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THE MINIMALIST PROGRAM AND A PERFECT SYNTAX

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AND A PERFECT SYNTAX
(REVIEW OF THE MINIMALIST PROGRAM)**

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1. Introduction

The Minimalist Program (TMP) is comparable to many of Chomsky's earlier major linguistic contributions.FN* This volume also powerfully integrates several strands of research into an exciting and intellectually seductive novel view of the field and proceeds to develop and elaborate sometimes in great detail various aspects of the resulting picture.

Chapter one, co-authored by Howard Lasnik is an overview of the final stages of the principles and parameters (aka government binding) theory, which already contains some hints of ideas to come. Chapter two (re)introduces the notion of economy, chapter three correspond to the paper that originally outlined the basic ideas of the minimalist enterprise and chapter four contains many further developments.

Chapter four very thoroughly revises an earlier paper ("Bare Phrase Structure"), the other three chapters are reprints with minor revisions of published earlier articles. This state of affairs of course results in repetitions and inconsistencies. In fact it results in much fewer repetitions and many more inconsistencies than might be expected purely on the basis of the bibliographical history. Each chapter rejects and revises much of the general framework of previous chapters, sometimes, especially in the case of chapter four, even that of earlier sections. But this is a "creative inconsistency" where each successive theory builds on and rebuilds the earlier ones. I find much of this highly inspiring, although it is well known, that many find it objectionable. Detractors can justifiably note that this style of writing led in TMP to numerous, sometimes more, sometimes less trivial inconsistencies and other related problems,

even internal to the various versions of the framework presented. But to make the point somewhat metaphorically, when I listen to a grand master piano player with a unique message, understanding and insight to communicate, it does not seem too important if he sometimes hits the wrong keys. And I wonder who would prefer the flawless alternative of the computer generated or similar rendition.

In what follows I will not attempt to point out such "false notes". Instead, I shall try to identify some major features of TMP that may not be fully justified and concentrate on comparing this approach with an alternative that is related in spirit but leads to a rather different theory of grammar.

2. Some features of the minimalist program

The original paper "A Minimalist Program for Linguistic Theory", now also chapter 3 of TMP, brings together at least three major lines of research. First, there is a set of ideas concerning phrase structure and in particular specifiers. One of these ideas is the project of restricting the set of possible structural relations. An important suggestion is the elimination of the notion of government, a central concept in the Principles and Parameters theory. No direct relation is taken to hold between a head (eg. a verb) and the specifier (eg. a DP subject) of another head. Another is checking theory: syntactic movement (the most important among the descendants of the transformations in a sixties style transformational grammar) takes place only when forced, and it can be forced only by the need to establish a specifier-head (checking) configuration between certain features of the elements involved.

The second major element of the mixture is the restriction of representational conditions to the interface levels. It is a standard assumption that syntax relates the articulatory/perceptual- and the

conceptual-interpretive systems by providing instructions for these at two interface levels: Logical Form (LF) and Phonetic Form (PF) respectively. Optimally, no conditions should hold at other levels, or essentially equivalently, no additional level of syntactic analysis should be postulated. Furthermore, we might hope to show that most, or perhaps all, interface conditions reflect interpretive requirements, that is they are consequences of the fact that syntax interacts with external systems with given independently motivated properties.

The third major ingredient is the idea of economy of derivations and representations, already reintroduced in the previous chapter. Economy of representation is simply a principle of full interpretation at the interface: "every symbol must receive an "external" interpretation by language independent rules". Economy of derivation comprises a set of diverse conditions, for example: derivations must be as short as possible, steps in a derivation must bridge the smallest possible distance, movement takes place only if forced by some checking requirement and takes place as late as possible in the derivation.

3. Derivations and Representations

Some readers of Mind and Language with encyclopaedic memory might remember a discussion in this journal in 1987 relating to Chomsky's then recent book "Knowledge of Language". My contribution to the discussion consisted in an argument based on the theory of thematic/"theta" roles, that the basic syntactic level is not D-structure (the standard view at the time), nor S-structure (as some have suggested) but LF. Chomsky in his answer attacked the view that all syntactic levels other than LF are dispensable and that the D-structure to LF (via S-structure) derivation is not real. These arguments were somewhat misdirected, since the proposal he

criticised did not dispense with these theoretical entities, it only suggested that in place of the standard derivation we should substitute a system where S- and D-structure are abstracted from LF via some algorithm/ derivation.FN1 A couple of years after this debate I did in fact start to argue for the related stronger claim that Chomsky attacked, at least with respect to D-structure.FN2

Chapter 3 of TMP eliminates D-structure on the same grounds as Brody 1993.FN3 It also makes the further step of eliminating S-structure as a level where representational conditions can hold by successfully restating the relevant restrictions at LF. Eliminating D- and S-structure are precisely the hypotheses that Chomsky once argued against in connection with my proposal in this journal, and of course these steps entail also the (weaker) position I took at the time, that LF is the "basic" syntactic level of representation.

The theory of TMP does not embrace, however, a position that is different in every respect from that of Chomsky 1987. In particular, both publications assume the existence of syntactic derivations relating the lexical input to the interface level LF. But, in my view, this is precisely one of the aspects of the overall organization of the grammar in TMP which is unjustified, and probably wrong. I argued in Brody 1995aFN4, that derivations and properties of LF representations duplicate each other (for example movement and chains express the same relation) and that therefore a parsimonious theory of syntax should dispense either with representations or with derivations. I opted for the representational alternative, others have since explored the derivational approach. The representational view still seems preferable to me on general grounds partly because it is more restrictive than the derivational theory in that it does not allow reference to rule order relations. Thus it rules out in principle the so-called feeding-bleeding relations in rule application sequences. Such relations do not seem

to exist in syntax at all, but we would expect them to be commonplace on the derivational theory. (Note that this issue is different from the question of how the order of rule application is determined.) Independently of the choice between the fully derivational and the fully representational theory, it is clear that the framework of TMP, which postulates both representations and derivations, is the least restrictive and hence in principle the least explanatory of the three approaches.

I will not look again at the main argument for derivations based on the properties of successive head-movement presented in Chomsky 1987, which reappears also at several places in TMP. I have discussed in detail and rejected this in Brody 1995a, pp 35-40. In this work I also noted that derivational economy conditions are generally quite easily restatableable in representational terms.

The Principles and Parameters theory had a characteristic forking organization, that the theory of TMP inherited. The derivation proceeded to S-structure, which served as an input to the phonological component and then continued to LF. The minimalist theory eliminates S-structure as a level where representational conditions hold, and allows the phonological --now "Spellout"-- (sub)module to apply in principle to any point of the derivation. Like the Principles and Parameters theory, this framework incorporates a distinction between (pre S-structure/ pre Spellout-point) operations that constitute "visible" input to phonology and (post S-structure/ post Spellout-point) "invisible", covert operations. The distinction was natural within the earlier framework: syntax consisted of the D- to S-structure mapping and was overt, while the two interpretive components (S-structure to LF and to PF) were inaccessible to each other. But the assumption is less natural in TMP.

It is less natural because TMP incorporates the insight that

there is no stipulated difference between the overt and the covert computations, --"computational procedures are uniform throughout" (p. 229). (This is not contradicted by the fact that covert operations in practice have different properties from the overt ones, due to the interaction of computation-independent assumptions, cf. also below.) Thus the Spellout-point is now not the divide that S-structure was between syntax and interpretation. It is an arbitrary point on the uniform syntactic derivation between the lexical input and LF. But this is strange: the relation between PF and LF is mediated by a Spellout component, together with some arbitrary subpart (potentially different from language to language and construction from construction) of the system of uniform computational procedures that assembles LF representations from lexical elements.

Other, perhaps more tangible, problems also arise in this setup. Less worrying are the recoverability issues. Various proposals have been made concerning the question of how lexical insertion of elements with phonological material might be prevented in the covert, post-Spellout syntax, where this would not result in any PF effects. Allowing this option, "John left" could mean for example "Mary said John left" with covert insertion of the elements of the matrix clause "Mary said...". TMP excludes this possibility by assuming that PF features must not be present at LF. This makes it necessary to stipulate that the Spellout operation, in addition to copying PF features (the minimal assumption), also deletes -- "strips"--these from the covert part of the lexicon to LF computation. In the case of post Spellout-point lexical insertion PF features cannot be deleted and will illegitimately reach LF.

It is not clear, however, why PF features could not be ignored by the interpretive component at LF, after all in the framework of TMP the syntactic computation must be able to ignore them. (There is a more general issue in the background here: namely what are

the units for the principle of "full interpretation".) Furthermore, even if PF features must be deleted from the syntactic computation, optimally we would expect this to happen freely. Restricting the option to the Spellout point seems to exchange the stipulation against covert lexical insertion for another.

A universal global recoverability condition that relates PF and LF may well be an acceptable alternative answer to the issue of covert lexical insertion. A more serious problem is again the looseness in the theory. Empty category (ie. category without phonological material) insertion for example is now possible both overtly and covertly, but the additional freedom allowed here is not justified by any arguments in the literature establishing its necessity. Similarly, if properties of movement in fact differ in the overt and covert part of the syntactic derivation, then covert type movement (feature movement) can in principle occur both before (cf. Watanabe 1992, quoted approvingly in TMP, p.264.) and of course also after the Spellout point.

In the fully representational theory, these problems do not arise. Since there is only a single syntactic representation, LF, and no derivations, Spellout can necessarily only apply to this level. This creates however a different problem: LF was standardly taken to be a level that is different from S-structure: in both the principles and parameters and the minimalist theory movement rules operate between S-structure/Spellout point and LF, just like between D-structure/lexical input and S-structure/Spellout point. If movement rules make LF different from S-structure, then LF can be the Spellout point only if Spellout contains an (inverse) movement algorithm. But given the fact noted above that movement rules duplicate LF chains, the inverse movement approach seems equally incorrect: it simply places the duplication into a different component of the grammar.

To resolve this difficulty, without denying that covert movement relations in crucial respects form a natural class with overt movement relations, I argued that covert movement relations correspond to LF chains just like overt movement relations, but LF and S-structure/Spellout point do not differ with respect to the placement of phonological material. (Others argued against the standard position of the principles and parameters theory that overt and covert movement relations have enough properties in common to consider them a natural class, now also TMP partly rejects rejects the claim --for A'-relations--, but I believe incorrectly.FN5) I referred to the relevant type of chains as "expletive-associate" chains, where a lexical or empty expletive element carries the features of its associate chain-mate. Interestingly, chapter 4 of TMP proposes a characterization of covert movement, "feature movement", that corresponds exactly (apart from certain fairly technical differences and the choice of the derivational idiom) to the expletive-associate chain proposal. Under the feature movement hypothesis, like under the expletive-associate chain account there is no covert displacement of phonological material in the grammar. It becomes then particularly difficult to see, why the Spellout point should be distinct from LF, since with respect to the topology of the phonological material the two structures cannot differ. And of course if the Spellout point is in fact LF then it becomes even more difficult to assign a role and a *raison d'etre* to syntactic derivations.

4. Perfection

According to TMP then, a computational system, part of linguistic competence puts together from lexical items the interface representation LF. All representational conditions hold at the

interface levels and beyond. Syntax is taken to be a near perfect system where the only imperfections are those, that the external interacting systems force on syntax.

For example TMP takes the existence of the rule of "Move" (ie. movement transformation) to be such an imperfection. It assumes that optimally lexical items would be assembled into syntactic structures by the relatively simple operation of "Merge". Move is due to "'extraneous" conditions..., conditions imposed on [the computational system] by the ways it interacts with external systems. That is where we would hope the source of "imperfections" to lie, on minimalist assumptions" (p. 317)

Similarly, once we have Move, TMP takes covert post-Spellout point movement of features (in my terminology expletive-associate chains) to be the optimal case. TMP introduces two (I believe) alternative hypotheses concerning pre-Spellout point movement of more than the grammatical features involved in checking relations (ie. movement of full categories together with their phonological material). One of these is that such movement is due to a special checking feature. Another assumption is that it is due to PF requirements. "...only PF-convergence forces anything beyond features to raise. If that turns out to be true or to the extent that it does, we have further reasons to suspect that language "imperfections" arise from the external requirement that the computational principles must adapt to the sensory-motor apparatus, which is in a certain sense "extraneous" to the core systems of language as revealed in the [lexical input to LF] computation" (p.265).

The view that external systems force imperfections on syntax is rather surprising. I think the desirability of this idea fades when it is compared with an alternative that is based on more standard methodology. According to this alternative picture, the observed

imperfections are only apparent, and the fact that they show up is due to the interaction of otherwise "perfect" subsystems. This view is of course more restrictive and therefore preferable if facts allow us to maintain it. Let me refer to the framework that rejects the idea of (externally forced) syntactic imperfections as "perfect syntax".FN6 I take syntax to be perfect in the sense in which for example the propositional calculus is perfect: a system with a simple set of primitives and axioms. Of course the nature of syntax remains an empirical question: syntax is one modul of a larger system of our mind-brain.

In the setting of TMP arguments based on general considerations similar to those in the physical sciences, like simplicity, symmetry, nonredundancy etc. are at last wholeheartedly accepted. Provisos that these features may be surprising properties in biological systems are not taken to weaken the force of such arguments any more and the issue such provisos raise is placed where it appears to belong: it is "a problem for biology and the brain sciences, which, as currently understood, do not provide any basis for what appear to be fairly well established conclusions about language" (p.2). But this background, it seems to me, removes any remaining general motivation to deviate from the standard methodology, according to which "data imperfections" do not point to imperfections in the underlying systems, but rather result either from the interplay of perfect systems or simply from our incomplete understanding of these.

Furthermore, in order to deviate from the optimal assumption of syntactic perfection, it would be necessary to demonstrate that this is in conflict with external requirements. But not only has this not been demonstrated, it is very unlikely (without of course being logically impossible), given the current state of our knowledge, that anything of the sort could be convincingly shown. This is because

the system of perfect syntax is not a priory given, whenever a perfect system is in conflict with external requirements, there is always a possibility that a different perfect system would not create the conflict.

For concreteness, let us look at the assumption in TMP that Move is an imperfection forced by LF checking requirements. If Move was really an imperfection, we would like to know, why it cannot be avoided by say, freely deleting checking features or by checking features being always generated in a position that is accessible without Move, etc. Further possibilities are easily imaginable and numerous: in order to demonstrate conflict between external requirements and Move-less perfection all would need to be excluded on principled grounds. Nothing like this has been established, or looks demonstrable. Remember also, that although the result would in some sense be interesting, it would not be a desirable one. (Similar comments apply in the case of the idea that overt Move of categories and phonological material is a forced imperfection. How do we rule out overt movement restricted to the Spellout component, how do we rule out free deletion of strong features etc, etc.)

Perfect syntax can be thought of as a theory that attempts to take the minimalist program at least in certain respects to its logical conclusion. It is therefore interesting to observe, that already at this early stage it is clear that the outlines of this approach will look completely different from the picture TMP draws. The step of disallowing the remaining (forced) syntactic imperfections of TMP might seem to be minor, but it naturally leads to the rejection of many of the central differentiating features of this theory. Let me try to indicate very sketchily and without any attempt at justification some major differences (cf. Brody 1995b,c for more discussion and initial arguments).

First, since perfect syntax does not allow imperfections, Move cannot be one. It is therefore necessary to find a different conceptualization for this relation. Given the representational nature of perfect syntax, one obvious alternative is the copy relation. Move creates LF copies in TMP, properties of Move can in principle be taken to be properties of the relevant copy relation. Importantly, unlike Move, the copy relation does not seem to be an imperfection: it appears to be a necessary feature in syntax, given its relation to the lexicon. Lexical items must be in a copy relation with their correspondants in a syntactic structure. An entry does not disappear from the lexicon when used syntactically.

Another approach might be to partly eliminate the Move relation from syntax. Although the point must of course be substantiated, which I cannot undertake here, I find this possibility worth exploring. Suppose that the conceptual-semantic interpretive system optionally takes two identical elements to be in the relevant "Move" relation (abstractly understood, not involving movement). In most, and perhaps all cases, there will be independently motivated principles violated if the wrong choice is made. It is generally assumed that the Spellout rule needs to know about the movement history of a derivation, since it needs to distinguish copies that are traces of Move from others. If the abstract "Move" relation is established only at a post-syntactical level L, then L and PF will need to be linked by a global recoverability condition. But such a recoverability condition between PF and some non-phonological level may be necessary anyway, given the natural inclusiveness condition of TMP, that prevents lexicon-extraneous marking of elements as having participated in a Move relation.

Secondly, the strategy of TMP appears to be to attribute nonoptimal syntactic properties to the Move relation, presumably on the assumption that Move is an imperfection in any case, hence the

fact that it shows non-optimal properties is not surprising. The more restrictive framework of perfect syntax cannot proceed this way. There are reasons to think that some of the putative properties of Move (e.g. c-command, last resort) may be more general and not Move-specific properties, others like "chain-uniformity" dissolve given an improved theory of phrase structure. Thus perfection in the domain of chain theory does not appear to be obviously out of reach either. A number of issues, mostly having to do with questions of locality, remain. These may be taken to provide evidence for the alternative where the "Move" relation between copies is syntax external.

A third difference between perfect syntax and TMP concerns economy conditions. In the system of TMP interface conditions will be satisfied "as well as possible", as measured and ensured by economy conditions. But if there are no (externally forced) imperfections, no economy conditions may be necessary to ensure that the conditions are satisfied optimally. If there are no imperfections, there is no need to measure and compare degrees of imperfection. Such a conclusion is consistent with the fact that even within TMP, the role of economy conditions seems to shrink considerably by the end of the book. Chomsky argues forcefully in chapter 4 that one of the paradigm cases of economy in chapter 3, the shortest derivational steps restriction is in fact not an economy condition. It is often easy to restate many of the other global economy conditions as computationally simpler "default" or licensing conditions, preventing optionality. (Perhaps the only unexplained residue once the derivational economy principles of TMP are eliminated in this fashion will then be a small empirical advantage for the shortest derivation --representationally: "minimize number of chain-links"-- condition, generated by some highly controversial assumptions that Chomsky makes (p. 357).)

The fourth major difference I already touched on earlier: perfect syntax cannot assume the redundant and much looser derivational-representational system of TMP. This leads to a necessary rejection of various theoretical innovations. I mention here just one, which seems to be important enough to merit being considered to be a fifth central difference between the two theories. In chapter 4 of TMP Chomsky introduces a difference between interpretable and non-interpretable checking features. Non-interpretable features are visible for the derivation, but cannot be tolerated at LF, given the principle of full interpretation. Interpretable features can be present both during the derivation and at the interface. Interesting consequences follow from this distinction.

But a distinction in such terms is natural only in the nonrestrictive framework, where both representations and derivations are postulated. Non-interpretable features are derivational in the sense of not being allowed to be present at the (sole) syntactic representation LF, while interpretable features can exist both derivationally and representationally. Since interpretable features presumably cannot be eliminated from the theory, perfect syntax must dispense with non-interpretable ones. This more restrictive framework has the nontrivial task of accounting for the predictions achieved through this distinction, but without assuming it. Furthermore, the assumption that all syntactic features must be semantically interpretable is a natural further restriction on syntactic primitives and as such it is desirable independently of the derivational/representational duplication issue. Note that the hypothesis that there are no solely PF motivated syntactic features takes seriously the spirit of the remark in TMP quoted earlier, according to which the "core systems of language" involve the lexicon-LF interaction, with an extraneous Spellout system.

In sum Perfect syntax, in contrast to TMP, makes the optimal assumption and aims to eliminate forced and unforced imperfections from syntax as a matter of principle. When the consequences of this more restrictive approach are examined, it quickly turns out to lead to a picture of the syntactic competence that is rather different from the one presented in TMP.

There are at least two central features of Chomsky's syntactic theories that either remained constant through the various framework metamorphoses or had a tendency to reincarnate and which I believe are empirically unjustified as part of syntactic theory. The first is the mixed, partly derivational nature of the system, and the second a notion of measurement and comparison, once an aspect of the long abandoned "evaluation metric", now resurfacing in the rather different shape of economy conditions, part of a particular interpretation of syntactic perfection. These ideas are central, and establishing their truth or falsity is important for the field, and quite likely beyond it. But these and the other related issues I tried to sketch, should be set against the background of Chomsky's major and ongoing contribution of creating a scientific field of linguistics. To this enterprise TMP, whatever its imperfections, added perhaps more than any of his other works since *The Logical Structure of Linguistic Theory*.

Notes

FN* I am grateful to Neil Smith and Michal Starke for very helpful comments. This review was written in the Summer of 1996 at the request of Mind and Language, where it will eventually appear.

FN1 Cf. Brody 1995a pp. 35-40 for discussion.

FN2 Cf. Brody 1993.

FN3 Originally written in 1989/1990. Cf. also Brody 1995a, pp.25-29 for discussion.

FN4 Apart from some revisions, written in 1991/92.

FN5 Cf. Chapter 2 of Brody 1995a, among a number of other recent publications in a similar vein.

FN6 As in Brody 1995b,c.

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- 1/2: K. É. KISS, *Generic and Existential Bare Plurals and the Classification of Predicates*.
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