

All Parametric Variation Originates from CI-Related UG Residues

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Suzuki, Norio. 2008. All Parametric Variation Originates from CI-Related UG Residues. *The Linguistic Association of Korea Journal*, 16(3), 81-117. The major part of the set of assumptions adopted for the purpose of discussion in this article largely consists of those concerned with the following three important issues/concepts in recent minimalist theorizing: i.e., (i) the strong minimalist thesis (SMT) in the sense of Chomsky (2000, 2001, 2004, 2005, 2007); (ii) the concept of a UG residue in the sense of Chomsky (2007) and of Suzuki (2007a, 2007b, 2007c, forthcoming); and (iii) the notion of abductive parametric change in the sense of Roberts (2007).

Note first of all that “abductive NS (narrow syntactic) variation” should be strictly within the scope allowed for by the binarity of human language parameters of variation. And by far the strongest claim I make in this paper is that *all human/natural language parameters of variation originate from CI-related UG residues* in the sense of Suzuki (2007b, forthcoming).

One of the two categories of a UG residue (originating from Chomsky 2007) consists of FLN entities *not properly interface-realized*. Specifically relevant here are those FLN resources that have an imperfect *many-to-one correspondence with the CI-interface/module*.

Quite generally, when it comes to *binary parameters* (one at a time), there should always exist an *imperfect two-to-one* correspondence between FLN (i.e., NS structures) and their *single/common* CI-interpretation both across grammars and perhaps, grammar-internally. When it comes to human/natural languages themselves, there should arise an *extremely imperfect many-to-one* correspondence (*many* = the number of all human languages) between NS structures in all languages and their *single/common* CI-interpretation.

Key Words: trigger, P(arameter)-expression, bootstrapping, the strong minimalist thesis(SMT), UG residue, CI-related UG residue, interface-reduction, interface-realization, variation, abductive acquisition, abductive parametric change, weak P(arameter)-ambiguity

1. Introduction: the Framework

People working on brain sciences are often reported nowadays to say that more than 90% of our brain cells will die before being used, only a few percent of them being used for *life purposes*. I suspect that it is necessary to go into detailed analysis of these dying cells for the truly deep understanding of the nature of *human life*. In the same sense, I have a hunch that it is crucially needed for us to deeply examine the true nature of *what I call UG residues for the true understanding of human language* (Chomsky 2007, Suzuki 2007a,b,c).

First, let me point out that there are two major (sub-)concepts related to the (general) notion of UG residues: (i) the concept of “interface-reduction” (due to Chomsky 2007; see also (10a) in section 5.1 below); and (ii) the concept of “interface-realization” (due to me; see also (10b) in section 5.1 below). I tentatively assume the notion of interface-reduction in the sense of Chomsky (2007) to be central in this whole “UG residue” story.

And a brief comment may be in order on my concept of interface-realization. The central assumption with the notion of interface-realization is that the only SMT-compatible correspondence between FLN/UG/NS and the interfaces is a one-to-one correspondence. This should correspond to the concept of “strong I(nterface)-realization” (see section 5.2.1 below). I doubt the existence of such strong I-realization, already given the diversity of natural languages, which situation readily points to the presence of CI-related UG residues. In the time (200,000 years ago in East Africa) of Eve, our *Homo sapiens* common ancestor/mother in the more or less familiar evolutionary story, there may have existed SMT-compatible strong I-realization, given the speculation that the number of existing natural languages in those days was just one. It is CI-related UG residues that constitute the major part of “weak I(nterface-) realization” (see section 5.2.2 below). Two representative types of weak I-realization are *improper I-realization* and *null I-realization*. The typical case of improper I-realization should be one in which we obtain an “imperfect” *many-to-one* correspondence

between FLN and the interfaces. CI-related UG residues typically arise in cases where correspondences between FLN and the interfaces are many-to-one. The category of null I-realization is comprised of the set of cases where we only obtain an “imperfect” *one-to-zero* correspondence between FLN and the interface. *Island constraint violations as they pertain to the SM-interface* is a case in point.

Some remarks may also be in order here on the title of the present article, which contains a variety of more or less recalcitrant/controversial theoretical concepts that seem to have begun to assume a certain amount of importance in recent minimalist theorizing, as the reader notes (see the relevant sections below for much more on each of the notions discussed).

I first follow Roberts (2007) in presupposing the long-standing assumption in the generative tradition that *human language acquisition proceeds in an abductive fashion*. Within the framework of a version of the acquisition-based theory of language change (see Roberts 2007), presumably the only reason that languages change is because the child/learner may acquire a (perhaps, slightly) different language than that of her parents. The latter acquisitional situation should arise primarily out of the abductive status of human language acquisition.

Moreover, I assume that *all* human language parameters of variation reside in the narrow syntax (NS)/UG/FLN (perhaps, including the category of “macro-parameters” in the sense of Baker 2008, if any). Notice that Suzuki (2007a) assumes that the child’s first language acquisition *after birth* is limited to that of the lexicon (see also the functional parametrization hypothesis FPH in the sense of Borer 1984, Fukui 1986) and that *biological acquisition* involves a “bipartite” bootstrapping mechanism consisting of an FLN entity inaccessible to the child (i.e., target of bootstrapping) and its innately associated trigger/cue in the form of an interface ingredient that is accessible to her.

Suzuki (2007b,c) has proposed that the notion of true optionality in the sense of Biberauer and Richards (2006) derives from the concept of UG residues, specifically from that of “CI-related UG residues.” Typically, CI-related UG residues arise where we obtain two (or more) NS structures for a single sentence with a single CI-interpretation. (This is an instance

of “improper/weak” interface-realization; concretely, an instance of an “imperfect” *many-to-one* correspondence between FLN and the interface. See below for some discussion.) My claim here is that *all human language parameters of variation originate from CI-related UG residues*.

Note that roughly there seem to be at least two categories of parameters of variation. One is concerned with whether or not to make use of a specific NS position in an EPP-related way, while the other with the “amount of pied-piping” in conjunction with the EPP-feature (see Suzuki 2007a: chapter 1 for some discussion and analysis). Incidentally, Biberauer and Richards’ (2006) original example from Modern Spoken Afrikaans for the purpose of their claim for the concept of true optionality is relevant to the latter amount-of-pied-piping problem. The most interesting point with the two categories of parameters of variation above is that both of them are compatible with Sigurdsson’s (2004: 243, 251) *Silence Principle* with its consequence that “*all* languages have access to *all* features of UG — humans are endowed with innate syntactic elements and structures that are independent of *whether or how they are expressed*” (this emphasis — NS).

2. Some General Discussion: More on the Framework Adopted Here

2.1 A system with a “supergrammar (SG)” incorporated in it and the ontology of grammars

Under the assumption based on Suzuki (2007a: chapter 5) that both options of a binary parameter are always available, the child (and the adult) can always have access to them, with the traditional notion of parameter-setting limited to the current grammar. (Recall Fodor’s 1998 notion of a *supergrammar*, such that it consists of the learner’s current grammar plus all of the UG-defined trigger structures; borrowing this term with appropriate adjustments made so as for it to fit in with the present framework, I henceforth call a “supergrammar (SG)” a system that specifically continues to retain all remaining parameter options in addition to the options relevant to the current grammar.) This may

provide us with some means of accounting for the everyday situation pertaining to language/grammar described in Lightfoot (2006: i) as follows: “New languages are constantly emerging, as existing languages diverge into different forms.” The emerging picture of grammars seems to be that they may not be nearly as stable as is generally believed. Although a grammar may exist in abstract and potential terms (and in real terms in a sense; recall the usual generative grammar assumption of reality of this kind), a *sample* grammar corresponding to the abstract grammar only emerges as a result of the parser/processor or the language producer accessing the many different places to obtain (economically) necessary pieces of information that may eventually constitute its foundational ingredients (see Suzuki 2007a: chapter 5). This should hold true of the child acquiring language even if accessing is implemented through bootstrapping (see Suzuki 2007a: chapter 2). (Notice that the relationship between the abstract/real grammar and the sample grammar thus obtained should not be that between the concepts of competence and performance, specifically the latter notion applying to external languages.)

Children who used overregularized forms such as *goed*, *singed*, etc. instead of the adult forms *went*, *sang*, etc. are reported to have used these unconventional forms, remarking to their father that he should use the conventional forms when they heard him trying to mimic them by using the unconventional forms (Guasti 2002). Capitalizing on the notion of supergrammar (SG) in the sense of Fodor (1998), I would interpret this situation where instances of overregularization are observed with the concomitant remark on the part of the learner as follows: “Overregularization itself may result from the UG-defined default setting of the (morphological) rule(s) responsible for deriving inflectional paradigms, presumably because of the as yet short, shallow, and insufficient association with the adult version of the target language on the part of the learner (the reason for which situation must be sought in principled terms). Children’s remark on their father’s language should indicate that they have in themselves SG, which may explain the availability of both conventional forms (due to language fact) and unconventional ones (due to the UG-defined default setting).

And it should simply be a matter of time before children switch over from the current unconventional stage to the adult conventional one without any learnability problems, given the system with SG incorporated in it.”

Some more remarks on the system with SG incorporated in it may be in order. First, the overall picture surrounding FLN may be described like the following: “FLN continues to be available to a human individual in her organism/system throughout her life. But there should be a number of (perhaps, sharp) differences in the efficiency/sustainability/etc. of the (partly) acquired system (i.e., the grammar and the lexicon), depending on the biological stage of development when it is acquired. The relevant dichotomy is, of course, between the biologically critical period and the post-critical period, the standard assumption being that biological acquisition is only possible in the former period, while you would have to resort to a general learning strategy (GLS) of some sort in the latter.

Specifically, what continues to be present in the human system after the critical period is over should be SG, that is, the version of UG parametrized in the direction of the target language (crucially) with all the remaining UG-defined parameter options preserved as they are at birth (apart from the lexicon; but see Borer 1984, Fukui 1986, Atkinson 1992 for the functional parametrization hypothesis (FPH), which restricts the application of parameters to the functional domain of the lexicon, and also the lexical condition on the child’s language acquisition *after birth* in section 2.2 below).”

Speaking in terms of the head-complement parameter with the VO vs. OV options, the native speaker of Japanese who has biologically set the parameter is assumed to continue to have the two values, one for Japanese (i.e., OV) and the other VO value. Although biological setting and GLS setting (as might be the case with second language acquisition) may be fundamentally different with subsequences due to the former necessarily subconscious and ones due to the latter largely conscious, I assume the differences between them to not be nearly as considerable as one might conjecture, given the strictly ontological view of grammars.

The present version of the strictly ontological view of grammars would have it that “the only locus of grammar realization must be in language performance (such as comprehension/interpretation, production, parsing/processing) in that it should only be through an instance of performance that a set of heterogeneous kinds of information/data scattered around in a variety of independent modules can be accessed, as a result of which a grammar may emerge.” Physically speaking, moreover, the grammar that has emerged in this fashion still may not be a whole complex whose ingredients have been assembled in a single space, but simply a whole in a *metaphorical* sense with its foundational ingredients having been accessed and capitalized on in their original places only for current purposes. That is, grammars as wholes (in the metaphorical sense) appear only in instances of performance with *raw materials* for grammar formation residing in their individual module throughout the human individual’s life more or less in their original form, which may lead us to conclude that one of the most viable conceptions of I-language/(competence) grammar as it is usually distinguished from E-language/performance should be discovered in the present interpretation of a *mental/abstract* grammar. These mental/abstract grammars appear and disappear along with a specific time-bound instance of performance, with only the raw materials for grammar formation in the sense above continuing to be available throughout the human life. Presumably, then, it should be the raw materials for grammar formation that are physically real, whereas (different) grammars may only be epiphenomena arising concomitantly with an instance of performance due to (fixing of) the UG-provided parameter options. Overall, the present ontological conception of grammars may point to the plausibility of the assumption implicit in Lightfoot (2006) that it must actually be the case that “grammars are much more unstable and subject to change.”

2.2 The child’s first language acquisition *after birth*

I assume that the child’s first language acquisition after birth is solely

concerned with *lexical acquisition* (including parameter-setting cases; see Suzuki 2007a: chapter 5; but see below some complication involved in the setting the V-raising parameter, as opposed to that of the head-complement parameter). According to Suzuki (2007a: chapter 5), every instance of *biological* lexical acquisition (covering both the acquisition of ordinary lexical items and the so-called parameter-setting cases) necessarily involves part of it where the child needs to gain access to an FLN entity inaccessible to her that arguably forms the formal feature part of the whole construction of the lexical item, with the mechanism of bootstrapping playing a major role in allowing the learner to reach the relevant abstract FLN entity. Suzuki (2007a: chapter 5) further argues that every instance of such biological acquisition involves both an aspect of it that has to be reached/identified/established through bootstrapping because of its status as an FLN entity (*whose acquisitional relevance is assumed to be limited to the critical period due to its neurophysiological nature*, and which should arguably be abstract and hence, inaccessible to the learner as such), and its other aspect that is usually couched in a vocabulary arguably accessible to her and hence, able to serve as a cue, that is, the accessible interface portion in terms of which to gain access to FLN.

I note here a possible difference between (i) *ordinary lexical acquisition* and (ii) parameter-setting cases, as follows:

(1) *Nature of the formal-feature part*

- a. The case of ordinary lexical acquisition:
UNARY: e. g., the categorical feature [N] (for the word *dog*)
- b. The case of parameter-setting cases:
BINARY: e.g., whether or not *v* has an extra EPP-feature
(for the head-complement parameter).

Keeping to the formal-feature part, elements of category (1a) do not contribute to variation across grammars, while those of category (1b) do. The latter are *binary parameters*. And my (more or less standard) claim is that these parameters of variation are necessarily abstract due to the

deductive nature of human language, calling for a (UG-provided) bootstrapping mechanism roughly consisting of (i) a trigger/cue expressed in terms of interface resources (accessible to the child) and (ii) the target of bootstrapping (i.e., an abstract FLN resource, such as an “extra EPP-feature on v*” in the case of the head-complement parameter).

2.3 NS-internal competence vs. performance

In the discussion on the ontology of grammars in section 2.1 above, we noted that these mental/abstract grammars appear and disappear along with a specific time-bound instance of performance, with only the raw materials for grammar formation in the sense above continuing to be available throughout the human life. It should then be the raw materials for grammar formation that are physically real, whereas (different) grammars may only be epiphenomena arising concomitantly with an instance of performance due to (fixing of) the UG-provided parameter options.

My somehow unconventional hunch has for some time been that the concept of performance should be extended so as to incorporate *NS internal performance* as well. Or rather, it must be NS-internal performance that other more explicit sorts of performance (e.g., production, parsing/processing in the standard sense) should be based on. Roughly, the emerging picture is as follows:

(2) a. *NS-internal competence*

Raw materials for grammar formation: e.g., operations such as Agree, Merge; properties such as *recursion*; parameter values biased toward the language in question, with other values also available due to SG incorporated in the system; components mapping to interfaces.

b. *NS-internal performance*

NS derivation.

As for NS-internal competence (2a), notice that it roughly corresponds to “the existing machinery internal to the syntactic component (e.g., why we

find an AGREE operation in the syntax)” in the sense of Epstein (2003/2007: 23).¹⁾ The whole complex of machinery for the purpose of NS-internal competence is just *raw material* to be used for grammar formation. It looks as if the raw materials are mathematical equations with their variable slots still vacant (see also Epstein 2003/2007).

Turning to NS-internal performance in (2b), I claim that the concept of “computational load,” which has long been central and instrumental in economy considerations, is relevant to the notion of NS internal performance. Note also that the concept of NS-internal performance here may corresponds to “its (the existing machinery in the syntactic component — NS) mode of application (why, in this particular derivation, does AGREE apply as it does?) internal to a particular derivation” in the sense of Epstein (2003/2007: 23).

In contrast to the more or less standard picture of a grammar, I would assume it to be something like a set of heterogeneous factors and elements residing in different components and places. And the user of the grammar (i.e., the parser/processor, the producer) would have to have access to these different corners to obtain necessary ingredients/information to implement language performance. The implicit assumption here is that a grammar is not an already completed whole residing in a single place, but a *living being* in the sense that it gets composed over some actual time interval, presenting itself only in performance (its abstract picture being, of course, possible, though). This should be an instance of a strictly *ontological* view of a grammar.

1) Notice that Epstein’s (2003/2007) strategy involving the notion of “internalist-*functional*” explanation may lead to ignoring the extremely important aspect of much recent minimalist theorizing, that is, its evolutionary perspective. Indeed, Epstein’s (2003/2007) conception of the relationship between FLN and interfaces/modules (external to it) may be more congenial to the “evolutionary interpretation of the SMT” rather than to its constructive interpretation in the sense of Suzuki (2007a: 169–172).

It seems to me that an evolutionary interpretation of the SMT must necessarily come to exist only in case we have the stage(s) of human history where some (relevant) evolutionary coincidences somehow happened to conspire to converge on something like the SMT. My hunch is that the latter historical/evolutionary event(s) *never happened functionally*.

3. Abductive Parametric Change: Roberts (2007)

3.1 Abductive parametric change

Roberts (2007: 123–124) discusses “abduction” in the sense of the philosopher Charles Sanders Pierce as it is instrumental in accounting for the way human languages change; i.e., “abductive (parametric) change.”

Given the usual three ingredients for the purposes of (human) inference/reasoning (i.e., the law, the case, and the result), deduction proceeds from the law and the case to the result and induction proceeds from the case and the result to the law. Abduction proceeds from the law and the result to the case. For example, ‘All men are mortal’ (law) & ‘Socrates is mortal’ (result); therefore ‘Socrates is a man’ (case).

You can, however, immediately see that abductive inference of this sort cannot always be successful, since Socrates, who is mortal, can be your dog. This is, of course, because while ‘All men are mortal’ is true, ‘All mortal beings are men’ is not necessarily true.

Applying this logic to language change, our three ingredients are UG (law), a grammar (case), and E-language data (result). In case a child who is innately endowed with UG (law) is exposed to Korean E-language data (result), she is supposed to converge on Korean grammar (case). But the very fact that languages do change suggests that “abductive acquisition” may not always be successful, because if children should acquire exactly the same language as that of their parents, languages would never change.

And one of my major claims in this article is that (only) CI-related UG residues are responsible for “abductive parametric change” in the sense of Roberts (2007) (i.e., the way human languages change) and hence, for variation across grammars in general (see section 3.2 below for discussion).

3.2 Markedness and abductive change

It may be beneficial to see what Roberts (2007) has to say in

connection with “abductive parametric change” to understand that it may not only be economy/parsimony considerations (of a general sort) that could contribute to language change. First, Roberts (2007: 235) discusses the unmarked vs. marked status of grammars in terms of the following “feature-counting” principle: “Given two structural representations R and R’ for a substring of input text S, R is simpler than R’ if R contains fewer formal features than R’.”

Then the version of Korean grammar without V-raising would be preferred to the one with V-raising (with at least one more additional EPP-feature) because the former would be less marked (with fewer formal features) and hence, should be easier to acquire. This latter situation would be consistent with economy/parsimony considerations noted above (see Han et al. 2007 for general discussion on an acquisitional problem with Korean V-raising).

But Roberts (2007: 274-277) goes on to discuss cases where individual parameters of grammars change *from an unmarked to a marked value*. One major reason for this curious situation may be sought in one aspect of the learner’s *conservatism* when she tries to avoid “superset traps” (see Roberts 2007: 275). Another major reason can be sought in the “tension between expressivity and simplicity. Expressivity may cause EPP features to be introduced, while simplicity causes them to be eliminated” (Roberts 2007: 276). According to Roberts (2007: 276), “... the tension between expressivity and simplicity balances out over the very long term, and there is thus *no net increase or decrease in the markedness of the systems* that are attested at any historical moment” (emphasis — NS).

Then it should be clear that it may not be so easy to predict the possible future status of Korean grammar with respect to V-raising. And, moreover, the extremely intriguing, historically linguistic situation still remains: i.e., there are two populations of Korean speakers, one with V-raising and the other without, and according to Han et al. (2007), Korean learners choose the setting of the V-raising parameter “at random.” (See Suzuki 2007a,b,c for discussion on the problem of “choosing a parameter setting at random,” and Roberts 2007: 270 for the

view that “Parameter values must be set: not deciding is not an option.” Mine is the stronger position that parameter-setting must be implemented in a biological fashion.)

Lastly, but most importantly for the purpose of this section, let us consider one of the most important claims of this article in terms of a case study. Roughly, the claim is that CI-related UG residues *are* responsible for “abductive parametric change” in the sense of Roberts (2007: 235). The latter mode of language change may be the only means or at least one of the major means by which human language ever changes. Recall that the logic of “abduction” may be involved in first language acquisition and, moreover, that it may not necessarily be the case that abduction always guides the child correctly through the difficult task of first language acquisition (see section 3.1 above; recall also that presupposed here are an acquisition-based theory of language change and a bootstrapping approach to parameter-setting (Roberts 2007, Suzuki 2007a: chapters 2 and 5)).

Now, let us take up V-to-T movement/V-raising as our case study. The concrete analysis is taken from Roberts (2007: 245–251), with possible qualifications if necessary.

First, look at the following “postulate linking agreement marking on the verb to V-to-T movement”:

- (3) If (finite) V is marked with person agreement in all simple tenses, this expresses a positive value for the V-to-T parameter. (p. 245: Roberts’ (34))

Then the loss of much verbal agreement led to the loss of the morphological expression of V-to-T parameter. This in turn led to a reanalysis of the following sort:

- (4) a. John [T walks] [VP ... (walks) ...]
 b. John T [VP walks] (p.245: Roberts’ (33))

That is, (4a) was reanalyzed as (4b) (possibly with the concomitant change in the value of the V-to-T parameter). Roberts (2007: 245)

observes in this connection that the erosion and loss of certain endings involved can be taken to be a morphological property, or even to be a *phonological* property. Then, Roberts' (2007: 233) notion of "weak P-ambiguity" turns out to be relevant:

- (5) A weakly P(arameter)-ambiguous string expresses neither value of p_i and therefore triggers neither value of p_i .

According to Roberts (2007: 246), "a weakly P-ambiguous string triggers neither value of a parameter. This notion can be relevant to understanding certain aspects of change in that an independent change can render a former trigger weakly P-ambiguous, i.e., render it irrelevant for triggering some value of a parameter that it triggered prior to the independent change. The loss of V-to-T movement in ENE (Early Modern English — NS) exemplifies this. *The reanalysis of the modals and do as functional elements merged in T had the consequence that examples like (18; Roberts' (35)) no longer triggered anything, i.e., they were weakly P-ambiguous* (emphasis — NS):

- (6) a. I may not speak.
b. I do not speak.

Prior to reanalysis of modals and *do* as T-elements, such examples provided an unambiguous trigger for a positive setting for the V-to-T parameter, in that modals and *do* were verbs (...) which moved to T and expressed the morphological trigger for V-to-T movement. *Once modals and do are merged in T, such sentences become weakly P-ambiguous in relation to the V-to-T parameter in that they are compatible with either value of the parameter* (emphasis — NS). As such, an important, and frequently occurring, kind of trigger for the positive setting of the V-to-T parameter is lost" (Roberts 2007: 246 ll.1-20).

Notice that at least sometime in the ENE times such examples as (18a,b) were weakly P-ambiguous. (I abstract away here from much more of the story in which English has somehow come to stand in a

more or less stabilized position with regard to the V-to-T parameter.) That is, (6a,b) could be analyzed either as V-to-T or non-V-to-T sentences. Recall that linguistic situations of the latter sort arise precisely out of the abductive nature of first language acquisition and hence, of language change. It may not necessarily be the case that the learner can arrive at the same grammar as that of her parents, for example, even given (almost) the same PLD. And recall that exactly the same kind of parametric situation obtains in the case of Korean V-raising reported in Han et al. (2007).

It should already be obvious that Roberts' (2007) concept of weak P-ambiguity roughly corresponds to that of a CI-related UG residue here in this paper. The typical situation relevant to acquisition/change that these concepts point to is that we happen to have two different NS structures for a single sentence with a single CI-interpretation, indeterminacy of the sort which has somehow been resolved in the case of English, but which has not in the case of Korean.

4. Triggers and the Acquisition Order between Parameters: The Case of the Head-Complement and V-to-T/V-Raising Parameters

It should be obvious that the child has to identify at least some element in her target language as an anaphor *before* Principle A of the binding theory, which is arguably part of her innate endowment, starts to function. Or rather, it may well be the case that identifying some element as an anaphor should constitute the whole empirical content of the *acquisition* of Principle A on the part of the learner.

Now, as for the acquisition order between the head-complement and V-to-T/V-raising parameters, it should be the case that the head-complement parameter has to be set before the setting of the V-to-T/V-raising parameter. This may be evident in view of the situation where we can start to talk about V-to-T movement only when the word order relationship between V and T, for example, is already explicit (at least insofar as the learner has to rely on (SM)interface properties, i.e., linearized sound strings, accessible to her

for the purpose of acquisition; see section 4.1 below for much more discussion on this). We say something like: V-raising is undetectable due to the string-adjacency between *v* and *T* since Korean is head-final. Notice that the discussion is based on the results of the prior setting of the head-complement parameter.

My basic assumption concerning the nature of a trigger/cue for a bootstrapping mechanism is that it is expressed in terms of (SM)interface-related properties (e.g., “sounds”). I would like here to examine a possible trigger/cue for each of the two parameter cases to see if it is still possible to treat both cases in a similar fashion.

First, as for the head-complement parameter, I just follow Suzuki (2007a: 168) in assuming that parameter-setting in this case is implemented through phonological bootstrapping; namely, through a prosodic bootstrapping mechanism with the “Rhythmic Activation Principle” in the sense of Guasti, Nespó, Christophe, and van Ooyen 2001 as its main ingredient. The trigger/cue here is “sequences of weak-strong (for VO) vs. strong-weak (for OV) words within an intonational phrase” (at least some amount of prior initial phonological acquisition being required). The abstract target of bootstrapping here is (the presence vs. absence of) “an extra EPP-feature on *v**” (for OV vs. VO; under the assumption of universal VO order in the sense of Kayne 1994).²⁾ The formulation of this parameter, partly based on Roberts (2007: 269–271), is like the following:

2) While “sentences” that observe word order instances such as SOV, SVO, etc., can be SM-realized in a sense, word order itself is different. That is, since interfaces do not arguably have a property corresponding to word order, word order cannot be reduced to interface properties (Chomsky 2007). Viewed this way, it looks as if word order is similar to the laws regulating the natural world. They are invisible, but exist everywhere. Word order does regulate the order between and among words (of a sentence), but it is invisible, nor can it be reduced to “sound” or “meaning.” Therefore, word order is a UG residue in the sense of Chomsky(2007).

(7) *head-complement parameter*

- a. *Parameter:* v* {has/does not have} an extra EPP-feature which attracts O.
- b. *Trigger/Cue/Expression for Default/Unmarked Value:* weak-strong word sequence within an intonational phrase → EPP is absent (for VO).
- c. *Trigger/Cue/Expression for Marked Value:* strong-weak word sequences within an intonational phrase → EPP is present (for OV).

Notice that the head-complement parameter in (7) is implemented through phonological bootstrapping. The phonological/ prosodic triggers/ cues involved do not seem to be concerned with the marked vs. unmarked/default status of parameter values. This is presumably because it is only in the NS/UG/FLN domain that the distinction between the unmarked and marked values plays a role. And perhaps, something like Roberts' (2007: 235) feature-counting approach to derivational markedness in terms of the number of formal features involved is (at least partly) responsible for the way NS derivational markedness obtains (see section 3.2 above).

4.1. A stronger position on bootstrapping triggers: Only SM-interface properties count

We have seen in (7) above the case of the head-complement parameter, perhaps one of the earliest set parameters of variation for human language. Crucially, parameter-setting there is implemented through phonological/prosodic bootstrapping.

Turning now to the analysis of the V-to-T/V-raising parameter, whose setting is assumed above to take place after the setting of the head-complement parameter, let us first compare my formulation of the parameter with Roberts' (2007) specifically from the perspective of the nature of bootstrapping triggers/cues.

Mine is a stronger position on the nature of bootstrapping triggers: i.e., only SM-interface properties, namely sounds (limiting the discussion to spoken language; only signs counting in the case of signed

language), count for bootstrapping triggers, or at least they are predominant in case a parametric choice has to be made. Let us then look at the two formulations of the V-to-T parameter:

- (8) *Roberts' (2007: 271) formulation of the V-to-T parameter*
- a. *Parameter:* Finite T {has/does not have} an EPP-feature which attracts V.
 - b. *Default:* EPP is absent.
 - c. *Trigger/Cue/Expression:* (finite) V is marked with person agreement in all simple tenses.
- (9) *My formulation of the V-to-T parameter*
- a. *Parameter:* Finite T {has/does not have} an EPP-feature which attracts V.
 - b. *For Default/Unmarked Value:* “[T V] X (V)” (with its associated qualifications and conditions) is absent.
 - c. *Trigger/Cue for Marked Value:* “[T V] X (V)” (or its counterpart; an NS- and SM-expression, namely, a treelet with sound; ‘X’ = phonologically non-null; order irrelevant except for the position of ‘X’)

Notice that one of the theoretically most interesting aspects of Roberts' (2007) version of the V-to-T parameter should be that it is formulated from the perspective of the concept of markedness in terms of the EPP-feature. Another closely related notion of a subset relation (between languages, for example) and its related concept of a “subset principle” can and should once again be looked at from a somewhat different perspective. As Biberauer and Roberts (2007: 1) note, “once the role of true formal optionality is fully taken into consideration, the Subset Principle once again becomes useful, and indeed can explain certain changes in a natural way, ...”

Although Roberts' (2007) formulation of the V-to-T parameter employs as trigger SM-interface resources (i.e., distinctive morphological forms) as can be seen in (8c), I would somehow prefer to resort to a trigger of the sort described in (9c). This is primarily because Roberts' (2007) version may not be able to cope with the case of typologically

different languages, specifically, with the case of *morphologically impoverished languages* such as Korean, Japanese, and even present-day English. But while I am confident that the trigger in (9c) formulated in terms of the word order relative to the elements concerned could perhaps handle the case of any language of any typology, I am not sure whether children exposed to Italian, which has a rich inflectional paradigm, necessarily need to resort to the trigger (9c), in case they possess at the same time the strategy in terms of the morphological trigger in (8c). Note that “From their initial multiword productions, around 1;8-1;10, Italian-, Catalan-, and Spanish-speaking children do use first, second, and third person singular morphemes ... this use amounts to 90% correct in obligatory contexts at around age 2 in early Italian... Agreement errors are rare, about 3-4% in early Italian...” (Guasti 2002: 121). So pending future research into such intricate problems, I tentatively stick to my own version of the V-to-T parameter in (9) with its trigger in (9c).

5. The UG Residue Status of Case and the EPP

Some detailed remarks may be in order on the theoretical status of Case and the EPP, which I have been claiming to be two major UG residues for some time. Actually, this is a good occasion to reconsider/clarify and to go into some details about both the possible theoretical/conceptual and empirical motives that have led me to this conclusion.

I first suspect that the very practice of an ancillary sort involved in the operation of Case-valuation (implemented upon Agree) may already be pointing to its *non-interface* nature. Roughly, both Case- and EPP-features have been considered to be instrumental in manipulating NS-derivational matters but *uninterpretable* specifically in regard to the CI-interface, and the usual practice has been to delete these (CI-)uninterpretable features before spell-out/TRANSFER. This clearly shows that they *cannot be reduced to interface properties and hence, are UG residues* in Chomsky’s (2007) original sense.

It seems to me that the most intriguing point in the present discussion should be that the very presence of UG residues stands in the way of the notion of (virtual) conceptual necessity that has been playing a major guiding role in minimalist theorizing and that requires any additional structure or assumptions to be justified by empirical considerations.

Another intriguing point should be the results following from rejecting the rigid view of UG residues, as I do in Suzuki (forthcoming; see also below in this section). The major, conceptual reason for rejecting it is that given the validity of the definition of a UG residue in (10b1)) below, the view would virtually claim the existence of an FLN resource that may not be made use of for interface purposes *under any circumstances*, which would stand in marked contrast to *what the SMT entails* (Suzuki 2007c: 171–172). But the problem is that while the SMT is arguably “idealist,” the actual, biological FLN may not (to which I return below).

5.1 Some possible definitions and exposition of a UG residue

By first looking at Chomsky’s (2007) original definition of a UG residue, I would like to review some definitions of the concept on my part and to clarify and resolve some confusion and theoretical inconsistencies involved in my own definitions (see Suzuki 2007a,b,c; see specifically Suzuki forthcoming for much related discussion):

(10) a. Chomsky’s original “definition” of a UG residue and its interpretation on my part:

1) Chomsky’s 2007: 4–5 “definition” of a UG residue:

“ ... seeking to close the gap between SMT and the true nature of FL (specifically, of its FLN aspects — *NS*). UG (UG residues — *NS*) is what remains when the gap has been reduced to the minimum (hopefully, to zero, but the reality is different — *NS*), when all third factor effects have been identified. UG ((The set of) UG residues — *NS*)

- consists of the mechanisms specific to FL (FLN — NS), arising somehow in the course of evolution of language.”
- 2) My interpretation of Chomsky’s 2007 original definition of a UG residue in (10a1)) above (see below in this section): Those formal universals in the sense of Chomsky 1965 that cannot be reduced to interface properties are UG residues in the sense of Chomsky 2007.
- b. My three “definitions” of a UG residue (see Suzuki 2007a,b,c, forthcoming):
 - 1) FLN resources that are not usable for interface purposes are UG residues. (‘A tentative definition of a UG residue.’)
 - 2) A UG residue is something that has spilled out of the range of the SMT (for some reason). (‘A principle defining the true nature of a UG residue.’)
 - 3) I take the notion of a UG residue to encompass *virtually every FLN entity, concept, derivation, etc. that cannot be (properly) interface realized for some reason causing such FLN biological ingredients to be thrown out of the SMT scope.*
 - c. Two categories of UG residue (see Suzuki forthcoming):
 - 1) FLN entities that are *not interface-realized*
 - 2) FLN entities that are *not properly interface-realized*
 - d. Three categories of FLN ingredients (see Suzuki forthcoming):
 - 1) FLN ingredients that have a *perfect one-to-one correspondence with external interfaces/modules*
 - 2) those that *enter NS from “invasive” interfaces/modules*
 - 3) those that have an *imperfect many-to-one or one-to zero correspondence with external interfaces/modules* (The third category is relevant to the UG residue phenomenon.)
 - e. Two views of UG residues (see Suzuki 2007c, forthcoming):
 - 1) The *rigid* view
 - 2) The *environmental* view
 - f. See Suzuki (forthcoming) *specific reasons for the UG residue status of FLN resources.*

Notice that there *is* an abundant amount of evidence that the EPP- and Case-related phenomena *are* interface-realized. Specifically, it is easy enough to observe much SM-interface-related evidence in this connection. Recall Chomsky's 2007: 4-5 original "definition" of a UG residue: " ... seeking to close the gap between SMT and the true nature of FL. UG is what remains when the gap has been reduced to the minimum, when all third factor effects have been identified. UG consists of the mechanisms specific to FL, arising somehow in the course of evolution of language"(emphasis — NS).

Roughly, according to Chomsky 2007, (what I call) UG residues is what still remains of the UG/FLN resources even after every effort to reduce them to *interface properties*. As noted, this should be part of Chomsky's most recent strategy in accounting for UG, which used to be a very handy explanatory tool, but is now the primary object of explanation in evolutionary biolinguistics.

5.2. Strong vs. weak I(nterface)-realization: Tension between FLN and the SMT

Since some important problems with my own definitions of a UG residue (Suzuki 2007a,b,c, forthcoming; see also section 5.1 above) seem to center around the recalcitrant concept of "interface-realization," I would like here to give a clearer picture of the situation involving that concept also by introducing more or less descriptive terms for the purpose of more explicit exposition.

5.2.1 Strong I(nterface)-Realization

As you note, this points, of course, to the "idealized," perfect correspondence/connection between FLN and interfaces. This ideal linguistic situation is dictated by Chomsky's (2000, 2001 ,2004 ,2005 ,2007) SMT, which is arguably "idealist." Since not all FLN-interfaces correspondences are perfect (see Reinhart 2006: 6-7 for the view that "what is outlined here (i.e., what the idealist SMT entails — NS) is *the*

(*unrealistic*) *perfect solution* (emphasis — *NS*) ... and for the proposal for the inclusion in grammar description of “interface repair strategies” with a more or less marked status that are supposed to compensate for discrepancies between the SMT and “realist” FLN so as to provide necessary resources for the purpose of the satisfaction of FLN requirements), strong I-realization (in the stronger sense that all FLN interfaces connections are perfect) does not hold.

5.2.2. Weak I(nterface)-Realization

I include in the category of what I call weak I(nterface)-realization the following two more or less “imperfect” cases: (i) improper I-realization (see (10c2)) in section 5.1 above); and (ii) null I-realization (see (10c1)) in section 5.1 above). Weak I-realization is relevant to facts pertaining to “realist” FLN. Both improper and null I-realization belong under the general category of UG residues.

The category of *improper I-realization* is constructed out of the set of cases where a “perfect” one-to-one correspondence cannot be obtained between FLN and interfaces. But generally, the typical case of improper I-realization should be one in which we obtain an “imperfect” *many-to-one* correspondence between FLN and interfaces. CI-related UG residues typically arise in cases where correspondences between FLN and interfaces are *many-to-one*.

The category of *null I-realization* is comprised of the set of cases where we only obtain an “imperfect” *one-to-zero* correspondence between FLN and an interface. *Island constraint violations as they pertain to the SM-interface* is a case in point.

5.3 Substantive vs. formal universals

In the discussion in Suzuki (forthcoming) on Chomsky’s 1965 well-known classification of linguistic universals (i.e., UG/FLN ingredients) into substantive and formal universals, I assume that no substantive universal is a UG residue under any circumstances,

precisely because it should be UG resources as substantive universals that count as UG counterparts of the natural world resources/(some) interface properties (due to the SMT). And it was observed there in connection with formal universals that “in the general case formal universals are concerned with the third factor principles in the sense of Chomsky 2007 and that a formal universal can turn out to be a reason for the emergence of a UG residue ….”

Notice the following portion of Chomsky’s 2007 “definition” above of a UG residue: “UG consists of the *mechanisms* specific to FL.” (emphasis — *NS*). I interpret this observation as indicative of the factual situation in which the set of possible UG residues should consist exclusively of formal universals. That is, some formal universals can be reduced to interface properties, but there should exist some formal universals that cannot be reduced to interface properties. And I assume that the latter category of formal universals irreducible to interface properties should virtually constitute the empirical content of *a set* of possible UG residues.

5.4 Possible reasons for regarding Case and the EPP as UG residues

It seems that I somehow made the (first) decision to include Case and the EPP among the possible instances of a UG residue, based on Chomsky’s 2007 original definition in (10a1)) above in this section (see also (10a2)), but not strictly on my own. There may be some problems with my wording in which “I take the notion of a UG residue to encompass virtually every FLN entity … that cannot be (properly) *interface-realized* ….” It would have been more appropriate to have used the expression “cannot be reduced to interface properties” instead of “cannot be interface-realized.”

Moreover, I somehow stick here to the following specific interpretation of the property of not being able to be reduced to interface properties. That is, I interpret the property as that of “not being able to receive remedying resources outside of UG/FLN” in case of grammatical dysfunction of a relevant sort. And the domain of the

NS derivation relevant to the discussion so far is identical to that pertinent to the concept of true optionality (see Suzuki forthcoming for some discussion): i.e., the portion of the NS derivation at most up to the Case/agreement domain in the sense of Grohmann 2003, plus such left-peripheral portions as are motivated by Agree. Then I go on to show that Case and the EPP cannot be reduced to interface properties/cannot receive remedying resources outside of FLN.

It seems that my original hunch was that Case and the EPP are among the FLN ingredients that are involved in the intricate workings internal to UG/FLN (specifically, internal to the Case/agreement domain in the sense of Grohmann 2003; see also the interaction between the EPP and the SSG in the sense of Alexiadou and Anagnostopoulou 2007). Moreover, the EPP- and Case-related elements are readily interface-realized, as noted. But notice that this is possible only so long as one of the two “Case-realization” conditions (i.e., either receiving Case morphology or being in a syntactic Case-position) is satisfied. Only these two modes for Case-related purposes are assumed to be instrumental in *connecting (NS) Case properties with interface properties* (specifically, with SM-interpretation, for the purposes here).

5.4.1 Case Morphology vs. Case-Positions

Notice that there should be nothing more to do by way of receiving SM interface interpretation, for example, in the case of the “morphological Case” strategy. And in the case of the “Case-position” strategy, there is no problem as long as the relevant element stands in a syntactic Case-position. It looks as if the element (without Case morphology) is visible to the SM-interface purposes only when it is in such a Case-position.

Then it should be the case that what we call a syntactic Case-position may be the only locus in the Case/agreement domain that is designated as a window for looking out into external interfaces/modules.³⁾ And note that an extremely intriguing problem/situation emerges in case the relevant element without Case morphology stands

in a position other than a syntactic Case-position.

5.4.2 The Case Generalization and Japanese Scrambling

A case in point is Suzuki's 2007a: chapter 6 exposition of a Japanese scrambling case involving a DP without "particle" Case morphology (see also Suzuki 2007b). Some instances of a Japanese "particle" Case are Nominative *-ga*, Accusative *-o*, etc. Note that considerations concerning this Japanese scrambling case has led to the *Case generalization* in (6) below (see also Suzuki 2007a: 209, 2007b: 6) and also look at the paradigm in (ii):

(11) "In determining Case properties ..., Case-positions are predominant as long as they are available for narrow syntactic derivation. Morphological Case (including Japanese "particle" Cases) comes into play as soon as positional Case (i.e., Case-positions) turns unavailable for the purposes of narrow syntactic derivation."

- (12) a. Iraku-ga Amerika-o yaburu.
Iraq-NOM America-ACC defeat
a'. Amerika-o Iraku-ga yaburu. ((iia) with the object scrambled)
'Iraq defeated America.'
b. Iraku Amerika yaburu. (taken from a newspaper; without
'Iraq defeated America.' "particle" Case-markers)

3) I largely continue to assume that [Spec, T] and [Spec, V] are syntactic NOM and ACC Case-positions, respectively, for expository purposes. Actually, in a system that allows for a Case-valuation relation (albeit upon Agree) between the probe and the *downstairs* DP, [Spec, T] and [Spec, V] should only be "pied-piping" positions, at least for some set of languages (see also Baker 2008: 155 for a proposal for a syntactic/grammatical 'macroparameter' pertaining to the 'direction of agreement').

As for possible problems arising from the text exposition (based on Suzuki forthcoming) of "syntactic Case-positions," I suspect that they are only technical. I defer much more elaboration on this problem until future research.

- b'. Amerika Iraku yaburu. ((iib) with the object scrambled)
 ≠ 'Iraq defeated America.' (Suzuki 2007a: 208)
- c. [_{TP} Amerika [_{TP} Iraku [_{VP} (Iraku) [_{VP} (Amerika) [_{V'} (Amerika)
 (scrambled) <Case> <θ> <Case> <θ>
 (yaburu)]] (v+yaburu)] T+v+yaburu]]
 (sentential structure for (iib)'); taking Japanese to be a
 V-raising language; see Suzuki 2007b: 6)

The problem with (12b') is that the scrambled object *Amerika* cannot be reconstructed into/CI-interpreted in its ACC Case-position. Neither the "morphological Case" (in the absence of Accusative *-o* on it) nor the "Case-position" strategy (thanks to it being in a scrambled position) is available.

But the most notable linguistic fact here should be that (the CI interpretation of) the scrambled object *Amerika* is not saved in a way making use of resources outside of FLN, specifically, in a pragmatics/discourse-related fashion. (Compare this with the case of ϕ -features, which are perhaps readily discourse-related: e.g., "third person, singular, feminine" corresponding to "those other than speaker and hearer, (only) one, a woman/girl," respectively; see Suzuki 2007a: 205.)

The situation with (12b') above somehow stands in striking contrast to the general situation with language described in Sigurdsson 2004. According to Sigurdsson 2004: 251, " ... all languages have access to all features of UG ..." and " ... SILENCE VARIATION underlies a substantial part or even the lion's share of language variation." His 2004 possibly very strong complement assumption should be that *linguistic features are either "sound"-realized or realized in some other way*. I assume that the latter category includes ways in terms of resources outside of FLN.

I further assume that what Sigurdsson's 2004 "very strong" system above entails should correspond precisely to what the "idealist" SMT forces on the system incorporating it. But the "reality" (pertaining to UG/FLN) is different, as noted. Now, the Case-related problem with (12b') above should be a case in point, as noted above. The CI-interpretation of the *Caseless* scrambled object as the patient of

defeating cannot be obtained in *any possible way*. *This is surely part of the major reason I was led to conclude that Case is a UG residue.*

5.4.3 Synthesizing Chomsky's 2007 Definition of a UG Residue and Mine

The fact, however, continues to remain that we have a great number of "Case-related" grammatical examples. But since I do not think that my initial insight was totally on the wrong track, let me make an attempt here to somehow *synthesize* Chomsky's (2007) original definition of a UG residue and mine so as to accommodate the cases of Case and the EPP in question here.

Roughly, according to Chomsky (2007), UG residues are FLN/UG resources irreducible to interface properties, while UG residues in my sense are FLN entities that cannot be (properly) interface-realized (thanks to them being out of the SMT scope). I assume UG residues in Chomsky's (2007) sense to be classified into two categories in terms of their (un)grammaticality, like the following:

- (13) Two categories of FLN/UG entities irreducible to interface properties (i.e., UG residues in the sense of Chomsky 2007):
- 1) those generable/interface-realized as grammatical outputs:
e.g., the EPP- and Case-related grammatical cases
 - 2) those *not* generable/interface-realized as grammatical outputs:
e.g., island constraint violations as an SM-related UG residue

It is clear now that my three "definitions" of a UG residue in (10b1)-3)) above in this section are all heavily biased toward the second category in the binary classification in (13). As for the first category in (13 1)), I continue to maintain that Case and the EPP are UG residues in the sense of Chomsky 2007 in that they do not have their "external" counterpart in terms of "sounds," "meanings," or "natural world phenomena."

But I must somehow admit that *UG residues of category(13 1))* are *SMT-compatible to the extent that they are generable as grammatical*

outputs/interface-realized. (This is indeed a very curious situation, particularly in view of two of my definitions of a UG residue in (10b2),3)) above. But see the overall discussion in this section that is relevant to this problem.)

Now, in view of the results of the Japanese scrambling case in (12) above, *Case cannot stand alone* in the absence of support from “sound” resources (i.e., Case morphology) or NS resources (i.e., a syntactic Case-position). And the concept of a “syntactic Case-position” is extremely interesting, in that it does not have any external counterpart/cannot be reduced to interface properties (and hence, a UG residue in the sense of Chomsky 2007), but that it is usable for interface purposes/can be interface-realized.

6. More on the Rigid View of UG Residues

Recall that we noted at the beginning of section 5 above that the very presence of UG residues stands in the way of the notion of (virtual) conceptual necessity as a guiding principle in minimalist theorizing. And recall also that the rigid view of UG residues taking FLN entities to be unusable for interface purposes under any circumstances stands in marked contrast to what the SMT entails.

As for the rigid view, I adopt it (unlike my rejection of it in Suzuki forthcoming, albeit on somewhat different assumptions) for the purposes of the first category in (13 1)) in section 5.4.3 above. Case and the EPP, for example, are UG residues in the sense of Chomsky 2007 *under any circumstances*, but they are generable as grammatical outputs. The rigid view adopted under these circumstances may not be as incompatible with what the SMT entails.

I assume that what the notion of (virtual) conceptual necessity used to be supposed to cover has largely been taken over by the SMT. Then, as long as the presence of UG residues testifies the not necessarily perfect status of FLN, it should stand in the way of the “idealist” SMT *to that extent*.

7. More on the EPP

7.1 Original vs. generalized EPP

Let us then turn to discussion of the EPP, which I continue to take to be a major UG residue, as noted above. First, some clarification of the technical term *EPP(-feature)* itself and of its related matters may be in order here. That is because I suspect that much discussion on the “alleged” controversial status of the EPP-feature between its proponents and denouncers is often held on the basis of a not necessarily sufficiently shared set of assumptions.

Specifically, the denouncers seem to almost always keep to the “original” definition of the EPP(-feature) limiting its application to the [Spec, T] position (see Martin 1999, for example). But Chomsky (2000: 102) already suggests that the application of the EPP be extended to C and *v* and that X₀ as well as XP positions be relevant for EPP purposes (see also Suzuki 2007a: chapter 2). I adopt the generalized version of the EPP in the sense of Chomsky (2000) and Suzuki (2007a), and specifically assume that every syntactic position appearing in NS derivation (both X₀ and XP positions, both positions with phonological material in them and those only with a UG-provided empty category in them, etc.) exists due to the EPP.

7.2. Equating the EPP-feature with Edge Feature (EF) in the sense of Chomsky (2005, 2007); Yang (2007)

Given the (virtually) identical treatment of the EPP-feature and EF in Yang 2007: 550), for example, the two concepts pertaining to the presence of possible NS positions can safely be assumed to be united into a single notion, albeit with qualifications to be pointed out below. First, let us recall that as the “most general parameter/condition on the presence vs. absence of a specific NS position,” EPP-parametrization in terms of the “generalized” EPP-feature (Suzuki 2007a: chapter 2) *directly* regulates the possibility of the realization of NS positions, while it is the “optional deletability” of EF (i.e., an inherent feature of every

lexical item of human language) that can be a cause for the presence vs. absence of an NS position (see Yang 2007: 537, 555).

And it should now be clear that the EPP-feature is responsible for *every NS position* in Suzuki's 2007a system, whereas *at least some* lexical item/head must be given independently of EF so as to start the derivation, in Chomsky's 2005, 2007 and Yang's 2007 system. But this is only a minor technical point, so I ignore it in the discussion below.

7.3. The EPP in each of the prolific domains in the sense of Grohmann 2003

Roughly, the set of prolific domains in the sense of Grohmann 2003 consists of the θ -domain, the Case/agreement-domain, and the discourse-domain.

The θ -domain is supposed to be responsible for argument structures of predicates. So, all EPP-positions present in this domain are arguably lexical heads themselves and positions thematically related to such lexical heads. Under the assumption either that the lexicon constitutes part of the semantic interface/module, or that it constitutes an independent *conceptual* interface/module (see Suzuki 2007a: 184 for some discussion), it should be easy to see that EPP-positions (with materials in them) in the θ -domain can both be reduced to interface properties and be interface-realized in either way. So they are not UG residues according to Chomsky's 2007 original definition (independently of the possibility of them being generable/interface-realized as grammatical outputs) (see (13) in section 5.4.3 above). Note that the presence (vs. absence) of EPP-positions in the θ -domain is largely *thematically motivated and hence, obligatory to that extent*. They cannot straightforwardly be derived simply from (the very general notion of) the *optional* deletability of EF of lexical items in the sense of Chomsky 2005, 2007 and of Yang 2007 (see section 7.2 above).

Recall that ACC Case-position is [Spec, V] in Chomsky's 2005: 14 system. Roughly taking the θ -domain in the sense of Grohmann 2003 to correspond to vP in NS derivation, I assume that the θ -domain may

be interspersed with ingredients belonging in the Case/agreement domain. Look furthermore at examples such as “the army’s destruction *of* the city.” Perhaps, the preposition *of* (or its NS counterpart) as a structural Case-marker in this example may be another case in point. That is, I assume that both [Spec, V] as the ACC Case-position and *of* as a structural Case-marker reside in the θ -domain in spite of their status as Case/agreement entities. (An alternative approach to this problem in terms of the concept of a “dimension” might be conceivable. But I defer the intriguing discussion of this alternative until future research.)

Turning to the discourse-domain, all EPP-positions present in this domain (i.e., heads and their projected positions) are arguably responsible for discourse-related elements such as focus, topic, etc. that may standardly be dealt with within the bounds of the left periphery in the sense of Rizzi 1997. (See Miyagawa 2005 for a very interesting alternative approach to focus.) And it is crystal clear that these EPP-positions are at least CI-interface-realized in the sense that they are rather transparently associated with one discourse notion or other. So they are also not UG residues according to Chomsky’s 2007 original definition (independently of whether or not they can be generable/interface-realized as grammatical outputs) (see (13) in section 5.4.3 above). Notice that EPP-positions in the discourse-domain may be pertinent to EF of “indiscriminate” phase heads (Chomsky 2005: 17) and also to at least part of the “D-effect Condition” (30a) in Yang 2007: 557.

7.4 The Case/agreement domain as a UG residue complex

Now, let us turn to the most intriguing case of the Case/agreement-domain. I assume that all EPP-positions present in this domain *are* UG residues in the sense of Chomsky 2007 and that some are generable as grammatical outputs and others are not (see (13 1),2)) in section 5.4.3). And it may not be a coincidence at all that Case, another major UG residue, should be one of the most important ingredients in this domain (see section 5 above).

My hunch is that the entire Case/agreement domain, which I assume

constitutes the T-projections, *is* a UG residue (complex) in the original sense of Chomsky(2007). (The whole set of uninterpretable features, which crucially includes the EPP-and Case-features, may be another important set of UG residues, to which I return in future work.) According to Marc Richards cited in Chomsky (2007: 21), T should exist because uninterpretable features of C must be inherited by an element selected by C. But the latter selected element cannot be v^* . Therefore T or some counterpart must exist, selected by C and above v^* . Notice that Richards' argument for the presence of T is *bona fide* theory-internal. I take this theory-internal nature of the argument for the existence of T to also point to the possible UG residue status of T projections.

The standard assumption has for some time been that the syntactic A/A' distinction roughly corresponds to the duality of semantics, i.e., to argument structure of lexical heads and discourse matters such as topic and focus, respectively, due to the SMT (Chomsky 2005, 2007). I suspect, though, that the Case/agreement domain in the sense of Grohmann (2003) is excluded from this business of duality of semantics. I assume that the syntactic A/A' portions (as they are relevant to semantic interpretation) roughly correspond to the θ -domain and the discourse-domain in the sense of Grohmann (2003), respectively, *to the exclusion of the Case/agreement domain*.

This may be so because "the Agree-feature belongs to C, *and to T only derivatively*" (Chomsky 2005: 22; emphasis — *NS*; see also Marc Richards' argument for the presence of T above). Recall also the *bona fide* syntactic/FLN/UG nature of the interaction between the EPP and the SSG in the sense of Alexiadou and Anagnostopoulou (2007) (see above).

Chomsky (2005: 22) continues to talk of "the mysterious property of EPP" in connection with the [Spec, T] position. According to Alexiadou and Anagnostopoulou (2007), there seem to be at least two ways of satisfying the EPP-feature in T (see also Suzuki 2007b,c for the typology of EPP(T)-satisfaction in the sense of Biberauer and Richards 2006). Firstly, the EPP-feature in T can be satisfied by expletives and PPs, and secondly, EPP-features function to provide landing sites for Case-related arguments escaping effects of the SSG.

All in all, the [Spec, T] position should be a *bona fide* UG/FLN position that I'm sure cannot be reduced to interface properties in any transparent fashion. So it (along with its associated EPP-feature) should remain "mysterious" *unless reconsidered from the perspective of UG residues*.

8. Some Concluding Remarks: The System of Binary Parameters and the *Very* Diversity of Natural Languages Viewed from the Perspective of UG Residues

Note first of all that "abductive NS (narrow syntactic) variation" should be strictly within the scope allowed for by the binarity of human language parameters of variation. And by far the strongest claim I make in this paper is that *all human/natural language parameters of variation originate from CI-related UG residues* in the sense of Suzuki (2007b, forthcoming).

One of the two categories of a UG residue (originating from Chomsky 2007) consists of FLN entities *not properly interface-realized*. Specifically relevant here are those FLN resources that have an imperfect *many-to-one correspondence with the CI-interface/module*.

Quite generally, when it comes to *binary parameters* (one at a time), there should always exist an *imperfect* two-to-one correspondence between FLN (i.e., NS structures) and their *single/common* CI-interpretation both across grammars and perhaps, grammar-internally. When it comes to human/natural languages themselves, there should arise an *extremely imperfect* many-to-one correspondence (*many* = the number of all human languages) between NS structures in all languages and their *single/common* CI-interpretation.

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