

1 Introduction

The central concern of this study is syntactic movement, and more precisely, the forces that drive such movement. Chomsky's (1975, 1957) analyses showed that no description of natural language syntax will be adequate unless it includes some notion of movement operations in a syntactic derivation. With the degree of understanding we have managed approximately fifty years later, it now seems likely that such movement transformations are formally simple operations, in which a single phrase is displaced from its original position within a phrase marker, frequently to appear at the "edge" of the same phrase marker. But the mechanics of this simple operation are still murky and controversial.

The problematic aspects of minimalist movement theory have been discussed elsewhere in the literature. (See Lasnik 2003, Roberts and Roussou 1998, and Zwart 2001, among many, for discussion.) What follows is simply a quick summary of the central issues that motivate this study.

In recent versions of minimalist syntactic theory, movement is driven by an "EPP feature" borne by a head that identifies a goal with which to agree. For example, in the derivation of (1), T agrees with *the message*.

(1) The message was transmitted.

What is more, T has an EPP feature that requires that it acquire a specifier. The phrase with which it agrees is automatically selected to fulfill this function, and remerges at the TP root. Similarly, in (2), C bears an EPP feature that is satisfied because when C agrees with the *wh*-feature of *when*, the *wh*-phrase remerges at the CP root to become its new specifier.

(2) When should our people call?

Thus movement is made possible by the prior agreement relation, but it actually occurs only when the agreeing head demands a specifier.

If we look more closely at this movement theory, we can isolate what is crucial. There are two separate components to movement in this

approach. One is the probe-goal relation that enables agreement. The other is the EPP feature.

Probes are syntactic heads with one or more unvalued features. Goals are syntactic objects in the c-command domain of a probe that carry features that can supply the missing values to the probe. So the goal in (1) supplies the value for ϕ -features on T; the goal in (2), values for the *wh*-feature on C.

The EPP feature is a development of the earlier “Extended Projection Principle,” the function of which was to ensure that sentences have subjects. Historically in generative theory, the observation that sentences need subjects becomes one with substantial theoretical import only after the adoption of Stowell’s (1981) project to eliminate phrase structure rules from syntax. If one’s model of grammar includes phrase structure rules, then a rule like $S \rightarrow NP VP$ —or even $TP \rightarrow nPT'$ —can be used to ensure the presence of a subject. If such rules do not exist, then some other means must be found.

The original EPP consisted of the Projection Principle plus a statement that sentences require specifiers. (According to Chomsky (1982, 10), “We may think of [the EPP] as a general principle governing D-structures, hence also governing structures derived from them.”)

The EPP was an ad hoc principle, and subsequent incarnations have not improved on its status, but it remains indispensable in some form or other simply because it remains true that sentences must have subjects, in English and many other languages.¹ Minimalist analyses have typically been explicit on this point, and the “EPP feature” is currently understood to be an irreducible (possibly parameterized) property of T, and of other heads that happen to be associated with the landing site for phrasal movement.²

However, even if we have to grant that the EPP in some form is a primitive of the grammar, we may still prod away at how this concept achieves its purpose. It is clear that any syntactic “rule” must be either representational or derivational. This is as true of the EPP as of any other condition on grammatical acceptability. The original EPP was formulated as a representational principle to be satisfied at D-structure. Lacking any concept equivalent to D-structure, we cannot expect to maintain a rule of this sort in our model of grammar. It can still be asked if the EPP could be taken to be a rule applying at one of the interface levels of representation—that is, at PF or LF.

It is clear that there can be no PF requirement that a given category have a specifier, since specifiers are often invisible. To take two quick

examples, consider the phonetically empty specifier for embedded TP in (3a) and the silent operator in [Spec, C] of the relative clause in (3b).

- (3) a. The wolf seems [_{TP} *t* to have eaten Red Riding Hood].
 b. the wolf [_{CP} OP that we chased *t*]

And there cannot be an LF constraint to this effect either, since the EPP-driven movement is implicated in successive cyclic \bar{A} -movement, as in (4).

- (4) When did Paul say [_{CP} ~~when~~ that Pam called her mother ~~when~~]?

In (4), for example, where the initial movement of *when* is driven by an EPP feature on *that*, movement of *when* into a higher position creates an A-bar chain, the head of which is the leftmost, visible token of *when* and the tail of which is the rightmost copy of *when* in the lower clause. To form this chain for interpretation at the LF interface, the intermediate copy in [Spec, C] must be erased. In that case, there will be no specifier for *that* at LF, and so the EPP rule cannot apply at that point in the derivation.

If the EPP is not an interface constraint, then it must be a rule that constrains the form of derivations. This is the reason Chomsky (2000) reinvents the EPP as a feature to be checked on T (and other heads). But Chomsky's implementation of the EPP as an uninterpretable feature is not proof against the same sort of problems as beset the purely representational statements of the EPP, although the issues are subtle. (It should be said that Chomsky's discussion of the problem is rather more programmatic than detailed, so the target I am confronting here may be as much a strawperson as it is a representation of Chomsky's views. Nevertheless, the issues can only become clearer by working through them.)

For Chomsky, movement does not involve making a new copy of the moved phrase; instead, the same phrase comes to occupy two (or more) positions in the phrase marker.³

Notice that even in this model, the EPP feature remains representational, in the sense that it is to be deleted only when the phrase marker provides something to occupy the specifier position for the probe in question. In other words, the right structure must first be formed, and then it is examined to ensure that the probe head has a specifier. If the phrase marker (representation) fails this test, the EPP feature remains intact, crashing the derivation. As Roberts and Roussou (1998) observe, positing this type of feature to characterize movement is inherently non-explanatory, since the feature does little more than point to the effect of movement.

Because the EPP “feature” remains a representational rule at heart, its effects could even be replicated by a phrase structure rule. Rather than requiring that TP have a specifier, we could derive the same results by stipulating that the final form of TP must adhere to the following pattern: $TP \rightarrow DPT'$. This rule would simply have to take effect before TP could be allowed to merge with something else to build up the phrase marker further.

On the one hand, the obviously stipulative nature of the EPP is convenient, inasmuch as the concept serves as a placeholder within the theory for something that everyone can agree is missing an explanation, making it easier to address other theoretical questions without being sidetracked. But on the other hand, we would like to actually find an explanation, or at least make progress toward one.

Besides the broad conceptual problems raised by the EPP, there is a substantial empirical problem concerning the status of head movement in the derivation. If syntactic movement involves only the creation of new specifiers, then head movement either does not exist, or it is not actually syntactic. Chomsky (2000) claims the latter, and concludes that head movement can be excluded from the (narrow) syntactic derivation. The phenomena that syntactic head movement operations might explain must then be explained by parallel operations in the mapping from syntax to the PF interface—that is, by “stylistic” or morphological rules.

But the existing literature provides abundant evidence that head movement truly is syntactic, at least some of the time. Most compelling to my mind is the type of phenomenon discussed by Baker (1988), in which noun, verb, and preposition incorporation interact with Case assignment. As Baker shows, incorporation can extend the domain over which Case assignment may take place. But if Case assignment is a side effect of valuation of ϕ -features, which itself must involve a probe-goal relation, then Case must be assigned within the (narrow) syntactic derivation. And if incorporation has an effect on this aspect of the derivation, then incorporation cannot be delayed until the postsyntactic PF mapping. So at least the incorporation type of head movement must be syntactic. (Zwart (2001) develops an argument to the same effect involving verb-second inversion head movement in Germanic.)

If head movement must form part of the derivation, then the conception of movement as always driven by EPP features is simply incomplete.

In this work, I present a partially new model of the basic movement operation in syntax—partially new because it is mostly a reassembling of ideas that have been suggested elsewhere in the literature, but that have

not, I believe, been put together in the precise manner that I present here. The unifying concept in this model is the operation of *provocation*, which occurs in the course of feature valuation when certain *probes* seek a value for their unvalued features by identifying a goal to supply what they lack. Provocation forces the generation of a copy of the goal; the copy originates outside the original phrase marker, and it must then be reintroduced into it in various ways. In this approach, movement is not forced by the need for extra positions—extra positions are generated because movement is taking place.

Unlike an EPP feature, or its historical antecedents, provocation drives movement to a specifier position or to a head position with the same mechanism. In fact, it is built into the notion of provocation that the two cannot be separated. If one is possible, so is the other.

The following chapters develop this idea in various ways. Chapter 2 presents the central proposal, and shows how it can be implemented in the analysis of a variety of familiar cases of syntactic movement. The emphasis here is on broad coverage rather than detailed exposition of particular constructions. In chapters 3 and 4, a series of case studies is presented. Chapter 3 demonstrates the effects of provocation in various inversion constructions: quotative, negative, interrogative, and Germanic verb-second. Chapter 4 presents a detailed analysis of Germanic embedded clause structure, in which provocation within the “left periphery” is shown to explain the distribution and intricacies of various types of complementizers across the language family. In chapter 5, the focus is on the details of chain formation and successive cyclic movement in a provocation model.

Throughout, I assume a basic familiarity with current work in minimalist syntactic theory and with the accompanying terminology.