

Feature Checking and Movement*

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1. Introduction: EPP and OS

One of the most interesting consequences of recent studies under the minimalist program of syntactic theory is that we are becoming able to associate feature checking and movement in a systematic way. Pursuing this possibility, I will propose a system employing a simpler feature checking mechanism along with some principles of derivational economy so as to explain the applicability of movement.

In this paper I will mainly discuss two phenomena: the Extended Projection Principle (EPP) and Object Shift (OS). The former states, in the relevant respect, that a clause must have a subject. This is illustrated in the following:¹

- (1) a. * Arrived seven cowboys
 b. Seven cowboys arrived
 c. There arrived seven cowboys
 d. * Is obvious that Mary was a spy
 e. That Mary was a spy is obvious
 f. It is obvious that Mary was a spy
 g. John rolled down the hill
 h. Down the hill rolled John
- (2) a. There is/*are an apple on the table
 b. There are/*is apples on the table
- (3) a. Henni leiddust/leiddist þeir
 she-D was-bored-by-3pl/3sg-st they-N

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¹ The Icelandic examples in (3) are from Taraldsen (1995).

	‘She was bored with them’		
b.	Mér	líkar/*líka	bókin
	I-D	like-3sg/1sg	book-the-N
	‘I like the book’		

The subject must be present, whether it is argumental or expletive, and whether it is a nominal phrase or not. Also, it can be the case that the verb is in agreement with a nominal phrase in a postverbal non-subject position, which suggests that what is involved to yield the EPP effect is separate from case or agreement. Adapting Chomsky’s (1995, 1998, 1999) AGR-less approach to the clause structure, EPP is restated as: TNS must have a SPEC.

OS, which is a phenomenon reported to be found in Scandinavian languages but not in English or Romance languages, is schematically illustrated as follows:

(4)	a.	SUB	V		@		OB
	b.	SUB	V	OB	@		
	c.	SUB	AUX		@	V	OB
	d. *	SUB	AUX	OB	@	V	

Here @ represents a certain class of adverbs which are held to signify whether the object is shifted or not. The applicability of OS is stated by Holmberg’s (1986) generalization: the object can be shifted only if the main verb is raised higher. It is known at the same time that verb-final languages such as German and Japanese, where OS can be found, do not obey this generalization.

Given Chomsky’s clause structure, the shifted object is located in SPEC of the light verb v , a lexico-functional head, as in the following:

(5)	...	[_{TP} ... TNS ... (AUX) ... [_{VP} ... OB _i ... @ ... v [_{VP} ... V ... t _i ...]]] ...
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If an auxiliary verb is present, the main verb V can be only raised as far as to v . If not, whether V is actually raised to TNS depends on the language. The relevant adverb is located between v and its SPEC for the object. The subject is merged in a SPEC of v and raised to a SPEC of Tense. It may be further raised to a SPEC of a higher head in the verb-second construction.²

² Koizumi (1993, 1995) argues, under the Split VP hypothesis, that the object is obligatorily shifted in English. See Takano (1998) for a similar conclusion drawn from a different point of view. I will keep this aside, as a separate phenomenon, which could be dealt with by assuming that an

Even in languages such as English, where OS is not found at surface, it has been suggested that when the object is a *wh*-phrase to raise to a SPEC of Comp, it is raised through a SPEC of ν , which must be the case under the phase-based derivational approach proposed by Chomsky (1998, 1999).

The term, EPP, has been used in recent works more widely to cover OS and other cases and refer in general to the situation where a head is forced to have a SPEC, sometimes in addition to an already generated one, in the course of derivation. In Chomsky (1998,1999) it is proposed that the list of formal features includes EPP feature, besides ϕ -features and structural Case. EPP feature, which can be considered as a kind of selectional property, requires that a head containing it should have its SPEC. TNS must have EPP feature, nearly universally. On the other hand, other functional heads may or may not have this feature, subject to parametric variation and dependent on the derivation, as is seen in the case of OS.

Below I will develop a different approach to the EPP effects, making an attempt to explain them under more principled considerations, without recourse to the postulation of an otherwise unmotivated feature that has a largely descriptive nature. I will revise the mechanism of feature checking in section 2, rethink economy principles in section 3, consider some intervention effects in section 4, and give concluding remarks in section 5.

2. Feature Checking

To see how feature checking is performed, let us start with considering the subject-verb agreement. When the verb is in a finite tense, the subject nominal expression appears with nominative case. And they agree in person, number and gender, subject to variation among languages with respect to morphological realization. In recent studies it is assumed that this agreement is mediated by a functional element, which has been referred to as INFL or TNS. This situation can be schematized as follows:

additional functional head F is located between ν and V, and that the object is raised to SPEC of F and V is raised up to ν , deriving the surface VO order. F is not relevant to accusative Case, but shows a kind of EPP effect. If it turns out that it is F that is relevant to accusative Case, then the shift to SPEC of ν will be separated from Case considerations, which will not affect the core ideas of this paper, however.

features) and ϕ -features.

Suppose that a derivation reaches a stage where TNS has been just introduced to be combined with vP , which contains an internal subject. Now Agree applies to yield subject-verb agreement as is illustrated in the following, where the round brackets indicate deletion:

$$\begin{array}{rcl}
 (7) & \text{TNS} & [_{VP} [_{DP} D \dots] [_{v'} [V + v] [_{VP} \dots t_V \dots]] \\
 & \{\tau, \phi\} & \{\tau, \phi\} \qquad \qquad \{\tau, \phi\} \\
 \rightarrow & \{\tau, (\phi)\} & \{(\tau), \phi\} \qquad \qquad \{(\tau), (\phi)\}
 \end{array}$$

Here the relevant τ - ϕ set is shared by three elements: (i) TNS, (ii) D of the subject DP, and (iii) the non-functional verb V. The raising of V to the lexico-functional verb v is due to their morphological properties and may be subject to parametric variation. V has a τ - ϕ set as a property determined by language. ϕ -features enter into determination of the reference of nominal expressions, so that they are interpretable on D, but not on verbs or TNS. τ -features are relevant to propositional interpretation, so that they are not interpretable on D. They are not interpretable on verbs, either, but in the position of TNS, assuming that they act as an operator to scope over a propositional expression containing a verbal phrase, or as a functor to be applied to a verbal phrase. It may be possible to think that V needs τ -features as a lexical property, which will yield the effect that V is required by TNS, a semantically natural result. Then V will have to have uninterpretable ϕ -features too, because τ - and ϕ -features are assigned in a set. Both τ -features and ϕ -features are uninterpretable on V.

In (7) Agree applies twice to yield the wanted result, since all the uninterpretable features need to be deleted for interpretation. First, it applies to TNS and D to delete the ϕ -set of TNS and the τ -set of D. Let us assume with Chomsky that deleted features are accessible in the course of derivation until they are eliminated when interpretation/evaluation is carried out in the next phase. Thus the deleted ϕ -set of TNS is accessible to Agree. Then Agree applies to TNS and V to delete the τ - ϕ set of V. All of these will be successful, yielding subject-verb agreement at surface, only if the involved three τ - ϕ sets are identical, since feature deletion is possible only under identity. Otherwise, some uninterpretable feature will remain undeleted.

Agree cannot apply to D and V, if we assume, with Chomsky, that probe can select goal only if the former asymmetrically c-commands the latter, a natural

condition that makes it possible to keep the search domain minimal. If DP is not complex but bare, it will be able to select V for Agree. We could avoid this situation, if we want, by assuming instead that probe can select goal only if the latter is inside the complement of the former. This revision actually minimizes the search domain further. A potential problem is that an expletive merged in SPEC of TNS cannot select TNS for Agree. This problem may be able to be overcome in some ways. In any case, none of the arguments I will give below in this paper depends on the choice between the two versions of the condition, so I will not go further into this matter here.

3. Economy of Derivation

3.1. *Semantic Productivity Principle*

I will argue here that the EPP effect is yielded as a property of economical derivations. The idea is that derivations proceed in such a way that the lexical items drawn from the lexicon are used effectively and not wasted unproductively. Chomsky (1995:294) presents the following economy principle:

(8) α enters the numeration only if it has an effect on output.

For the present purpose, this principle has to be understood and exercised in a different way. Let us first restrict ourselves to semantic effects. And assume that α has a semantic effect only if it provides a new element. I also want to keep away from discussing the operation of numeration. Then (8) will become (9):

(9) α enters the computation only if it provides a new semantic element.

Let us refer to (9) as the Semantic Productivity Principle (SPP).

To see the concept of “new” relevant to SPP, let us consider the feature composition of TNS. The simplest assumption is that it is only composed of τ -features and ϕ -features. The relevant τ -features are tense features such as [+/-past] and mood features such as [+/-subjunctive] in the case of finite clauses. For nonfinite clauses, it will be possible to posit similar features, which are morphologically realized as null Case in control complements, accusative Case in *for*-clauses, genitive Case in gerunds, and no Case in raising/ECM complements. TNS may have additional morphological features subject to parametric variation, such as the one to require affixation. It may also have to be considered to contain a subcategorizational or c-selectional feature to take a verbal phrase as its complement, if this property is not fully derived by the fact that Agree applies to TNS and V. In any event only τ -

features will remain for semantic interpretation. The fact that TNS has its own semantic content is sufficient to motivate its existence as an independent lexical item. However, this does not necessarily mean that TNS can satisfy SPP by itself.

Note that TNS has the same τ -features as V has. This is necessary in order to delete the uninterpretable τ -features of V under Agree. Once V is introduced, along with a τ - ϕ set, into the structure from the numeration, the same τ - ϕ set must be introduced, and it will be provided by TNS. We could say that the τ - ϕ set of TNS is just a duplication of the original set of V. In this sense the τ -features of TNS is not new. The same holds in relation to the nominative DP. If this concept of “new” is relevant, SPP is not satisfied by virtue of these τ -features. To be more general, if a feature α of probe and a feature β of goal are identical and therefore one of them is deleted by Agree, α does not count as new for the purpose of SPP, whether it is α or β that is actually deleted. For probe is incorporated in the structure later than goal in the course of derivation, given the asymmetric c-command condition.

TNS itself cannot be regarded as a new semantic element, so that it must somehow participate in creation of a different semantic element. In Rothstein (1995, and her previous works cited there) it is argued that if a clause has a subject, then it constructs a form of predication, whether the subject is a thematic argument or an expletive. Let us suppose that XP -[_{TNS} TNS ...], where $XP=DP$ in usual cases, is a form of subject-predicate, though it will be VP that counts as predicate for Rothstein because she argues on the traditional assumption that clause = [NP VP]. I am not saying that [_{TNS} TNS ...] is always a predicate and therefore requires a subject, though Rothstein certainly would say so, given the present structure of clauses. Rather, [_{TNS} TNS ...] can function as a predicate, and if it does, then it must have a subject, an essential property of predicates that Rothstein argues for. Thus, only if TNS has a SPEC, it constitutes a licensed predicate, which is regarded as a new semantic element, and satisfies SPP.

Or alternatively, a slightly different execution of the idea is to say that the form of predication itself, XP -[_{TNS} TNS ...] in this case, is a syntactic object to enter into interpretation, yielding informational effects such as theme-rheme/topic-comment and presentational/focal readings, and that it counts as a semantic element to satisfy SPP. Thus, if TNS has a SPEC, it will directly provide a new semantic element, satisfying SPP. Either way, EPP is deduced to the economy principle SPP.

The question is: What is the τ -set of ν ? Morphologically, it is realized as accusative Case on nominal elements. But how is it semantically interpreted in the position of ν ? It should be related with transitivity. An immediate supposition will be that it is nothing but the property of external θ -marking. Let us assume Hale and Keyser's (1993) configurational approach, as Chomsky does. Thus [ν VP] becomes a thematic predicate that requires an argument in a SPEC position of ν and determines the θ -role of it, satisfying SPP. Accusative Case being virtually identified as external θ -marker, Burzio's generalization directly follows: all and only the verbs can assign (accusative) Case. (See Burzio (1986).)

As is seen from the above discussion, the present theory explains the fact that as far as TNS and ν are concerned, there may not be parametric variation with respect to EPP: they must have a SPEC. As for OS, which requires an extra SPEC, it is not surprising that it should be subject to variation. This fact is indeed considered to provide much motivation for positing EPP feature. In section 4 I will present an explanation without recourse to such a feature in the present framework, however.

Concerning the unaccusative construction, the simplest assumption will be that there is no ν involved. If it turns out, however, that ν is indeed involved, then it should be a non-thematic one lacking the τ -features that function as an external θ -marker. Thus it must have a SPEC to satisfy SPP by virtue of creating a predication structure, just as in the case of TNS, so that the underlying object stops there on its way to SPEC of TNS. Or an expletive is merged there and is raised to SPEC of TNS. It is obvious from the surface word order that nothing can stay in SPEC of ν , at least in languages such as English, which I will explain below in the same way as the inapplicability of OS.

To extend the discussion, let us consider COMP, which is subject to variation in the relevant respects. In particular, to form an interrogative clause, a *wh*-phrase must move to the initial position, namely, SPEC of COMP, in languages like English, and it can stay in situ in languages like Japanese.⁴ This is a separate phenomenon from Case/agreement, so that a different feature than τ - and ϕ -features should be involved, if Agree is relevant here.

⁴ See Watanabe (1992), however, for an argument that some empty operator does move in *wh*-in-situ languages.

It has been held that Japanese *wh*-phrases are indeterminate, without their own quantificational force, and that how they work is determined by the quantificational elements (*ka* and *mo*) associated with them. In the case of interrogative clauses, COMP has [+Q] as its own feature, and this feature functions as an interrogative operator binding in-situ *wh*-phrases which lack this feature. Thus COMP itself is regarded as a new semantic element, and SPP is satisfied without requiring COMP to enter into construction of an additional interpretable structure.

In English-type languages, on the other hand, *wh*-phrases have the interrogative feature [+Q] in the case of interrogative clauses. Consequently, COMP lacks its original interpretable feature, if it has [+Q]. If COMP has [+Q] and deletes [+Q] of *wh*-phrases under Agree, the same structure will be yielded as in Japanese-type languages. This, however, does not satisfy SPP since [+Q] does not count as new. Suppose that Agree deletes [+Q] of COMP instead of [+Q] of the *wh*-phrase, and that the *wh*-phrase is raised to SPEC of COMP. Then a new operator construction will be created, with COMP heading the nuclear scope, satisfying SPP.⁵

The difference between COMP and TNS concerning the generality of EPP may be attributed to the verbal morphology. Verbs have inflectional features such as TNS-related τ -features, including mood, tense and aspect. These features are not interpretable on verbs, and therefore they are considered to be an instance of an imperfection of language, namely the presence of uninterpretable features. Note, however, that TNS-related τ -features on a verb are not harmful, though they are superfluous and therefore need to be eliminated. For they are deleted by Agree in the presence of TNS, which duplicates those features. And TNS itself is not harmful, since it is necessary in any case to make successful the interpretation of the verb in a propositional structure. Even if verbs can be somehow defective in that they lack τ -

⁵ Under Chomsky's (1999) theory of Phase-based derivation, Agree cannot apply to COMP and a *wh*-element inside the complement of *v*, given *v*P as a strong phase. Thus it must be somehow raised beforehand to the edge of *v*P. As far as a *wh*-phrase between COMP and *v*, namely the *wh*-subject, is concerned, the discussion in the text is immune to the choice of *v*P as a strong phase. In-situ *wh*-phrases in the multiple *wh*-construction that are permitted in English will need some special treatment. They are only permitted by a mechanism of absorption to a raised *wh*-phrase. This special device is unavailable in languages like Italian, where in-situ *wh*-phrases are generally disallowed.

features, TNS must share its features with something else. For τ -features necessarily come with ϕ -features, another case of morphological imperfection. The ϕ -features of TNS must be deleted under Agree against the same features of some different element, but this element must also have the same τ -features, so that the τ -features of TNS do not count as new for SPP. As a result, TNS will need to have a SPEC along the line just discussed.

This line of consideration is difficult to carry over to the features of COMP. It is not the case that COMP features such as [+Q] are always necessary for semantic interpretation of the verb or other constituents of a clause. Interpretation of a clause as a proposition can be successful without COMP features, since those features just add something extra to the structure of an already well-formed proposition. That is, not all sentences have to be interrogative, for example, and there are non-interrogative ones, indeed. Furthermore, there is no reason to posit some features for COMP that are comparable to ϕ -features of TNS. Thus it is hardly surprising that there are variations concerning how and when COMP shares features with other elements.

It is suggested by the above considerations that there are possibilities that TNS can count as new by itself and therefore escape from being forced to have a SPEC under SPP. It might be possible that in some languages or constructions morphology allows the τ -features of TNS not to be shared by other elements. Or it may be possible that in addition to its τ -features, TNS has some interpretable feature that is not shared by others. VSO languages may turn out to be an instantiation of such possibilities. We must be careful, however, to draw a conclusion, since even if the verb is raised to TNS and no further, the construction can be analyzed as having a null subject, or a cliticized subject with the postverbal subject being an instance of doubling.

3.2. *Fewest Searches Principle*

Since Chomsky (1995) presented the idea of feature-driven movement, it has been held that feature checking is prerequisite for movement: a head α moves to a head β or a phrase pied-piped by α moves to SPEC of β , only if feature checking is applied to α and β . Chomsky has proposed several possibilities to implement this. The most recent one is to assume that the operation Move incorporates Agree in its internal mechanism. That is, movement is carried in the following way: (i) a head α selects a head β , (ii) Agree applies to α and β , (iii) copy K , $K = \beta$ or $K \supset \beta$ (Pied-

piping), and (iv) merge the copy of K to α or to some projection of α .

On conceptual grounds, however, it is not so clear why Move has to be made to incorporate Agree. Unlike Merge, without which Move is simply not definable, Agree is not an indispensable internal process. Furthermore, there seems to be an empirical problem as well. Consider (3), for example, reproduced here as (11):

- (11) a. Henni leiddust/leiddist þeir
 she-D was-bored-by-3pl/3sg-st they-N
 ‘She was bored with them’
- b. Mér líkar/*líka bókin
 I-D like-3sg/1sg book-the-N
 ‘I like the book’

At surface, from (11a), the quirky phrase raised to the subject position may reveal agreement with the verb. However, according to Ura (2000a) and others, the 3rd person singular can be identified as a default agreement found in the impersonal construction. Given (11b) as well, it may be able to think that the quirky subject cannot agree with the verb.⁶ This is not readily explained under the assumption that Agree is part of the internal mechanism of Move.⁷

I propose that the mechanism of Move should be simplified by dispensing with the process (ii), so that Move = Copy + Merge.⁸ As in the case of Agree, selection of two heads is needed as a preliminary operation, assisting to determine what is copied to be merged and where it is merged in this case. Selection for the purpose of Move is also subject to the same asymmetric c-command requirement as selection for Agree, in order to minimize the search domain. The fact that XP-movement is subject to the extension condition whereas X⁰-movement is not will follow essentially along the line of Collins (1997).

Some cases of scrambling in languages like Japanese may be explained under the assumption that movement is separated from agreement or feature checking. Even

⁶ The agreement fact concerning the quirky subject construction in Icelandic has been reported to be more complicated. See Taraldsen (1995), and Ura (2000a) and references cited there.

⁷ See Ura (2000b, c), however, for a theory of agreement developed from the sometimes-suggested idea that the quirky subject does agree with the verb although the effect is somehow morphologically concealed.

⁸ I am grateful to Hiroyuki Ura for his discussions with me which have led me to this proposal.

topicalization in English might be analyzed without imposing the feature [+wh]. In any event the topicalized phrase should be able to count as some operator, resulting in a topic-comment structure to satisfy SPP with a head lacking interpretable features in the first place.

A problem will arise, however, as is seen from examples such as the following, which was brought to me by Masatoshi Koizumi (personal communication):

- (12) a. (I wonder) [_{CP} who_i [_{C'} C [_{TP} t_i saw John]]
 [+Q] ([+Q])
- b. * (I wonder) [_{CP} John_i [_{C'} C [_{TP} who saw t_i]]
 [+Q] ([+Q])

(12a) is derived in the way discussed above. In (12b) Agree deletes [+Q] of the wh-phrase instead of [+Q] of COMP. The interrogative interpretation should be successful, since this is in fact found in Japanese-type languages. *John* is raised to SPEC of COMP so as to yield a structure of topicalization, satisfying SPP. The structure does not seem to have any problem. The difference from (12a) is that the moved element has not undergone agreement or feature checking with the head while the agreeing element remains in situ. In other words, Agree and Merge are applied to one and the same element, namely *who*, in (12a), and they applied to two different elements, *who* and *John*, in (12b). The problem is how to bar the latter derivation while allowing the former.

Let us reconsider Chomsky's (1995) economy principle referred to as Shortest Derivation or Fewest Steps: a derivation is blocked by a competing one with fewer steps. See also Oka (1993a, b, 1995, 1996) for extensive discussions. I propose that it should be essentially this principle that works here. The point is: What counts as one step?

The derivation of (12a) has one application of Agree to the pair (COMP, *who*) and one application of Move to the pair (COMP, *who*) in the relevant respects, whereas the derivation of (12b) has one application of Agree to the pair (COMP, *who*) and one application of Move to the pair (COMP, *John*). Thus, in terms of Agree and Move, the two derivations have the same number of steps. Note, however, that COMP selects *who* for Agree and Move in (12a) while COMP selects *who* for Agree and *John* for Move. Suppose that a head does not have to launch a new search if it selects the head that it selected for the immediate previous operation in the course of

derivation. Then COMP launches one search in (12a), and two searches in (12b). Now let us define the relevant principle as the Fewest Searches Principle (FSP):

(13) A derivation is blocked by a competing one that launches fewer searches.

Then (12b) is blocked by (12a) under FSP.

In general, a head will not be able to raise an element that is not agreeing, if there is an element agreeing but staying in situ. If a head has no feature for agreement in the first place, or all the agreeing elements are raised, then an element can be raised without agreement. The resulting structure must satisfy not only SPP but also the general principle of full interpretation (FI): every element in the structure must be legitimate for interpretation. See Chomsky (1986, 1995) for FI and related economy considerations. As just noted, scrambling and topicalization may be considered as instances of agreement-free movement. The moved phrases must be somehow licensed under FI. See Oka (1996) for the licensing of scrambled phrases in Japanese. In the case of topicalization, we have already discussed it above.

All the above considerations only hold as far as the blocking shorter derivations is convergent, an essential characteristic of economy considerations. It should be able to be the case that a longer derivation with an agreement-free movement is not blocked because the shorter derivation is not convergent. I will argue in the next section that such a case is instantiated by the quirky subject.

Note that FSP clearly has a global nature. Again, I will view this not as a problem, but as a support for the phase-based derivation.

4. Intervention effects

4.1. *A locality of agreement and movement*

Feature checking has been held to be subject to a locality condition, whether it is done by Attract or Agree. See Chomsky (1995, 1998, 1999). Essentially following Chomsky, I will define the condition as follows:

(14) α can select β for Agree, only if there is no γ in the search domain such that
 (i) γ shares all the relevant feature sets with α and β , and (ii) some
 projection of γ asymmetrically c-commands every projection of β .

A supporting argument that Move incorporates Agree was considered to come from the fact that the minimality/intervention effect found in movement could be attributed to the locality condition on feature checking.

Consider the following:

- (15) * *John*_i seemed that it was told *t*_i that Mary loved Tony

When *John* is raised to the matrix subject position, *it* intervenes. This movement is applied in (16a) to yield (16b), where underlined elements bear a τ - ϕ set:

- (16) a. TNS₂ seemed that it TNS₁ was told John ...

- b. John_i TNS₂ seemed that it TNS₁ was told *t*_i ...

The verbs *seemed* and *was* have both of their τ -features and ϕ -features deleted against TNS by Agree. TNS₁ keeps its τ -features, and it keeps at least [3rd person], which plays a role in interpretation of the predication structure with an expletive. Suppose that for the purpose of Agree, a feature is invisible if it is deleted, and a feature set is invisible if all of its members are invisible. Then it will be *it* and TNS₁ that intervene between TNS₂ and *John* in (16a), given that the τ - ϕ set is the relevant feature set here. TNS₂ cannot select *John* to undergo Agree under the condition (14). If Move incorporates Agree, then it automatically follows that TNS₂ cannot raise *John* to its SPEC. Even if not, however, the same result will be obtained. Suppose that *John* is raised to SPEC of TNS₂ without undergoing Agree. Then, at this stage, TNS₂ cannot select *John* because *John* has been extracted from the search domain of TNS₂. Thus there will be no way to apply Agree to TNS₂ and *John* to delete their uninterpretable features successfully.⁹

In general, Agree and Move can apply to the same pair of heads in this order, but not in the reversed order, since Move necessarily destroys the structural relation for selection. Thus, without incorporating Agree in Move, we can reduce the minimality of movement to that of feature checking.

Now consider the quirky (dative) subject construction.¹⁰ Irrelevant structures

⁹ If *John* is bare, then it can asymmetrically c-command TNS, so that *John* can select TNS₂ for Agree. This situation will be avoided by assuming that all the nominal phrases are not bare and obligatorily a complex DP with D phonetically null or nonnull, or by assuming that the search domain is not defined in terms of asymmetric c-command but in terms of complement as is suggested in the text above.

I am also assuming that “improper movements” are barred under some general considerations, so that *John* cannot stop on its way in some position between TNS₂ and TNS₁.

¹⁰ It is reported that the quirky subject may have genitive or accusative Case instead of dative Case. The discussion below is not crucially dependent on the kind of quirky Case.

omitted, raising of the dative phrase to SPEC of TNS in (17a) yields (17b):

- | | | | | |
|------|----|-------------------|-------------------|-------------------|
| (17) | a. | TNS | DP _{dat} | DP _{nom} |
| | b. | DP _{dat} | TNS | t |
| | | | | DP _{nom} |

In (17a) Agree cannot apply to TNS and the nominative phrase, since the dative phrase is intervening. (17b) gives a configuration where Agree is applicable, given the conventional assumption that a trace copy is invisible to operations. There is no shorter derivation among competing convergent ones. If the locality condition (14) were violable, the derivation with raising of the nominative phrase after applying Agree would be a shorter one. However, this condition is not an economy condition, and therefore cannot be violated in favor of convergence. Thus we have a quirky subject construction successfully, applying Move without Agree.

Here I am assuming that (the head of) the dative phrase has a τ - ϕ set so as to intervene under the condition (14). This means that the dative Case in question is a structural one, which is a morphological realization of some τ -set. To consider the nature of this Case, let us take the double object construction. Ura (2000a) presents a simple structure for it under the AGR-less approach:

- (18) [_{TP} SUB [TNS [_{VP} t_{SUB} [_v₂ [_{VP} IO [_v₁ [_{VP} V DO]]]]]]]

The construction involves two occurrences of v , the lower one agreeing with DO and the higher with IO. The lexical verb V is raised at least to the higher v . Under the present assumptions, the τ -set of v_1 and the τ -set of v_2 are morphologically realized as accusative Case on DO and as dative Case on IO, respectively, though the morphological accusative-dative distinction depends on the language. For interpretation, they have the same function to be identified as an external θ -marker, external in the sense that the θ -marked argument is external to VP. Using the traditional terms, v_1 assigns a goal or benefactive role to IO while assigning accusative Case to DO, and v_2 assigns an agent or source role to SUB while assigning dative Case to IO. Compare this with the single object construction illustrated in (10). What kind of θ -role is assigned depends on the configuration and semantic property of the lexical verb.

We have been assuming that the τ -set of v functions as an external θ -marker. Suppose, however, that it is just an *extra* θ -marker and that whether it is external or internal depends on the lexical verb. When the τ -set is external, it is interpreted in the position of v , having an argument in SPEC of v . When it is internal, it is

interpreted on V, having an argument in SPEC of V. In the former case, Agree deletes the matching τ -set of V. In the latter case, Agree deletes the τ -set of ν , keeping the one of V. In the double object construction, both occurrences of ν induce external θ -marking.

The quirky subject construction should involve TNS and ν , the latter being the source of the quirky (dative) Case of the subject. Suppose that ν is an internal θ -marker. Then we have the following, where V-raising is not shown for the sake of simplicity:

$$(19) [{}_{TP} DP_{dat} TNS [{}_{VP} t' \nu [{}_{VP} t V DP_{nom}]]]$$

Agree applies to ν and V before V-raising, and to ν and D_{dat} in SPEC of V, so that the ϕ -set of V, the τ -set of D_{dat} , and the τ - ϕ set of ν are deleted. DP_{dat} is θ -marked in the original position by virtue of the τ -set of V agreeing with that of ν . To satisfy SPP, DP_{dat} is raised to SPEC of ν after undergoing Agree, creating a predication structure as in the case of TNS. It is further raised to SPEC of TNS, satisfying SPP and enabling Agree to apply to TNS and DP_{nom} .

A possible problem may be provided by the fact noted by Ura (2000a, b) that there is a parametric variation concerning the raising of the nominative phrase crossing over the dative phrase. However, we may be able to assume that the involved dative Case is a pure instance of inherent Case, which is not a morphological realization of some τ -set that requires checking with ν , and is so closely connected with θ -marking that it is not obstructive to semantic interpretation. And inherent Case can play the role of structural Case (τ -features) to assist morphological realization of ϕ -features. Thus the dative phrase is able to have only a ϕ -set, lacking a τ -set, so that it does not cause an intervention.¹¹ These lines of considerations may be expected to open a new way to approach the ergativity in general.

Note that expletive constructions such as in (2) do not affect the economy consideration here. When an expletive is directly merged in SPEC of TNS, it will not

¹¹ See Ura (2000a, b) for an explanation under his agreement theory. The discussion in the text can be carried over to the double object construction. The dative Case should be able to be purely inherent, subject to cross-linguistic and language-internal variations. This is, in fact, the case, as is shown by the fact noted by Ura (2000a) that the possibilities of crossing over of IO by DO in OS and in passivization are correlated and reveals a parametric variation. Again see Ura (2000a) for his explanation.

require a search of the kind that TNS makes in the case of movement or agreement. Thus, adding no extra cost, the expletive insertion would not be blocked by the movement of the nominative phrase. The locative inversion found in (1h) might be analyzed in the same way as the expletive construction or the quirky subject construction, the locative subject being directly merged in the subject position or moved there from inside VP. Noting reported unusual behaviors of the locative subject, it will not be unreasonable to think that the construction needs a special treatment in any event.

4.2. *Object Shift*

Now we are finally ready to discuss OS. The clause structure will be as follows, if the object is shifted:

(20) [_{TP} SUB [TNS [_{VP} t_{SUB} [OB [[_v V v] [_{VP} t_V t_{OB}]]]]]]

Here V is raised to *v*, and will be further raised to TNS in some languages. The object is raised and merged in the inner SPEC of *v* while the subject is merged in the outer one.¹²

In the present system, OS itself should be optional in principle. If *v* raises the object, no extra cost will be added under FSP, since *v* selects the head of the object for Agree with respect to the τ - ϕ set.¹³ If the object stays in situ, *v* does not fail to satisfy SPP, since it participates in creating the structure for external θ -marking of the subject. Why is OS not so free then?

A problem with the structure (20) is that Agree cannot apply to TNS and V since

¹² See Bobaljik (1995), Koizumi (1993, 1995), and Oka (1996), among others, for arguments for this SUB-OB order, but also see Jonas (1995, 1996) for some OB-SUB evidence. Under the condition (14), the OB-SUB order is barred, since agreement between TNS and SUB will be blocked by intervening OB. The discussion below will not be affected by this matter, so I will not go further into it in this paper.

¹³ See Oka (1996), however, for the claim that *v* can raise non-object phrases to its SPEC if they are further raised by *wh*-movement. I argued there that *v* has [+wh] to agree with the raised *wh*-phrase. Under Chomsky's phase-based theory of derivation, it might be able to assume that the raising of *wh*-phrase to SPEC of *v* is allowed so as to make the derivation converge, without positing [+wh]. This will lead to a more general discussion of successive cyclicity, so I will leave the matter to the future study.

the shifted object intervenes, leading to a crash of the derivation.¹⁴ So there must be something special to allow OS.

If the intervening shifted object is a *wh*-phrase and further raised to the edge of COMP, then the agreement will become possible, accounting for English-type languages that are assumed to allow OS only when the object is *wh*-moved. Note that if Agree applies to TNS and V after the *wh*-movement, it will violate the strict cycle condition. However, this is not problematic, as far as this condition is reduced to the extension condition, as is argued in Chomsky (1995), and further reduced along the line of Collins (1997), immunizing agreement and head movement to the effect. This derivation will be also permitted under Chomsky's system of phase-based derivation, where ν and COMP begin strong phases, since the shifted object is in the edge of ν .

The crucial question here is, Why is OS permitted in languages like Icelandic? To answer this question, let us turn back to the double object construction, which has the structure (18), which is reproduced as (21):

(21) [_{TP} SUB [TNS [_{VP} t_{SUB} [ν_2 [_{VP} IO [ν_1 [_{VP} V DO]]]]]]]]

Here V should have three τ - ϕ sets to delete under agreement with ν_1 , ν_2 and TNS. There seems to be no stage of derivation where Agree can apply to ν_2 and V. When V is raised up to ν_1 , IO intervenes, and when V is raised to ν_2 or higher, it is no longer inside the search domain of ν_2 . Suppose, however, that ν has the categorial feature [+V] and that this feature is uninterpretable in situ and therefore needs to be deleted against V. Then IO will not count as intervening between ν_2 and V under the locality condition (14), assuming that IO does not have all the relevant features, lacking [+V]. Agree successfully applies to ν_2 and V to delete [+V] of ν_2 and the matching τ - ϕ set of V, the latter being a kind of "free rider." Suppose further that TNS in Icelandic-type languages has [+V] to delete under Agree. In the structure (20), then, Agree will manage to apply to TNS and V, with the shifted object being ignored under the condition (14).

Even in Icelandic, OS becomes impossible if the raising of V from ν is blocked by the presence of an auxiliary verb, as was illustrated in (4), reproduced here as (22):

¹⁴ Note that the subject merged in SPEC of ν is not intervening, because it is raised to SPEC of TNS. The EPP effect is partially reduced to the fact that the subject must be raised from SPEC of ν , but only partially. The effect is more general, and it should be found in the unaccusative construction,

- (22) a. SUB V @ OB
 b. SUB V OB @
 c. SUB AUX @ V OB
 d. * SUB AUX OB @ V

Suppose that the auxiliary and V share a τ - ϕ set to undergo Agree, the relevant τ -features being aspectual or modal, and that the auxiliary is more lexical than ν in that it keeps [+V] just as V. The shifted object will be necessarily intervening in the auxiliary construction, leading to Holmberg's (1986) generalization.

This generalization is intended to cover Mainland Scandinavian languages, including Danish, Swedish and Norwegian.¹⁵ In these languages, unlike Icelandic, embedded clauses usually do not show V-raising to TNS even in the absence of auxiliaries, and OS is impossible in that case. If [+V] is required to be morphologically realized on phonetically non-null verbal category, then TNS with [+V] will be only compatible with V-raising, so that OS will be impossible without V-raising. Note that this does not mean that V-raising is a sufficient condition to permit OS. In fact, some V-raising languages, such as French, have been reported to disallow OS. These languages should lack [+V]. V-raising is essentially determined by the affixational properties of TNS and V, regardless of whether [+V] is present on TNS or not. Thus V-raising is possible without [+V]. If [+V] is present, it just makes it possible to apply OS.

As for SOV languages, OS will violate Holmberg's generalization, as far as it is assumed that V is not raised to TNS in such languages.¹⁶ Under Kayne's (1994) antisymmetry theory of phrase structure and linear order, which has been incorporated by Chomsky (1995) under the bare theory, the OV order may be realized by one of the following possible structures, irrelevant details omitted:

- (23) a. TNS [_{VP} ν [_{VP} OB V]]
 b. TNS [_{VP} ν [_{FP} OB F [_{VP} V]]]
 c. TNS [_{VP} OB ν [_{VP} V]]

in the case where the subject is *wh*-moved, and in languages which permit OS.

¹⁵ In Mainland Scandinavians it is only pronouns that are subject to OS. It has been sometimes suggested that the phenomenon in question is cliticization, but not OS in the relevant respects.

¹⁶ See Koizumi (1995), however, for an argument that the SOV order is derived by V-raising to COMP followed by IP-raising to SPEC of COMP.

In (23a) OB is somehow located in SPEC of V and V stays in situ. A way to make this possible will be to assume that the complement of V is incorporated to V. Here ν intervenes between TNS and V. In (23b) an additional functional head F is placed between ν and V. See footnote 2. OB is raised to SPEC of F under SPP, and V stays in situ or raised up to F. Here ν and OB intervenes between TNS and V, and F will also intervene if V stays in situ. In (23c) OB is actually shifted to SPEC of ν , and V stays in situ or raised to ν . Here OB is necessarily intervening, and ν will be also intervening if V stays in situ. F may be added to the structure (23c).

In any case, there should be something with a τ - ϕ set intervening between TNS and V. This suggests that TNS should have [+V] in SOV languages so that a τ - ϕ set of V can be deleted against TNS by free ride. Note that when Agree applies to TNS and V, [+V] of ν has undergone deletion, and therefore it is invisible and not blocking. The essential property of SOV languages is that [+V] does not need to be morphologically realized on a phonetically non-null verbal element. If a language does not have this property, it will not be able to derive the OV order. A prediction will be that OS should be free in SOV languages, which has seemed to be born out so far but will need further research to be more confirmed.

5. Summary

I proposed a system of feature checking and movement, and argued that EPP and OS are explained under general considerations of economy and locality, without referring to the presence/absence of EPP-feature. This strongly suggests that EPP feature is derivative and therefore should be eliminated. EEP feature has a sectional character: it determines not only whether a phrase is needed for SPEC or not, but also what kind of phrase is needed. This nature is also expected to be derived from the semantic properties of the head and the construction and the agreement property of the head, just as it is argued that in Chomsky (1986) that c-selection should be reduced to s-selection and Case-marking.

An important consequence of the present theory is that it gives a way to relate the existence of formal features with the displacement property of language. Under economy and locality, the presence of features and their checking determine whether movement is possible or impossible, and whether it is necessary or unnecessary. The formal features themselves have some semantic imports, and whether they are

interpretable or not depends on where they appear. The uninterpretable occurrences of features may be considered to cause an imperfection of language. But displacement is not a separate imperfection, since it can be considered to be an optimal device to solve problems caused by uninterpretable features.

References

- Bobaljik, J. (1995) *Morphosyntax: The syntax of verbal inflection*, Doctoral dissertation, MIT.
- Burzio, L. (1986) *Italian Syntax*, Kluwer Academic Publishers, Dordrecht.
- Chomsky, N. (1986) *Knowledge of Language*, Praeger, New York.
- Chomsky, N. (1995) *The Minimalist Program*, MIT Press, Cambridge, Massachusetts.
- Chomsky, N. (1998) *Minimalist inquiries: the framework*, MIT occasional papers in linguistics 15, MITWPL.
- Chomsky, N. (1999) *Derivation by phase*, MIT occasional papers in linguistics 18, MITWPL.
- Collins, C. (1997) *Local economy*, MIT Press, Cambridge, Massachusetts.
- Hale, K., and S. J. Keyser. (1993) "On argument structure and the lexical expression of syntactic relations," *The view from Building 20*, ed. by K. Hale and S. J. Keyser, 53-109, MIT Press, Cambridge, Massachusetts.
- Holmberg, A. (1986) *Word order and syntactic features in the Scandinavian languages and English*, Doctoral dissertation, University of Stockholm.
- Jonas, D. (1995) *Clause structure and verb syntax in Scandinavian and English*, Doctoral dissertation, Harvard University.
- Jonas, D. (1996) "Clause structure, expletives and verb movement," *Minimal Ideas: Syntactic studies in the minimalist framework*, ed. by W. Abraham, S. D. Epstein, H. Thráinsson and J-W. Zwart, 167-188, John Benjamins Publishing Company, Amsterdam.
- Kayne, R. (1994) *Antisymmetry in syntax*, MIT Press, Cambridge, Massachusetts.
- Koizumi, M. (1993) "Object agreement phrases and the split VP-hypothesis," *Papers on Case & agreement I, MIT working papers in linguistics 18*, 99-148, MITWPL.
- Koizumi, M. (1995) *Phrase structure in minimalist syntax*, Doctoral dissertation, MIT.
- Milsark, G. (1974) *Existential Sentences in English*, Doctoral dissertation, MIT.
- Oka, T. (1993a) *Minimalism in syntactic derivation*, Doctoral dissertation, MIT.
- Oka, T. (1993b) "Shallowess," *Papers on Case & agreement II, MIT working papers in linguistics 19*, 255-320, MITWPL.
- Oka, T. (1995) "Fewest Steps and Island Sensitivity," *Papers on minimalist syntax, MIT working*

- papers in linguistics* 27, 189-208, MITWPL.
- Oka, T. (1996) "Scrambling in Japanese and English," *Proceedings of FAJL 2, MIT working papers in linguistics* 29, 361-388, MITWPL.
- Oka, T. (1999) "Is local economy minimalist enough?" *GLOT International* 4:2, 19-21, Holland Academic Graphics.
- Rothstein, S. D. (1995) "Pleonastics and the interpretation of pronouns," *Linguistic Inquiry* 26, 499-529, MIT Press, Cambridge, Massachusetts.
- Takano, Y. (1998) "Object shift and scrambling," *Natural Language and Linguistic Theory* 16, 817-889, Kluwer Academic Publishers, Dordrecht.
- Taraldsen, K. T. (1995) "On agreement and nominative objects in Icelandic," *Studies in comparative Germanic syntax*, ed. by H. Haider, S. Olsen and S. Vikner, 307-327, Kluwer Academic Publishers, Dordrecht.
- Ura, H. (2000a) *Checking Theory and grammatical functions in Universal Grammar*, Oxford University Press, Oxford.
- Ura, H. (2000b) "On the definition of closeness in the mechanism of Agree," To appear in *Proceedings of the Second Conference of GLOW in Asia*.
- Ura, H. (2000c) "Raising in Japanese and its theoretical implications in checking theory," ms., Osaka University.
- Watanabe, A. (1992) *Wh-in-situ, subjacency, and chain formation*, MIT occasional papers in linguistics 2, MITWPL.

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