DERIVING THE DIFFERENCES BETWEEN ENGLISH AND JAPANESE:
A CASE STUDY IN PARAMETRIC SYNTAX*

NAOKI FUKUI

Keio University

This paper explores a way of deducing the set of major typological differences between English and Japanese including the existence of obligatory syntactic wh movement, of the so-called ‘multiple subject’ structures in clauses and noun phrases, of the ‘scrambling’ phenomena, etc. It is argued that, given the relativized X-bar theory proposed in Fukui 1986, it is possible to derive many of the differences from a single fundamental difference between the two languages, i.e. the presence of agreement-inducing ‘functional’ categories in the core lexicon of English and the lack of such elements in the core lexicon of Japanese. Implications of this result for the general theory of parameters in linguistic theory are also discussed.

1. INTRODUCTION. Under the ‘principles-and-parameters’ approach put forth by Chomsky 1981a, b and much subsequent work, the biologically determined mental organ UG (Universal Grammar) is conceived of as the set of principles each of which is associated with an open parameter whose value is to be set by experience. The postulation of such parameters in UG is mainly motivated by the fact that there are various superficially diverse languages in the world, a fact that is fairly obvious but nevertheless is rather surprising under the biological approach toward human language faculty assumed in generative grammar, since there is

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no known biological reason why the mental organ UG, unlike other organs like the faculty of number, the faculty of spacio-temporal perception, etc., should end up with different steady states (different core grammars) as it grows through experience. See Chomsky 1987 for some interesting discussion on this general question.

In any event, we know that there are a number of different languages (core grammars) and this fact has led to the emergence of a rather new area of inquiry in which attempts have been made to ‘explain’, rather than just to ‘describe’, why such and such differences exist among languages. This new area of linguistic inquiry is sometimes called ‘parametric syntax’ or ‘comparative syntax’, and the following discussion is a case study of parametric syntax in the case of English and Japanese. Note incidentally that it is only under the ‘principles-and-parameters’ approach to linguistic theory that the work in parametric syntax becomes possible (see Chomsky 1987, 1988). Therefore, to the extent that research in this area, including the one in this paper, proves to be fruitful, the ‘principles-and-parameters’ approach will be empirically supported.

The organization of this paper is as follows. As a theoretical apparatus necessary to derive the major typological differences between English and Japanese, I will in the following section very briefly introduce a new system of category projection developed in my earlier work (Fukui 1986). In section 3, some of the major typological differences between English and Japanese will be summarized and illustrated. Then, in section 4, I will show how the new projection system makes it possible to derive the superficially diverse differences between the two languages from a single parametric difference in a quite natural and straightforward way. The final section discusses the implications of our proposals for the general theory of parameters in UG and makes some suggestions for future research.

2. THEORETICAL BACKGROUND. In Fukui 1986 and Fukui & Speas 1986, a new system of projection is proposed in which lexical categories (N, V, etc.), i.e. those which are defined in terms of the features [±N] and [±V], and nonlexical (or what I call ‘functional’) categories (COMP, INFL, etc.) project in quite different ways, which is crucially different from the standard X-bar theory developed in Chomsky 1970, 1986b, Jackendoff 1977, and in various other works, where all categories project in basically the same fashion. The most recent formulation of the standard X-bar theory is shown in 1.
(1) The X-bar Schema
   a. X' = XX''*
   b. X'' = X''*X'

   N.B. (1) order parametrized
   (2) X''* stands for zero or more occurrences of some
        maximal projection and X=X^0

      (Chomsky 1986b)

In the projection system introduced in my earlier work, on the other
hand, lexical categories project up to the single-bar level, allowing free
iteration (or recursion) at this level,\(^1\) whose actual possibility is con-
strained only by the Projection Principle and other independent licensing
conditions, whereas functional categories can project up to the double-
bar level, taking a unique specifier (or SPEC) via agreement relation
between a functional head and its specifier. This amounts to the
rejection of the so-called 'uniform bar-level hypothesis' according to
which the number of bars for the maximal projection is uniform across
categories (cf. Jackendoff 1977, Chomsky 1986b, among others). What is
proposed in my earlier work, then, is to relativize the notion of maximal
projection based on the well-founded distinction between lexical and
functional categories.\(^2\) The modes of lexical and functional projections
in this system are schematically represented in 2 below, where L stands
for a lexical head and F indicates a functional head.\(^3\)

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1 For the arguments that recursion is necessary at the single-bar level, see Fukui
(1986, Chapter 2) and references cited there.

2 A “non-uniform” system is also proposed by other linguists including George
1980, Emonds 1985, among others. The projection system proposed in Fukui 1986,
however, seems to be crucially different from other similar proposals in that ‘non-
uniformity’ is based on an independently established distinction between syntactic
categories, namely lexical vs. functional (nonlexical), thus overcoming the conceptual
weakness potentially involved in ‘non-uniform’ approaches.

3 The node ‘SPEC’ is represented only for ease of reference. It is not intended that
the particular node ‘SPEC’ exists as a grammatical entity; I am assuming with
Chomsky 1986b that the notion ‘specifier’ is relationally defined.
(2) A Non-uniform Bar-level Model:

<table>
<thead>
<tr>
<th>Lexical projection</th>
<th>Functional projection</th>
</tr>
</thead>
<tbody>
<tr>
<td>L'</td>
<td>F''</td>
</tr>
<tr>
<td>L'</td>
<td>SPEC</td>
</tr>
<tr>
<td>agreement</td>
<td>F'</td>
</tr>
<tr>
<td>L'</td>
<td>complement</td>
</tr>
<tr>
<td>selection</td>
<td></td>
</tr>
<tr>
<td>(‘external’ argument)</td>
<td></td>
</tr>
<tr>
<td>L'</td>
<td>complement</td>
</tr>
<tr>
<td>selection</td>
<td></td>
</tr>
</tbody>
</table>

There are two points in this projection system that should be noted here. First, the SPEC in the functional projection in 2 is licensed by an *agreement* relation with the functional head. In other words, in this projection system, a specifier shows up only if there is some agreement relation between the functional head and its specifier.\(^4\) The second point follows from this characterization of the SPEC position. That is, lexical projections, in contrast to functional projections, do not have SPECs. This is because only functional heads can bear agreement features and the existence of agreement features (and possibly other features as well, cf. fn. 4) is an absolute condition for the licensing of a SPEC position.

Notice incidentally that in the projection system illustrated in 2, it becomes possible to characterize specifiers as elements that ‘close off’ category projections, as stated in 3.

(3) SPECs (and only SPECs) close off category projections.

That is, once a specifier shows up, nothing can be attached further to a given category and its projection is ‘closed’. Thus, in the examples in 4, the italicized elements in 4a and 4b are specifiers as signaled by the

\(^4\) Actually, this condition should be somewhat modified so as to account for the Exceptional Case Marking (ECM) constructions. That is, in the case of ECM, the specifier of the embedded I" is licensed by being assigned Case from the matrix verb. Thus, the licensing condition on the SPEC position should be something like: a SPEC position is licensed if and only if some ‘features’ (Case, +wh, etc.) are assigned to it. Also, in some cases, the SPEC position of CP should be available as a landing site of wh movement so as to allow successive-cyclic movement. See Fukui 1986, forthcoming for further discussion.
ungrammaticality of 4c and 4d, respectively.

(4) a. Mary's book  
b. Susan bought a book yesterday  
c. *this Mary's book  
d. *John Susan bought a book yesterday

Under this characterization of specifiers, lexical projections are never 'closed off', because they never license specifiers, due to the lack of agreement features associated with them. Thus, lexical heads only project up to the single-bar level, allowing free recursion at that level as long as other licensing conditions are satisfied; but they never reach the double-bar level.

Functional categories, on the other hand, can project up to a double-bar level, if the functional head contains agreement features. The internal structure of each functional head thus have the form shown in 5. I tentatively adopt here Brame's (1981, 1982) (and Abney's 1987) analysis of Determiner Phrases (DP) according to which they have a determiner (D) as a functional head comparable to COMP and INFL. Note, however, that although DP analysis of Brame 1981, 1982 and Abney 1987 fits quite well in the overall system of projection I am proposing, what is to be discussed below is largely independent of the ultimate legitimacy of the DP analysis.

(5) **Internal Structures of Functional Phrases**

\[
\begin{array}{ccc}
CP (=C'') & IP & DP (=D'') \\
\text{SPEC} & C' & \text{SPEC} \\
\text{agreement} & C & \text{agreement} \\
\text{selection} & C & \text{selection} \\
\end{array}
\]

(6)  
<table>
<thead>
<tr>
<th>Functional head</th>
<th>agreement-inducing elements</th>
<th>non-agreement-inducing elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>+wh</td>
<td>that</td>
</tr>
<tr>
<td>I</td>
<td>AGR</td>
<td>to</td>
</tr>
<tr>
<td>D</td>
<td>'s</td>
<td>the, a</td>
</tr>
</tbody>
</table>

I propose, as shown in 6 above, that agreement-inducing elements in CP, IP, and DP cases are the +wh feature, AGR in INFL, and the genitive Case assigner 's, respectively, whereas non-agreement-inducing elements
in CP, IP, and DP are that-type non-wh complementizer, infinitive marker to, and articles such as the and a, respectively. For further details and refinements, see Fukui & Speas 1986 and Fukui 1986, forthcoming.

One important thing to note for our present purposes is that in 5, the SPEC position is there solely as the target of discharge of agreement (and other) features, 'discharge' in the sense of Higginbotham 1985. More specifically, there is no inherent connection between the SPEC position and the so-called 'external argument' (Williams 1980). Thus, consider the following examples.

(7)  
   a. \[IP \text{it} \ [\text{seems that John is incompetent}]\]  
   b. \[DP \text{yesterday} \ ['s lecture]\]  
   c. \[IP \text{John} \ [\text{likes Mary}]\]

The italicized elements in 7 all show up in the SPEC position. However, their status with respect to the external argumenthood (or, for that matter, \(\theta\)-theory) are all different. In 7a, it is not an external argument of the predicate seems, nor is it \(\theta\)-related to anything. In 7b, yesterday is an adjunct, and is not an external argument of lecture. In contrast, John in 7c happens to be an external argument of likes. In short, there is no inherent connection between the SPEC position itself and the so-called 'external argument' in this projection system.

Notice in this connection that the projection system I am summarizing here makes it possible for an 'external argument' to appear in the lexical head's own projection, namely in one of the base-generated 'adjoined' positions. This and the above-mentioned fact that there is no inherent connection between the SPEC position of a functional projection and the \(\theta\)-related notion 'external argument' lead us to the hypothesis 8 in regard to the \(\iota\)-marking mechanism, which is quite different from the standard way of \(\theta\)-marking where an 'external' \(\theta\)-role is assigned to the SPEC position (cf. Chomsky 1981a, 1986b, among others).

(8) Every \(\theta\)-role (including an 'external' \(\theta\)-role) is assigned within a lexical head's (\(\theta\)-assigner's) own projection.

Under the hypothesis 8, the 'external argument', if any, is generated at D-structure in one of the base-generated 'adjoined' positions within a lexical head's own projection, receiving a \(\theta\)-role in that position. And then later in the derivation, it gets moved by syntactic Move-\(\alpha\) into the SPEC position of a functional category in order to satisfy the requirement which I call the 'principle of agreement' stated in 9.\(^5\) The internal

\(^5\) In fact, the principle of agreement alone cannot rule out the following sequence,
structures of clauses and noun phrases thus look like those in 10, according to this theory.6

(9) The Principle of Agreement: Agreement relation must be satisfied at S-structure.

(10) Internal Structures of ‘Clauses’ and ‘Noun Phrases’ (English)

For example, clauses such as John hit Bill and nominal expressions like John’s picture of Bill have derivations 11a and 11b, respectively.

(11) a. ‘John hit Bill’
D-str.: IP
SPEC I’
V’
[AGR]
‘external’ [argument]

b. ‘John’s picture of Bill’
D-str.: DP
SPEC D’
N’
[‘s]
[‘external’]

in which a lexical item is inserted into the SPEC position, thereby avoiding a violation of the principle, as Kitagawa (1986: 237) points out.

Thus, Case Theory, in particular the Case Filter, must interact with the principle of agreement in order to rule out all the unwanted sequences. See Kitagawa (1986, Chapter 3) for relevant discussion. Cf. also Fukui (1986, Chapter 2) for some related discussion.

6 For similar proposals, see Koopman & Sportiche 1985, 1986, Kitagawa 1986, and Kuroda 1986. Motivations for (and consequences of) these approaches are quite different from one another. I will not try to compare them in the following discussion. See Fukui forthcoming for discussion.
The projection system I have been summarizing has a number of consequences in a variety of subareas of grammatical theory, apart from the one which has to do with the comparative syntax of English and Japanese to be discussed below. The reader is referred to Fukui 1986, Fukui & Speas 1986, and especially Fukui forthcoming for much detailed discussion.

3. **Typological Differences between English and Japanese.** The major typological differences between English and Japanese to which I would like to give a unified account in the following discussion are summarized and illustrated below in 12–17.

(12) *The existence of obligatory syntactic wh movement*

- English: has syntactic wh movement
- Japanese: no syntactic wh movement

  a. English: I don’t know *what* John bought *ti_
  b. Japanese: *Boku-ga* John-*ga* *nani-o katta* *ka*
     I -Nom -Nom what-Acc bought Q
     *siranai* (koto)
     do not know (fact)
     ‘(the fact that) I don’t know what John bought’

(13) *The existence of overt ‘expletive’ elements*

- English: has overt expletive elements
- Japanese: no overt expletive elements

  a. English: *It* seems that John is competent
  b. Japanese: no corresponding constructions

(14) *The existence of ‘scrambling’*

- English: no ‘scrambling’
- Japanese: has ‘scrambling’
a. English:
(i) John put that book on the table
(ii) that book, John put it on the table
(iii) on the table, John put that book
(iv) *on the table, that book, John put it it
(v) *that book, on the table, John put it it

b. Japanese:
(i) Mary-ga John-ni so-no hon-o watasita
   ‘Mary handed that book to John’
(ii) John-ni Mary-ga ti so-no hon-o watasita
(iii) so-no hon-o Mary-ga John-ni ti watasita
(iv) so-no-hon-o John-ni Mary ga ti ti watasita
(v) John-ni so-no hon-o Mary-ga ti ti watasita

(15) The existence of multiple ‘subject’ constructions

English: no multiple ‘subject’ constructions
Japanese: has multiple ‘subject’ constructions

a. English:
(i) *civilized countries, male, the average lifespan is short
   (with the intended meaning ‘it is civilized countries
    that men, their average lifespan is short in’)
(ii) *MIT’s last week’s Chomsky’s that lecture

b. Japanese:
(i) bunmeikoku-ga dansei-ga heikinzyumyoo-ga
civilized countries-Nom male-Nom average lifespan-Nom
mizikai
is short
‘It is civilized countries that men, their average
lifespan is short in’ (Kuno 1973)
(ii) MIT-(de)-no sensyuu-no Chomsky-no
    at -Gen last week-Gen -Gen
    so-no koogi
    that lecture
    Lit. ‘MIT’s last week’s Chomsky’s that lecture’

7 I use the term ‘multiple subject’ here simply as a cover term for multiple
nominative and multiple genitive constructions.
(16) The existence of subject-Aux inversion
English: has subject-Aux inversion
Japanese: no subject-Aux inversion
a. English:
   (i) John will come home early this evening
   (ii) Will John come home early this evening?
b. Japanese:
   (i) John-wa kyoo ie-ni hayaku kaette-kuru
       Top today home-to early come back
       'John will come home early today'
   (ii) John-wa kyoo ie-ni hayaku kaette-ki-masu-ka
       Q
       'Will John come home early today?'

(17) The existence of productive 'complex predicate' formation
English: no productive complex predicate formation
Japanese: has productive complex predicate formation
a. English: no word-level complex predicates
b. Japanese: tabe-sase- rare- 'to be caused to eat,'
   eat cause passive
   nagur-(r)are-ta-gar-are-
   hit passive desiderative passive
   'to be shown a sign of wanting to be hit,' etc.

These typological differences between the two languages have been noted quite widely in the literature, but so far no systematic account has been given in order to derive them from a more general typological character of the language in question. Heretofore these differences have been regarded as unrelated to one another. Given the 'principles-and-parameters' approach adopted in the present paper, coupled with the version of X-bar theory introduced above, the question is now relevant. What is the fundamental parametric difference between English and Japanese which deduces the typological differences summarized above? In the following section, I will explore a possible avenue toward an answer to this question.

4. Deriving the typological differences. I propose that the fundamental parametric difference which distinguishes Japanese from English-type languages is the one that is stated in 18.
(18) Japanese lacks the class of functional categories.

Namely, Japanese lacks in its core lexicon all the functional categories COMP, INFL, and DET, which are exemplified in English as discussed above. There are various kinds of evidence presented in Fukui (1986, Chapter 4) that strongly support the hypothesis 18, which I cannot go into here due to space limitations. A few remarks should, however, be made in connection with the hypothesis 18. First, one might object to the hypothesis that Japanese lacks the functional categories by claiming that the language, like English, has 'tense' (or 'aspectual') elements such as -ru(nonpast), -ta(past). Notice, however, that the existence of INFL in the core lexicon (or in the X-bar schema) of a given language should be established in a highly theory internal way, as shown by the fact that even the presence of INFL in the core lexicon of English has been argued in a purely theory internal manner. Mere existence of tense (or aspectual) elements in a language does not by itself indicate the existence of INFL as an entity in the X-bar schema of the language. It is not clear at this point where in a Japanese clausal structure such elements as -ru and -ta should be put into. Perhaps, they might be placed under the V node as part of morphologically complex verb, or maybe they should be placed under INFL, if such a category exists in Japanese. It should be noted, however, that the situation is exactly the same for sentence-final 'particles' such as -da, -yo, -ne, etc., and for various other 'particles' that appear in Japanese. Given the spirit and the purpose of the X-bar theory, it is certainly not the case that the X-bar schema of Japanese should be designed to incorporate all of these elements. In short, the existence of INFL in the X-bar schema of Japanese or any other language should be argued on the basis of purely syntactic considerations, and so far, to the best of my knowledge, no strong argument has been given for the postulation of INFL as a syntactic entity in Japanese. The same remark seems to apply to the other two functional categories (COMP and DET) as well.

Actually, 18 is stronger than the claim made in Fukui 1986. In Fukui 1986, I propose that while Japanese lacks COMP and DET, we should admit a 'very defective' INFL in the language for the reasons stated there. Whether or not the functional category INFL is attested in Japanese, however, does not essentially affect our discussion here, since what is crucial for our present concern is the claim that no SPEC is licensed in the language. And even if there is a 'very defective' INFL in Japanese, it is clear, given our projection system, that it never licenses the SPEC position, due to the lack of agreement features associated with it as discussed in Fukui 1986.
Secondly, it is easy to see that there is an alternative, equally plausible, hypothesis to 18. That is, instead of claiming that Japanese lacks the functional categories, one might hypothesize that the language does have the functional categories neither one of which has agreement-inducing features. In fact, this possibility is explored in Fukui 1986 (cf. fn. 8) in the case of INFL, and similar proposals have been made along these lines (Kuroda 1986, Tonoike 1987). As long as the revised X-bar theory introduced above is adopted, it is certainly possible even under this approach to give a unified account of English-Japanese differences just as when we assume the statement 18, though in some cases, e.g. the presence/absence of subject-Aux inversion (cf. 16), that of productive ‘complex predicate’ formation (cf. 17), the modifiability of proforms (see below), etc., the explanation would probably not be so straightforward as the one under the hypothesis 18. At this point, it is extremely difficult to come up with the decisive evidence between these two hypotheses; furthermore, it is even not clear whether they make different empirical predictions concerning the parametric syntax of English and Japanese. In what follows, then, I will simply assume the hypothesis 18, putting aside the equally plausible alternative hypothesis just described.

Assuming that 18 is a tenable hypothesis, it immediately follows, given the projection system introduced in section 2, that 19 and 20 also hold for Japanese.

(19) Japanese lacks the agreement phenomena (in the sense defined above).

(20) Japanese lacks SPECs (as a possible landing site for X_{max} movement).

It also follows (rather trivially) that the head of clauses is V, rather than INFL, in Japanese (cf. Whitman 1987, Chomsky 1986b).

(21) The head of S in Japanese is V, rather than I.

For extensive discussion on various empirical evidence supporting these statements, see Fukui 1986.

Now let us briefly look at how the projection system summarized above, coupled with the parametric statement 18, can explain naturally the major typological characteristics distinguishing between English and Japanese which are stated and illustrated in 12 through 17.

Consider first the existence of obligatory syntactic wh movement. It is well-known that English has syntactic wh movement, but Japanese does not, as illustrated in 12. This is a natural consequence of our proposal, since syntactic wh movement is regarded as a kind of agreement phe-
nomena triggered by +wh COMP. Therefore, a wh element must move into the SPEC position of CP (cf. Chomsky 1986b) in order to satisfy the principle of agreement 9, whereas in Japanese a wh element does not move in D-structure to S-structure mapping and remains in situ, because there is no agreement-inducing category such as +wh COMP in this language.

It is also well-known that English has overt expletives such as it and there, but Japanese does not (cf. 13). Given the projection system outlined above, the obligatory existence of an overt element in the SPEC position of IP in English is the result of the principle of agreement. That is, in order to satisfy this principle, a phonetically non-null element must be present in the SPEC position of IP even if no θ-role is assigned to that position. On the other hand, the principle of agreement does not apply in Japanese, simply because there is no agreement-inducing category in the language. Therefore, Japanese does not have overt expletives. Notice incidentally that our analysis of overt expletives in English implies that the so-called ‘Extended’ part of the Extended Projection Principle, i.e. the requirement that clauses have subjects, does not have to be stipulated as it is in Chomsky 1982. Rather, it should be dissociated from the Projection Principle itself and be derived from some other general principle such as the principle of agreement, which can possibly be further derived from the Saturation Principle of Fukui & Speas 1986.9

Let us now consider the problem of scrambling. As illustrated in 14, scrambling, in particular multiple scrambling, is a quite regular phenomenon in Japanese, whereas English does not exhibit the corresponding phenomenon as a regular grammatical process. The reason for this difference has to do with the position of subjects at S-structure in these languages. In English, a subject in a clause has already been moved into the SPEC position of IP at S-structure, as required by the principle of agreement (and by the Case Filter, see fn. 5). Thus, any movement operation which moves an element into the position immediately preceding the subject must necessarily be an adjunction to IP.10 However, as argued in Guéron & May 1984 and May 1985, multiple

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9 Somewhat similar proposals have been made in Manzini 1983 and Borer 1986.
10 Or possibly a substitution into the SPEC of CP, depending on one's analysis of topicalization. See Baltin 1982, Lasnik & Saito forthcoming, among others, for detailed analyses of topicalization.
adjunction to a single category is not allowed.\textsuperscript{11} This assures that English cannot have rules comparable to (multiple) scrambling; it only has topicalization, a marked operation, which takes place only once per clause. Japanese subjects, on the other hand, stay within the projection of V, due to the lack of agreement phenomenon in the language. Therefore, rather free movement of arguments into the base-generated ‘adjointed’ positions at the level of V’ is possible, because the projection of V, being a lexical projection, allows free recursion at the single-bar level, as discussed above.\textsuperscript{12} The difference between English and Japanese with respect to scrambling (and the position of ‘subject’) can be schematically represented as in 22.

\begin{equation}
\text{(22)}
\begin{array}{c}
\text{English} \\
\begin{array}{c}
\text{IP} \\
\text{IP} \\
\text{‘subject’} \_ I’ \\
\text{I} \\
\text{〈AGR〉} \\
\text{t}_1 \\
\text{V’} \\
\text{V} \\
\end{array} \\
\text{‘topicalization’}
\end{array}
\begin{array}{c}
\text{Japanese} \\
\begin{array}{c}
\text{V’} \\
\text{V’} \\
\text{V’} \\
\text{V} \\
\text{‘subject’} \\
\text{‘scrambling’}
\end{array}
\end{array}
\end{equation}

\textsuperscript{11} It might be possible to derive this effect from the subjacency condition if we assume with Lasnik & Saito forthcoming that the relevant notion of barriers to movement is defined in terms of ‘segments’ of a category.

\textsuperscript{12} This explanation cannot preclude the possibility of ‘scrambling’ within a projection of V in English, changing the order between direct and indirect objects, for instance. One might argue that the rule of ‘Dative Shift’ can be regarded as a kind of V’-internal scrambling. A question still remains, however, as to why ‘Dative Shift’ is limited to a certain class of verbs, whereas scrambling in Japanese is a rather productive process, which takes place in a way quite independent of a class of verbs. Also, further conditions are required to block free movement of arguments into one of the iterated positions at the V’ level in English (an English analog of ‘scrambling’):

\[\text{[IP John [I, gave, [V, to Maryk [V, t_1 [V, [V, t_1 the book] t_1]]]]]\]

Aside from strict cyclicity, one possibility to exclude this unwanted derivation is to assume that the raising of a verb into I, an operation to form a morphological unit, obeys the string adjacency condition over and above the ECP. Thus, in the above configuration, the ‘scrambled’ element to Mary breaks the string adjacency between the original position of the verb give and the I, so that the V-raising operation cannot take place licitly.
The explanation just given to the problem of scrambling can easily be extended to the problem of multiple 'subject' constructions: Subjects in Japanese clauses and nominals appear in freely-iterated positions at the single-bar level of verbal and nominal projections, respectively. Therefore, they can iterate as long as other licensing conditions such as the existence of 'aboutness' relation are satisfied, just like, structurally speaking, preverbal auxiliaries and prenominal adjectives can iterate even in English. English subjects, on the other hand, appear at S-structure in the SPEC position, which is not iterable due to the nature of agreement (See Fukui (1986, Chapter 2). Cf. also Kuroda 1986). Hence, no multiple 'subject' constructions in English.

It should now be clear that the possibility of scrambling and the possibility of multiple 'subject' constructions are not at all unrelated, as has been implicitly assumed in the literature. Rather, they are two instances of a more general difference between English and Japanese, namely, the nature of 'subject' in these languages, which can, in turn, be derived from the fundamental parametric property of Japanese stated in 18.

Turning to the last two differences between English and Japanese, let us assume that subject-Aux inversion and 'complex predicate' formation are both instances of head-movement (Baker 1985, Chomsky 1986b). Specifically, subject-Aux inversion can be viewed as a movement of an inflected verb (or other elements under INFL, e.g. modals) to the complementizer position, which is schematically represented as follows.

\[
(23) \quad [\text{CP} \overset{\text{C}}{\text{IP}} \overset{\text{XP}}{[\text{I}\,\text{I}} \ldots
\]

The explanation for the fact that Japanese lacks this process of head-movement should be straightforward: Japanese does not have, in its core lexicon, the elements which are involved in the process represented in 23. Namely, it does not have INFL and COMP.

As for the case of 'complex predicate' formation, this process in Japanese can be schematically represented as follows.

\[
(24) \quad \ldots \overset{\text{V}_1}{\text{V}_1} \overset{\text{V}_2}{\text{V}_2} \overset{\text{V}_3}{\text{V}_3}\]

Each movement operation in 24 does not violate any of the principles of UG. Therefore, 'complex predicate' formation freely takes place in Japanese as a series of successive movement of a verb into the next higher one. On the other hand, an analogous operation in English should necessarily take the form such as 25, due to the phrase structure of this language:
In 25, the second movement is blocked either by the ECP or by the requirement of string adjacency imposed generally on morphological processes (cf. fn. 12). English, therefore, cannot have the productive ‘complex predicate’ formation processes comparable to those in Japanese.

It has been shown above that the major typological differences between English and Japanese, which are summarized in 12-17, naturally follow from the fundamental parametric property of Japanese stated in 18, coupled with the projection system outlined in section 2. Recall now that I have characterized SPECs as elements that ‘close off’ category projections (cf. 3). I have also argued that Japanese lacks SPECs (cf. 20). From these, it becomes possible to characterize category projections in Japanese, as opposed to those in English, as basically ‘open’ in the sense that there is no syntactic limit for the addition of elements to a given category projection in Japanese. In fact, we can regard the possibility of scrambling and multiple ‘subject’ constructions in Japanese as instances of this general ‘open’ character of projections in the language. A further piece of evidence in support of this characterization of Japanese category projections can be obtained from the fact that in Japanese, even proforms (pronouns and anaphors) are generally modifiable as long as semantic conditions are met, while English proforms are generally unmodifiable, as illustrated by the following contrasts pointed out in Fukui 1986. (Cf. also Kuroda 1965)

(26) a. *big it
b. *short he
c. *yesterday’s himself

(27) a. sore ‘it’
Tokyo-no biru-no okuzyoo kara mita
-Gen building-Gen top from (I) saw
Haree-suisei-wa smog-no tame bonyarito
Halley’s Comet-Top smog-Gen due to faintly
nigotte ita ga, Okinawa-no Naha-de mita sore-wa
blurred was but -Gen -in (I) saw it -Top
yozora-ni kukkan kagayaite-ita
night sky-in vividly shining was
Lit. ‘Halley’s Comet that (I) saw from the top of a building in Tokyo was blurred by the smog, but it that (I) saw in Naha
**City in Okinawa** was vividly shining in the night sky'

b. *kare* 'he'

kinoo Taroo-ni atta ka-i?
yesterday Taro-with met Q

‘Did you see Taro yesterday?’

un, demo *kinoo-no kare-wa* sukosi yoosu-ga
yes but yesterday-Gen he-Top somewhat state-Nom

hendat-ta
be strange-Past

Lit. ‘Yes, but *yesterday’s he* was somewhat strange’

c. *zibun* 'self'

Kukyoo-ni tatasare-ta Saburoo-wa nanno
hardship-in forced to face-Past Saburo-Top not any

kuroo-mo siranakat-ta mukasi-no
sufferings-even not-know-Past old days-Gen

*zibun-ni modoritai-to* omotta
self-to wanted to go back-that thought

Lit. ‘Saburo, who was stranded in hardships, wanted to go back to *old day’s himself* who did not know any sufferings’

(Fukui 1986)

Japanese proforms such as *sore, kare* and *zibun* are all N’ proforms simply because category projections in this language stop at the single-bar level due to the lack of functional categories, and never reach the double-bar, syntactically closed, level. Therefore, there is no proform in Japanese that behaves like English *it* with respect to its modifiability, and proforms in Japanese can always be further modified just like English N’ proform *one* is modifiable.\(^{13}\)

---

\(^{13}\) Even in English, there are a small number of marked cases where a proform is modified, e.g. *the real you, my former self, he who casts the first stone*, etc. The existence of such marginal N’ (or N) proforms in English does not affect the argument in the text. The crucial fact for our present purposes is that there are no non-modifiable proforms in Japanese. Incidentally, our discussion here naturally leads to the following overall picture of the system of proforms in natural languages: There are two categories available in the universal lexicon as a head of nominal expressions including proforms, namely N and D; and each language selects either one or both of these categories for a head of proforms as its parametric property permits, perhaps constrained by some principle of markedness. Thus, English selects D as the head of proforms in general, and also selects N (as a marked option) for a small number of
5. CONCLUDING REMARKS. It has been argued above that the relativized version of X-bar theory developed in Fukui 1986 makes it possible to derive a variety of syntactic differences between English and Japanese in a quite natural way from a single fundamental difference between the two languages, namely, the presence or absence of functional categories in the core lexicon of a language. In this section, I will briefly discuss some of the implications of our result for the general theory of parameters in UG.

As briefly described in section 1, under the 'principles-and-parameters' approach assumed here, UG consists of the set of principles each of which is associated with a parameter whose value is to be set by experience. Each core grammar (of Japanese, of English, etc.) under this view is obtained when the values of parameters are set in one of the permissible ways. To be more precise, acquisition of a particular core grammar requires determination of a core lexicon, in addition to setting parameters, since specific information associated with each lexical item must in any event be 'learned' through experience, though this 'learning' should also be guided by some general principles. Thus, determination of core grammars can be represented as follows.

(28) \[ \text{UG} \rightarrow \text{core grammars} \]
\[ \uparrow \]
\[ (i) \text{fixing of parameters} \]
\[ (ii) \text{determination of a core lexicon} \]

We have been assuming that the universal lexicon is divided into two distinct subsets; the set of lexical categories which are defined in terms of the primitive features \([\pm N]\) and \([\pm V]\), and the set of functional categories C, I, and D.

(29) The structure of the universal lexicon

<table>
<thead>
<tr>
<th>lexical categories</th>
<th>functional categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>([\pm N], [\pm V])</td>
<td>C, I, D</td>
</tr>
</tbody>
</table>

Important theoretical questions here are: (i) What are the possible proforms such as one and the examples cited above. (See Postal 1969 for a classical treatment of English pronouns as determiners). Japanese, in contrast, does not have the first option, since its core lexicon does not contain the category D. Therefore, the proforms in Japanese are necessarily headed by N and hence exhibit uniformly the 'open' property of projection pointed out in the text.
parameters? and (ii) In what ways are variations of core lexicons of particular grammars constrained? It is clear that the class of possible parameters and the range of possible core lexicons of languages should be narrowly constrained; otherwise, the class of possible core grammars would be left unconstrained, which is surely an undesirable situation for the familiar reasons of learnability.

Let us consider first the question of lexicon. A natural hypothesis that suggests itself is the one stated below.

(30) Lexical categories are essentially invariant across languages; only functional categories are subject to crosslinguistic variation.

This hypothesis makes much intuitive sense in view of the nature of lexical and functional categories. Lexical categories have their own 'meaning', however this term is to be characterized precisely. These categories, then, constitute the basic units for expression of thought. It is quite inconceivable that a language without lexical categories, the basic units of expression, can serve as a free instrument of thought and self-expression, an oft-cited function of human language. Functional categories, on the other hand, do not have their own 'meaning' comparable to the one associated with lexical categories. The basic role of functional categories is, as pointed out in Fukui 1986, to connect syntactic constituents via some purely syntactic relationship such as agreement. It would still be possible to form a 'basic unit of thought' without these categories. In fact, as has been argued in this paper, Japanese lacks the class of functional categories in its core lexicon, but it can still serve as a free instrument of thought and self-expression.

Consider next the question of possible parameters. It is conceptually desirable if we can reduce all the 'parametric' properties of different core grammars to the differences in the lexicon (Borer 1984, Manzini & Wexler 1987), since acquisition of the lexicon is ineliminable in any event. However, it seems to me that the differences among languages with respect to 'linear order' cannot at this point successfully be reduced to properties of lexical items. Therefore, I tentatively propose that there are parameters in UG that cannot be reduced to specific properties of lexical items.

(31) Possible parameters: Parameters are restricted to those having to do with linear order.

To sum up our rather speculative discussion so far, the following restrictions have been suggested with respect to the possible options for 28i and 28ii, respectively.
(32) Restrictions on 28i and 28ii:

(i) linear order
(ii) the existence and the 'contents' (features) of functional categories

If this approach is generally correct, various 'parameters' that have been proposed so far in the literature should be reexamined to decide whether they are possible parameters or their effect should be further derived from some more plausible parametric properties of the languages in question. To take a few examples, the 'parameters' with respect to the levels at which Move-α applies proposed in important work of James Huang (Huang 1982) cannot be an ultimate parametric difference distinguishing between English-type languages and Chinese/Japanese-type languages, because it neither has to do with functional categories, nor with linear order. Rather, the generalization captured by the 'parameter' should be derived from something else. I have suggested one possible way to do this, i.e. to deduce the lack of obligatory syntactic wh movement in Japanese from the absence of an agreement-inducing functional category COMP in the core lexicon of the language. The 'choice of the bounding nodes' parameter proposed in Rizzi (1982, Chapter 2) regarding the differences in subjacency between English and Italian should also be reinterpreted along the lines of our discussion for the same reason. It may be that the differences between English and Italian with respect to the wh-island constraint reported in Rizzi's work can be derived from some factor involving nonrealized subject, which in turn derives from the different properties of the functional category INFL (and possibly COMP) in these languages. Other 'parameters' that should be reinterpreted in the light of our present discussion include, among many others, Chomsky's 1986b 'the choice of the head of S' parameter and Huang's 1984 'empty topic' parameter. For 'the choice of the head of S' parameter, I have already suggested an alternative way to derive this in the case of English and Japanese: Japanese clauses are headed by V, rather than by I, simply because its core lexicon does not contain I (cf. 21). As for the 'empty topic' parameter, which Huang proposes to explain the well-noted topic-prominent property of certain class of languages, one might suggest that the effect of this 'parameter' could be a consequence of 'the choice of the head of S' parameter now reinterpreted as a derivative property of the core lexicon of a given language. That is, clauses in topic-prominent languages are projections of V, and it is well-known that projections of V are generally characterized as predicates. Being predicates, they require
the target element to be predicated of. And even if such an element
does not overtly exist, they still require the target element of predication.
An 'empty topic' is thus required as a consequence of the basic property
of clauses as predicates in topic-prominent languages. On the other
hand, clauses in non-topic-prominent languages such as English are pro-
jections of I, and their basic property is being an argument, with predica-
tion being already carried out within it between the projection of V and
the subject in the SPEC of IP. Therefore, clauses in this type of languages
do not further require the target element of predication. Hence, the non-
topic-prominence of, say, English.

Our discussion in this section is surely inconclusive, but the possible
avenues toward a more plausible theory of parametric variations should
now be clear. The research reported in this paper should be evaluated as
an attempt in such a broader context of inquiry.\(^{14}\)

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\(^{14}\) For much detailed discussion on the topics touched upon in this section, the reader
is referred to Fukui forthcoming.


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