletion by reconstruction or trace/copy – chain composition, scope determination, quantifier-variable relations, binding condition, Case-theta role associations, interpretable feature agreement/checking, etc. All these concepts are elements of the "logic of syntax". "Surface effects" on interpretation, notions such as theme, topic, focus, ground, or figure have not been part of the LF. The plausible position has been that such concepts do not change the internal "logic of a sentence" and only have a bearing on the interpretation of the sentence in the context of discourse. The minimalist interpretation of LF as an interface level which provides instructions to the conceptual-intentional system seems to be broader in this sense to include also instructions for functional information. Earlier, Chomsky hinted at a need for a separate level of structure to accommodate functional information: "Notice, that we are sweeping under the rug questions of considerable significance, notably questions about what in the earlier EST framework were called "surface effects" on interpretation. These are manifold, involving topic-focus and theme-rheme structures, figure-ground properties, effects of adjacency and linearity, and many others. Prima facie, they seem to involve some additional level or levels internal to the phonological component, post-morphology but pre-phonetic, accessed at the interface along with PF and LF." (Chomsky 1995: 220). Now, with the introduction of features like INT, which are to formally encode patterns of information

structure, it appears that the instructions for a functional/pragmatic interpretation may be part and parcel of LF.

The above points may be illustrated with reference to Chomsky's (1999) account of the displacement property. Chomsky (1999) crucially distinguishes two instances of dislocation. The first is instantiated by *Thematization/Extraction*, or the TH/EX rule, which is an obligatory rule operative in English in constructions like (7) and (8) below:

(7) There were several packages placed on the table.
(8) There were placed on the table several (large) packages.

Both (7) and (8) are derived from (9) below, by the dislocation of the object (*several (large) packages*) to the left, or right (extraposition):

(9) *there were placed several packages on the table

Structure (9) is ungrammatical in English, but comparable structures are grammatical in other languages, for example in Italian or Dutch.[13] The way to save (9) in English is by the application of the TH/EX rule. This rule is reminiscent of the normal, i.e. feature-driven, displacement of subjects and objects, but its crucial property is that it does not yield the usual surface-semantic effects (specificity, topic, theme, etc.). Thus, Chomsky (1999) assumes it must be a rule of the phonological component. Structure (9) represents thus the LF order, and the displacement has no effect on the LF, hence interpretation of the sentence is unchanged by the application of TH/EX.[14]

The rule contrasted with TH/EX is the familiar Object Shift of Scandinavian languages. While TH/EX is semantically neutral, OS affects semantic interpretation, so that the shifted object is interpreted differently from the unmoved object (in terms of theme, topic, specificity, etc.). Therefore, object shift must apply in narrow syntax, and not in the phonological component.

In view of the above comparison of the two instances of movement, it appears that the earlier postulate of the relegation of "surface effects" on interpretation entirely to a phonological component must be verified. An independent functional level may still be needed but its properties must already be encoded in narrow syntax in order to leave its mark on LF. A vivid analogy noted by Chomsky in this respect is with the visual system: "We may say that the function of the eye is to see, but it remains to determine the implementation; a particular protein in the lens that

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[13] Chomsky (1999) notes that the analysis extends to unaccusatives, e.g. *There entered the room a strange man*, or *There arrived in the mail a strange package.*

[14] The relevant generalisation in this respect is "Surface semantic effects are restricted to narrow syntax" (Chomsky 1999: 11).

refracts light, etc. Similarly certain semantic properties may involve dislocated structures, but we want to discover the mechanisms that force dislocation" (Chomsky 1998: 36). The presence of features INT and INT' in narrow syntax may have to, subject to parametric differences between languages, enforce displacement in narrow syntax. The formal features INT and INT' are probably just two of the features from the inventory of formal features made available to a language user. Their status remains unclear, however, an issue to which we return.

8. Optional rules

Let us now turn to the issue of optional rules. In Chomsky (1999) the status of object shift in Scandinavian languages is that of an option of the computational system. The option is the assignment of an EPP feature to v*. Generally, as a property of the computational system an EPP feature may or may not be assigned to v*. But, as already noted, the option is conditioned by the generation of some effect on the outcome. The option of the assignment of EPP to v* is not thus itself the parametrical difference between OS and non-OS languages. Rather, the parameter is the assignment of the feature INT' to a non-shifted object at the phonological border of v*P. In OS languages a non-shifted object in such a position must only be assigned INT', and not INT. In non-OS languages a (non-shifted) object may be assigned either INT', or INT, hence the condition of the assignment of EPP feature to v* is not met because the shift of the object to a new position would not result in a new outcome. But the option of assigning of EPP to v* is used in non-OS languages for successive cyclic A' (WH-) movement, since this movement results in a new outcome.

The option of the computational system we are considering is not thus the type of stylistic option considered by Poole (1996). The instances of optional movements considered by Poole, i.e. Stylistic Fronting in Icelandic and scrambling in Japanese, are "semantically vacuous", cost-free, optional movements. Some other characteristics of these stylistic displacements is that they are non-feature-driven, and non-chain-forming. Furthermore, Poole assumes they occur in narrow syntax, not in the phonological component, and their necessary reconstruction at LF consists in the deletion of the moved element. Of these properties of stylistic movements, only the application in narrow syntax is shared by object shift.

In the case of object shift in Scandinavian languages, we can only talk of the option of the computational system, but not of the optional application of the rule. If the INT feature is to be assigned in an OS language, the raising of the object applies obligatorily provided that the verb raises as well, i.e. when the object appears at the phonological border of v*P. Thus, the choice of INT and not of INT', as a feature assigned to an object, obligatorily triggers the movement of the object to the edge of v*P, under appropriate structural properties. Object shift may thus be characterised as a specific Last Resort operation in OS-languages; if it were not to apply, one possible interpretation assigned to an object, i.e. INT, would not be possible.

9. Some conceptual questions

Chomsky's (1999) account of object shift gives rise to a number of conceptual questions. Consider first the status of the features INT and INT'. Under Chomsky's (1999) characteristics they stand for two different interpretations and they are assigned to objects (or more appropriately to object chains) either in their base position or in a shifted position. The first question is what it actually means that they stand for two different interpretations. Extending our earlier remarks, it may be assumed that it means that they are formal features which "encode" the use of DPs as thematic, or non-thematic (in a broad sense) objects. In the context of our previous discussion of the optimal design of the language system, the role of these features will be to be recognised at the interface level as instructions for the external system to interpret appropriate DPs as thematic or non-thematic, respectively. But, if INT and INT' are purely formal features, which should not be globally linked to the properties of the discourse, then the encoding must be based on some formal grounds.[15] This formal basis for the features appears rather unclear.

The next question is whether all objects may in principle be shifted. Let us assume it is the case. Then, subject to parametrical difference, the shifted object is assigned INT, or not. The former occurs in an OS language, the latter in a non-OS language, for example English. Next, if the shifted object is not assigned a feature INT in a new position, like in a non OS language, then the derivation crashes because the movement has no effect on the outcome. As a result, v* is not assigned an EPP feature, and the relevant nominal (presumably D) feature of the shifted DP may not be checked.[16]

One problem with this account seems to be, however, that the movement of the object itself has to be feature-driven. If the v* has no EPP feature, then the DP has no reason to be shifted to the Spec. of v*P position in the first place. The second problem is that, as noted by Holmberg (1999) on which Chomsky (1999) relies for data, in Mainland Scandinavian languages, unlike in Icelandic, only some full noun phrases (though all pronouns) may be moved by OS. This fact may be interpreted as an indication of the restriction on the assignment of INT to some shifted objects. Thus, there appears a question why certain shifted objects may not be assigned INT in MSc.

Finally, there is the question of the introduction of features INT and INT' in derivation. Should they be present in initial numeration? Presumably so, given the postulate that no new features are to be introduced in computation. But, then are they associated with some inherent lexical features of particular types of nominal phrases,

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[15] The postulate of not defining INT in terms of any discourse-defined properties is the clue of the autonomy thesis and the essence of Chomsky's critique of Holmberg's new account of object shift.

[16] In the framework of Chomsky (1999), which does not postulate any formal features, the content of EPP is characterised by an un-interpretable ϕ feature (person).

and are they still assigned to objects, or rather checked on the objects? If checked, then in relation to which head?

There may be different suggestions how the above questions might be answered. Perhaps not all of these questions are real but only apparent conceptual problems. It seems however that the account of the relationship between the properties of the formal syntactic structure, specifically the operation of object shift in Scandinavian languages, and the properties of information structure in these languages, proposed in Chomsky (1999) is a little complex, and quite demanding for the minimalist framework. In what follows I would like to propose an account which seems conceptually simpler, and still compatible with the minimalist stand.

10. The proposal

The crucial assumption made by Chomsky (1999) is that EPP may non-parametrically be a feature of v*. However, this feature may only be assigned to a v* under a condition that the derivation using the position of Spec. of v*P in which the EPP feature may be checked must affect the outcome. Thus, the EPP is a feature of v* in the instance of object shift in Scandinavian languages, but only under successive cyclic, feature-driven movement in English. The most relevant case of the latter is wh-movement, and the present account is a spectacular divorce of wh-movement from the feature composition of the C head. If that strong conceptual move was not made, then for English the option of the presence of the feature EPP in v* would have little consequence.

In Tajsner (1998) I propose an account of Polish scrambling exemplified by structures like (10) and (11) below:

(10) Ania Tomka widziała w kinie.
Ania $\text{Tomka}_{\text{ACC}}$ saw in the cinema
'Ania saw Tomek in the cinema'

(11) Ania Tomkowi kupiła loda.
Ania $\text{Tomek}_{\text{DAT}}$ bought ice-cream
'Ania bought Tom an ice-cream.'

The status of Polish scrambling in instances like (10) and (11) above seems analogous to that of object shift in Scandinavian languages. (10) and (11) are different from the SVO base form in that a direct object (in (10)), or an indirect object (in (11)) are moved to a pre-verbal position. The movement is optional in the sense of using an option of the computational movement, but obligatory in the sense of resulting in a necessary change of interpretation. Thus, the scrambled objects are necessarily interpreted as specific or thematic, i.e. previously mentioned or defined (not necessarily definite).

In Tajsner (1998) I consider a range of possible characterisations of the content of the feature responsible for Polish scrambling in cases like (10) and (11). One candidate is Webelhuth's (1992) feature [F]. Under Webelhuth's account of German scrambling, scrambled DPs must be unfocused, i.e must carry the feature [-F] since they cannot bear focal accent. Polish scrambled structures do not share these characteristics, though, as evident from the fact that scrambled DPs in Polish may carry focal accent.[17] Next, dwelling on Zubizarreta's (1994) analysis of Spanish Clitic Left Dislocation structures, Tajsner (1998) discusses an account in terms of the feature [+Specific] for Polish scrambling. A framework suitable for such an account might be Diesing's (1992) theory of indefinites. Thus, it might be assumed that the candidates for a scrambled position in Polish must be characterised by the possession of a lexical feature [+Specific][18]. The problem is however, with the lexical characterisation of the feature [+Specific]. Unlike English, Polish does not possess a definite and an indefinite article, thus it would not be possible to apply a lexical redundancy rule specifying that any DP with a [+definite] head is also [+Specific].

One option would be to admit that Polish has empty equivalents of the definite and indefinite articles. An empty definite article, along with a lexical specificity modifier *pewien* (some), lexical demonstratives *ten, tamten* (this, that), and lexical numerals would have a feature [+Specific] in its feature composition.

This option is rejected in Tajsner (1998) as involving an unnecessary postulation of abstract elements, and aiming at the cross-linguistic unification of the account "at all costs". Instead, I adopt a more traditional approach under which there are cross-linguistic differences in the strategies that languages adopt for the realisation of the category 'definitness'. While in English this category is determined lexically, in Polish it depends on word order patterns. More specifically, Polish has syntactically defined positions which must be interpreted as 'specific', or rather the phrases appearing in such positions must be interpreted as 'specific'. But the interpretation is not the business of formal syntax. Rather, the appearance of a phrase in such a position at the interface level is an instruction to the external system to interpret it in some specific way, as old information, or topic for example.

The positions under discussion have to be determined formally, however, i.e. there must be a formal feature appearing there which 'attracts' a phrase, and checks its feature. In Tajsner (1998) this role is played by a strong formal feature Δ (delta), an equivalent of EPP (feature D), which parametrically, emerges in two AGR posi-

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[17] For example, *Ania TOMKA widziała w kinie*. For discussion see Tajsner (1998:164f).

[18] Enç (1991) suggests that specificity should be handled in terms of the feature [Specific], which is a lexical feature represented by an additional index. Phrases marked as [+Specific] satisfy a *Familiarity Condition*, which requires that the phrase be 'discourse' linked with some referent. We assume that such 'discourse linking' violates the Autonomy Thesis, and is a proposal close to Holmberg's account of object shift.

tions; AgrS and AgrO. The computational option in Polish is that either the same phrase, for example subject DP, overtly rises first to AgrO to check the first occurrence of Δ, and then to AgrS to check its second occurrence, or the object checks the lower, and the subject the higher occurrence of Δ. The results of the two computational options would be a SVO, or a scrambled SOV orders of major constituents. There is no special designation of any of the phrases for the appearance in 'thematic' or 'specific' positions. Thus, in the initial numeration there is no feature [+Specific], or [+Thematic] specifically attached to any lexical item, as a prerequisite of a specific (thematic) interpretation. Such a designation would be a form of "discourse-linking" which should be avoided.[19]

The framework presented above is couched within an AgrP-based structure, which has been abandoned in recent minimalist accounts. A possible adaptation of this framework might thus involve the elimination of the two Agr phrases and the location of the feature Δ in v*, and the movement of the object to the edge of the v*P, rather than to Spec. of AgrO. Furthermore, it is possible to use the feature EPP for Polish also, instead of Δ, for a more unified exposition.[20] The crucial assumption of the earlier framework which we would like to retain is that the feature EPP is parametrically present in v* in Polish, but not in English. We believe the analysis may be extended to include OS (Scandinavian) languages, so that the instance of object shift discussed above might be unified with the cases of object scrambling in Polish.

The parameter of difference between English on the one hand, and Polish and OS languages on the other, lies then in the presence of the feature EPP in v* in the latter and not in the former. It is unlike in Chomsky's (1999) account where the paramaterical difference consists in the obligatory assignment of the feature INT' to an non-shifted object at a phonological border of a VP in OS languages. We think the proposed account has a few advantages. First it eliminates the features INT and INT', whose status seems controversial; as formal features they seem to have no lexical basis and hence their presence in initial numeration is not explained. Second it eliminates a need for a rather dubious motivation for the appearance of the feature EPP in v* in English in terms of the "effect on the outcome". This "effect on the

[19] In Tajsner (1998), the account is extended to Polish fronted complements and adjuncts which may also be interpreted as thematic at the grammar-external level of FS (functional structure). Consequently, the characterisation of the formal featureΔ is not in terms of the feature [+nominal], like an EPP, but in terms of the feature [+M], which may be checked by any maximal expansion of a lexical category. Additionally, the feature Δ is associated lexically with any predicational verb, but not with a presentational verb, like e.g. *pojawić się* ('appear'), due to the fact that presentational verbs do not trigger XP raising.

[20] It is possible that EPP is a nominal variant of a more general Δ feature. We would opt for a traditional nominal content of EPP, which under some recent formulations seems to lose its strictly nominal characterisation (e.g. if it is assumed to be a feature responsible also for successive cyclic movement of any wh-phrase).

outcome" may only be recognised, as it seems, within the external system of interpretation, at some functional level.

If object shift in Scandinavian languages was to be accounted for in terms proposed for Polish scrambling then there remains a question of the structures in which the verb is not raised out of v*P. As a result, the object is not at the phonological border of v*P, it is v*P-internal. Under Chomsky's account, the object may then be freely assigned either INT' or INT, and the EPP need not be assigned to v*. There is no object shift in such cases, as generally predicted by Holmberg's Generalisation. The situation is illustrated by examples (12) and (13) from Danish below:

(12) Peter købte den ikke.
Peter bought it not
'Peter did not buy it'.

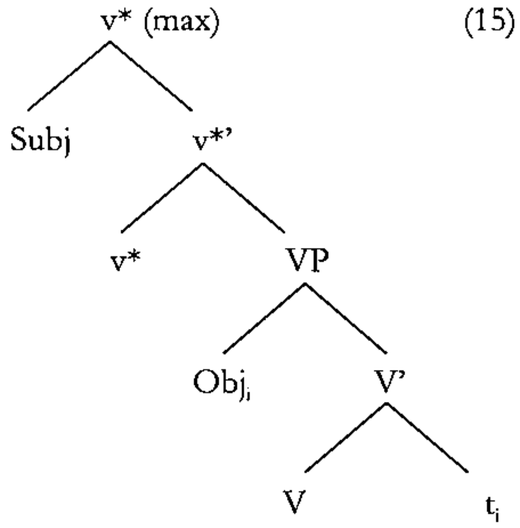
(13) Hvorfor har Peter ikke købe den?
why has Peter not bought it
'Why hasn't Peter bought it'

In (12) the verb and the object are raised, while in (13) they both stay within v*P, as evident from their positions with respect to the negation element *ikke*. If however, as we propose, EPP is parametrically present in v* in Scandinavian languages, then there is a question of how it is checked in structures like (13), without overt object movement.[21] It may be possible to have recourse to the analysis proposed in Tajsner (1998) for Polish scrambling; the subject DP checks the EPP in v* on its way to the higher position of Spec. of Tense where it checks also the EPP of T.

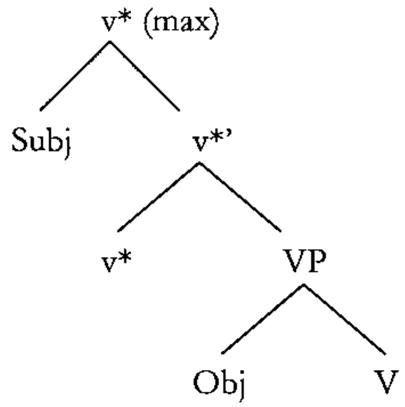
It still has to be determined how the object has its Case feature checked, when it is not moved to the outer Spec. of v*P by object shift. In the framework of Chomsky (1999), unlike in Chomsky (1995), there are no covert LF movements, hence objective (structural) Case checking cannot be performed by a covert movement to T in the LF. Case is a sub-case of Agreement, hence may only be checked in a Spec.-Head relationship with the verb, and such a relationship may involve a raising of the object from the complement to a specifier position within the lower VP shell, as in (14) below, or alternatively, a base generation of the object in the Spec. of the lower VP shell, as in (15):

[21] Where v* is ϕ-complete, that is a v with a complete set of ϕ-features, transitive light verb v or experiencer (Chomsky 1999: 6).

(14)



(15)



11. Beyond formal grammar

The postulation of legibility conditions of the interface levels for meeting the requirements of the external systems may be a sufficient motivation for at least a brief, and cursory look beyond the fences of formal grammar. A dislocation property, which in accordance with Kayne (1994), we believe to be a prerequisite for word order variation, whether perceived as part of optimal design, as we would prefer, or, just on the contrary, as an imperfection of the language system, may be a vehicle for carrying specific functional needs. An analysis of word order in functional terms enjoys a long and fruitful tradition, dating back to the Prague School, and is still alive in numerous varieties of functional grammar.

Although generally akin to the mainstream of the functional approach, Cognitive Grammar has shown surprisingly little interest in word order phenomena. In his interesting work on the cognitive approach to word order in English and Polish, Kubiński (1999) considers it to be a sin of omission on Ronald Langacker's part, even more puzzling given that his theory "attempts to show in minute detail how different aspects of language structure are rooted in more basic cognitive experience and how progressively more complex composite units may be assembled out of simpler symbolic units (ultimately rooted in basic cognitive experience) by speakers who rely on their cognitive expertise and on their mastery of conventionalised linguistic units" (Kubiński 1999: 8).

One fundamental difference between generative and cognitive linguistics, implicit in the above characterisation of the aims of Cognitive Grammar is that the latter does not systematically distinguish between competence and performance, hence the production and processing of any utterance is a reflection of the same cognitive strategies which underlie the language system itself. Despite this gigantic methodological dissonance, one can still formulate a set of simple questions: how can the

variations of word order be perceived by the speaker/hearer? What cognitive/functional relevance may they have? How can a difference in a location of a sentence constituent or even a single word, e.g. a verb, be interpreted?

Apparently, Cognitive Grammar has not been very conclusive on the issue. As noted by Kubiński (1999), the standard functional grammar's position that many linearization hierarchies are connected with the idea that some positions in a sentence structure are more salient from the speaker's point of view (i.e. are more topical, or thematic), can hardly be translated into Cognitive Grammar in terms of its leading *figure/ground* opposition. In Langacker's (1987) terms: "...a figure within a scene is a substructure perceived as 'standing out' from the remainder (the ground) and accorded special prominence as the pivotal entity around which the scene is organised and for which it provides a setting" (Langacker 1987: 120). This opposition, which underlies a host of distinctions in CG, e.g. *profile* versus *base, trajector* versus *landmark*, and *autonomous* versus *dependent* elements in a composite structure is too general to handle the range of specific word order problems (cf. Kubiński 1999: 40).

More promising, it seems, may be the notion of the *mental space*, and a specific instance of the *current discourse space*. "This mental space comprises those elements and relations construed as being shared by the speaker and the hearer as a basis for communication at a given moment in the flow of discours" (Langacker 1991: 97). We may interpret these notions in the following way. The speaker may prefer to put, for example, an object before the verb, i.e. use an SOV order in order to mark the object as element of the current discourse space.

Still another interpretation of the changed word order might be to link it to the idea of *conceptualisation*. As discussed by Kubiński (1999), who follows the ideas of Verhagen (1990), these elements which appear earlier in a sentence are activated earlier in discourse and are conceptualised prior to, and independent of, those elements which appear later in a sentence. Conceptualisation is here a necessary cognitive strategy; in consists in the identification by the hearer of the linguistic units and the relationship between them. The role of a specific word order would thus be to represent a sequence in which symbolic expressions are identified and conceptualised by the hearer. An important concession which a cognitive approach appears to make in this respect is however, that the sequences presented to the hearer are identified and integrated, i.e. conceptualised, by comparison with the units and schemata which are *entrenched* in the memory of the hearer. Thus, there is a system of entrenched schemata in the mind of the language user, independent of the actual performance (cf. Kubiński 1999: 73ff).

Finally, there is a line of reasoning in Cognitive Grammar related to word order differences which links it with the easiness of language processing. The arrangements of the items in an utterance should guarantee the greatest ease of processing. Thus, this arrangement should reflect the natural arrangements of the selected aspects of the reality, i.e. it should be *iconic*. Those elements which are easier to con-

ceptualise, for example by virtue of being already mentioned, or shared by the speaker and the hearer, are easier to activate, hence should come first in a sentence. On the other hand, elements more difficult to conceptualise, should come later, since their conceptualisation and processing must be appropriately prepared (cf. Kubiński 1999: 188f).

In conclusion, the above brief survey of just a few of the possible interpretations of the variations of word order shows how much further work is still to be done on its appropriate characterisation in the cognitive/functional dimension. Inconclusive, as they may be, these considerations all seem to be variations of the same leitmotif; the fronted elements are interpreted as prominent with respect to the other elements of the sentence/utterance. The inconclusiveness of these postulations may only further confirm the formal grammar's stand that the characterisations of the grammatical options should be performed independently of their application in extra-linguistic systems.

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