

## Linguistic Variation and the Radical Externalization Thesis

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**ABSTRACT.** I argue against the radical externalization thesis by discussing a couple of phenomena of variation in semantics that do not seem easy to account for in externalization terms. Alternatively, I favor a moderate externalization thesis whereby some, but not all, cross-linguistic variation may be due to externalization effects. These effects could be purely grammatical (such as guaranteeing PF legibility) or processing effects (such as cognitive biases). The first ones would be language-particular, the second ones more general.\*

**Keywords:** cross-linguistic variation, externalization, interpretation

### 1. The Radical Externalization Thesis

In recent years, works such as Boeckx (2011, 2014) or Berwick & Chomsky (2011) have proposed that syntactic computation is inherently directed towards the Conceptual-Intentional Interface, and that the Sensori-Motor interface is peripheral to such computation. Furthermore, syntax is taken to be uniform cross-linguistically, all cross-linguistic variability being restricted to the externalization component. For instance Boeckx (2014) defends the Strong Uniformity Thesis, which implies that “all of cross-linguistic variation reduces to realizational options available in the externalization component (‘PF’)” (Boeckx, 2011, 210):

(1) *Strong Uniformity Thesis*: Principles of narrow syntax are not subject to parametrization; nor are they affected by lexical parameters.

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\* This article is based on my presentation at the 10th Workshop on the Phonological Externalization of Morphosyntactic Structure, held at Tokyo University on February, 2020. My deepest thanks to the organizers and the audience there as well as Maia Duguine and Urtzi Etxeberria for comments. This work was supported by grants 15H03213 (JSPS KAKENHI), ANR-18-FRAL-0006 (ANR-DFG), ANR-17-CE27-0011 (ANR), and PGC2018-096870-B-I00 and FFI2017-87140-C4-1-P (MINECO).

According to this hypothesis, phenomena with variable patterns that were previously thought to derive from syntactic differences across languages are better understood as differences in the realization/externalization of a cross-linguistically homogeneous underlying syntax. This is, in a nutshell, what Tokizaki & Dobashi (2013) and Tokizaki (2016) call the ‘Universal Syntax and Parametric Phonology’ thesis and has been applied in the analysis of different phenomena such as the head-complement word order which Tokizaki (2017, 2018) links to the realization of main stress assuming such a theory.

Here I want to argue that such a radical position faces nontrivial issues regarding cross-linguistic variability (section 2), and instead, I make a plea in favor of a moderate version of such hypothesis (section 3).

## **2. Variation at the C-I interface**

As conceived, the radical externalization thesis is explicit and very powerful. It is a programmatic proposal with the appeal of explaining the homogeneity observed across all natural languages while it also paves the way for an account of its evolution. Nevertheless, I believe that it faces drawbacks, regarding the cross-linguistic variability observed at the C-I interface. There should be no variation in semantics; that is, there should not be semantic representations that are available in one language but unavailable in another (no matter whether those differences are inherently semantic, or derive from syntactic differences across languages). What follows reviews two interesting phenomena that evidence semantic variability and that cannot be easily accommodated under a radical externalization thesis.

### **2.1 Deixis and genericity**

There is substantive cross-linguistic variability in the temporal interpretation of DPs (see *i.a.* Chierchia’s (1998) proposal of a semantic parameter for the differential denotation of nominals across languages). Regarding the temporal prism of interpretation, English, as many other languages allows for temporally free readings, that is, the temporal interpretation of a nominal is independent of the temporal interpretation of the main predicate of its clause; its interpretation is determined by the context or world-knowledge (Enç, 1981; 1986). Thus, an

English sentence like (1) has a reading where the direct object must be able to range over present and future politicians, and even of past politicians.

(1) The Citizens' Committee will sue every politician violating conflict of interest laws.

Likewise, example (2) is not incongruous since it does not mean –it cannot mean– that every person that is a fugitive now is also in jail, but that those that were fugitive at time  $t$  are in prison now, at a later time.

(2) Every fugitive is now in jail.

Furthermore, definite descriptions in English also have an “Individual Concept Reading” (ICR). Consider the ambiguity of (3), which has a direct referential reading when it is employed to refer to a particular individual (*e.g.* Trump), but it also has an ICR where it does not refer to a particular individual, but to the concept of the president, that is, that whoever is president is powerful. Under this reading *the president of the US* must be evaluated at different time intervals:

(3) The president of the US is powerful.

In contrast, DPs in a language such as Státimcets only allow for temporally bound readings (*cf.* Demirdache 1996, 1997; Matthewson 1998, Etxeberria & Giannakidou 2013) to the point that Demirdache (1996, 1997) proposes that they range over *stages* rather than over *individuals*. Thus, (4) only has the direct reference reading where *ti ke17Aqsten-s-a ti United-States-a* can only be understood as the person who is presently acting as the president of the US (*i.e.*, Donald Trump, in March 2020). That is, the predication time of the nominal restricts the predication time of the matrix predicate of its clause:

- (4) A7xa7 [ti ke17Aqsten-s-a ti United-States-a] [Státimcets]  
 strong DET chief-3.SG.POSS.DET DET US-DET  
 The present president of the US (=Trump) is powerful.

Furthermore, the fact that DPs in Státimcets introduce stage-level entities has as a consequence that DPs always have existential force, there are no genuine generic statements and that there are no abstract nouns such as ‘intelligence’ in this language (see Demirdache 1997 for discussion). In a nutshell, English allows a class of semantic representations that Státimcets does not allow.

All in all, such cross-linguistic variability does not seem to find an easy accommodation within a radical externalization approach whereby all variation is restricted to the Spell Out-PF portion of derivations.

## 2.2 Parametric scope interpretation with a uniform output

It has long been observed that languages like English allow for scope ambiguities in doubly-quantified sentences (see *i.a.*, May’s (1985) Quantifier Raising operation applying in the mapping of S-Structure to LF). Thus, sentence (5) is compatible with either of the two readings in (5a) and (5b):

(5) A shark attacked every pirate.

a. SURFACE SCOPE ( $\exists > \forall$ ):

There was a single shark that attacked multiple pirates.

b. INVERSE SCOPE ( $\forall > \exists$ ):

For each pirate, there was a (different) shark that attacked him.

However, in Mandarin –another SVO language– the corresponding sentence (6) is unambiguous: it only has the surface scope reading (*cf.* Huang, 1982; Aoun & Li, 1989). The inverse scope reading of (6b) is missing.

- (6) You yi-tiao shayu gongji-le mei-yi-ge haidao. [Mandarin]  
 exist one-CLF shark attack-PST every-one-CLF pirate

a. SURFACE SCOPE ( $\exists > \forall$ ):

There was a single shark that attacked multiple pirates.

b. INVERSE SCOPE ( $\forall > \exists$ ):

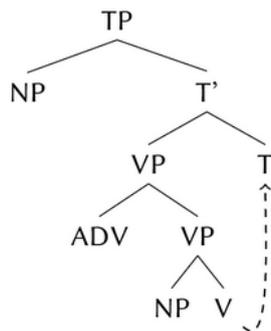
~~For each pirate, there was a (different) shark that attacked him.~~

What is more, in recent experimental work Scontras *et al.* (2017) provide evidence that English-dominant adult heritage speakers of Mandarin also lack inverse scope in English, their dominant language in adulthood. This is remarkable because it provides evidence that a single externalization strategy (a single linearization pattern) in two varieties of English can correspond to varied semantic representations (an ambiguous one *vs.* an unambiguous one). That is, there is variation in semantics that is not reflected in PF.

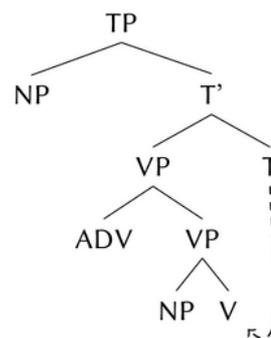
A similar thing happens in Korean. In recent work Han *et al.* (2016) analyzed the variability with respect to verb raising observed across Korean idiolects. Given that Korean is a verb-final language, its basic word order (7) is compatible with both verb-raising (8a) and tense lowering (8b) constructions:

- (7) Kim-i cacwu Lee-lul piphanha-n-ta [Korean]  
 Kim-NOM often Lee-ACC criticize-PRES-DECL  
 Kim often criticizes Lee.

(8a)



(8b)



Thus, an important part of the input that Korean-learning children are exposed to is critically underspecified as to whether it was generated with a verb raising grammar (8a) or a tense-lowering grammar (8b). However, as argued by Han *et al.* (2007, 2016) the relative scope between negation and object QPs provides an appropriate diagnostic for the position of the verb in a Korean speaker's I-language: if there is verb raising, negation (a clitic) moves along with it, and as a consequence it outscopes the object QP. On the contrary, if there is no verb-raising, the object QP takes scope over negation.

The preceding literature on the topic provided mixed judgments on these issues and a blurred theoretical image, but Han *et al.* (2016) show that rather than a stochastic procedure, the option of V raising *vs.* T lowering is grammaticalized in each Korean idiolect, and that there are actually two varieties of Korean grammar coexisting: one with verb-raising (8a), the other one with tense lowering (8b). Remarkably, the participants in Han *et al.*'s (2016) study show stable judgments across test items and experimental sessions.

Again, concerning our discussion in this paper, I take it that the fact that this virtually invisible movement has predictable and stable semantic consequences argues against the conception that all variation is restricted to the externalization component.

### **3. A Plea for a Moderate Version of Externalization**

The existence of phenomena such as those described above leads to skepticism regarding the radical externalization thesis. Nevertheless, this does not mean that exploring different word order patterns as deriving from 'mere' differences in externalization is a flawed strategy. Quite the contrary, I believe that much insight can be gained from pushing such hypotheses forward, while also granting that not all cross-linguistic differences are amenable to differential externalization patterns of a uniform syntax. The fact that some languages allow some syntactic/semantic representations that others do not is still compatible with the idea that a range of word order variation phenomena is due to differential externalization patterns of a single underlying representation. Thus, I would like to make a plea for a moderate externalization hypothesis whereby some, but not all, of the cross-linguistic differences that were previously thought to pertain to genuine syntactic differences

may be attributable to different externalization patterns. In the following I sketch a couple of ingredients of such a theory. The first one is an instance of a purely grammatical effect (the need to generate PF-compatible representations, whose properties may vary from language to language). The second one is more general and can help explaining typological drift across languages.

### 3.1. Externalization via different patterns of copy deletion

One of the main contributions of the generative enterprise to general linguistics resides in the focus put on the analysis of ‘displacement’ constructions, whereby an element in a position also displays properties of a different one. Furthermore, the minimalist adoption of the copy theory of movement since the mid nineties (see, *e.g.* Chomsky 1995; Nunes 1995, 2004) paves the way for an ‘externalization’ explanation of a range of phenomena. The gist of the copy theory of movement is the replacement of traces such as the one in the object position in (9) (an extraneous derivational element whose introduction would violate the Inclusiveness Condition<sup>1</sup>) with copies of syntactic elements. The idea is that once merged in a structure, an element could be re-merged (=copied) in a different position. Thus the interrogative phrase first-merged in the object position in (10) is also copied in a higher position, corresponding to its interrogative nature.

(9) *What* do you want  $t_{DP}$ ?

(10) *What* do you want *what*?

Thus, the copy theory of movement provides a principled explanation for the fact that elements can have properties of two different positions: they actually *are* in two different positions (the scope position and the argumental one). However, structure (10) is not linearizable as such, given that *what* should appear in two different linear positions –preceding and following

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<sup>1</sup> The Inclusiveness Condition is formulated as follows in Chomsky (1995: 228): “A ‘perfect language’ should meet the condition of inclusiveness: any structure formed by the computation (in particular,  $\pi$  and  $\lambda$ ) is constituted of elements already present in the lexical items selected for N [the Numeration]; no new objects are added in the course of computation apart from rearrangements of lexical properties...”.

itself–, and thus violating the *Linear Correspondency Axiom*<sup>2</sup> (Kayne, 1994). Therefore, the lower copy is deleted for PF convergence<sup>3</sup>. Why the lowest copy and not the highest one? The literature on the copy theory of movement has alluded to two main reasons: one is the conservation of information in the ‘displacement’ operation: pronouncing the lowest copy would leave no trace of the movement so as an instance of faithfulness with respect to syntax, it is the highest copy that is spelled out. Other scholars have built on the idea that the lowest copy –as opposed to the highest one– has unchecked/unvalued features, so deleting the lowest copies deletes those features altogether so no unchecked/unvalued feature would be sent to PF (see Nunes, 2004; Corver & Nunes, 2007).

However specific PF conditions may also trigger spell out of a lower copy or even spell out of multiple copies if convergence so demands (*cf.* Nunes, 1995, 2004, 2011; Bobaljik, 2002; Pesetsky, 1997; Franks, 1999; Franks & Bošković, 2001; Bošković, 2001 *et seq.*; Bošković & Nunes, 2007; Kandybowicz, 2008; or Villa-García, 2013, 2015, 2019 among others). In a nutshell, a uniform syntactic representation can give rise to different externalization options. This is, for instance, what happens in multiple *wh*-movement constructions in Romanian (*cf.* Bošković, 2001, 2002; Bošković & Nunes, 2007). Romanian being a SVO and multiple *wh*-fronting language, in a multiple *wh*-question such as (11) all the interrogative elements surface fronted. However, if instead of *cine* ‘who’ we have *ce* ‘what’ as the subject (as well as as the object), the multiple fronting construction is ungrammatical (12). In such a case the only option is for the verb to surface sandwiched between the two interrogative phrases (13):

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2 According to Kayne (1994: 4) a linear ordering has three defining properties (where L means ‘linearly precedes’ and *x* and *y* are any terminal elements):

- a. It is transitive; that is,  $xLy \ \& \ yLz \rightarrow xLz$ .
- b. It is total; that is, it must cover all the members of the set: for all distinct *x*, *y*, either  $xLy$  or  $yLx$ .
- c. It is antisymmetric, that is,  $\text{not}(xLy \ \& \ yLx)$ .

Pronouncing both copies would violate condition c, since the element would precede and follow itself.  
 3 This –as Chomsky (2016) stresses it– generates functional problems for language use as a communicative tool (filler-gap dependencies), which provides evidence that inner computational parsimony outranks external use in language design.

- (11) *Cine ce* precede? [Romanian]  
 who what precedes  
 Who precedes what?
- (12) \**Ce ce* precede?  
 what what precedes  
 What precedes what?
- (13) *Ce* precede *ce*?  
 what precedes what  
 What precedes what?

Bošković (2001, 2002) offers an elegant explanation of such patterns in terms of the copy theory of movement: instead of positing an idiosyncratically variable syntax for the ungrammaticality of (12) and the grammaticality of (13) (whereby instead of the general multiple *wh*-fronting we would have to leave the object *ce in situ*), the idea is that the pattern is explained (away) in morpho-phonological terms: the sequence of homomorphs  $ce^{\wedge}ce$  that would derive from a multiple fronting construction generates an illegitimate PF representation –a sort of haplology–, and the way to avoid such an illicit PF pattern is to spell out the lowest copy of the object, thus masking its movement. Therefore, the syntactic structure underlying both (11) and (13) would be uniformly a multiple fronting one (14), but the externalization pattern different; (15a) for (11), (15b) for (13):

- (14)  $wh_{SUBJ} wh_{OBJ}$  precedes  $wh_{SUBJ} wh_{OBJ}$
- (15) a. *cine ce* precede *eine ee*?  
 b. *ce ee* precede *ee ce*?

So this is essentially an externalization type of analysis of a varying phenomenon that departs from a uniform syntax, precisely the goal set in Tokizaki & Dobashi (2003). I believe that pursuing such a research strategy is very promising, as it has already successfully been applied to a range of phenomena from different languages (see Nunes, 1995, 2004, 2011; Bobaljik, 2002; Pesetsky, 1997; Franks, 1999; Franks & Bošković, 2001, Bošković, 2001 *et*

*seq.*; Bošković & Nunes, 2007; Kandybowicz, 2008; or Villa-García, 2013, 2015, 2019 among many others). Nevertheless, pursuing such type of externalization explanations of word order phenomena does not imply assuming that all cross-linguistic differences are realizational.

### **3.2. Externalization biases in language variation and change**

A number of works have identified interesting patterns of correspondence between PF and syntax with respect to prosody and word order. In particular, several authors propose that the rhythmic pattern of a language is not an idiosyncratic and isolated property, but rather that it is strongly correlated with word order. In other words, that there is a correlation between rhythmic patterns and syntactic patterns in that languages tend to cluster with the same rhythmic and syntactic properties, conforming cross-modular linguistic typologies. Furthermore, the explanation of this typological clustering is proposed to derive from the fact that rhythmic patterns serve to bootstrap the acquisition of the specific syntactic patterns of each language (*cf. i.a.* Mehler *et al.* (1988); Christophe *et al.* (2003); Bernard & Gervain (2012); Gervain & Werker (2013); Langus & Nespors (2013)).

The basic idea of the prosodic bootstrapping hypothesis is that the relative order between heads and their complements is strongly correlated with the rhythmic type of the language, and that infants use their accumulated knowledge about the prosody of their target language(s) to build informed guesses about their corresponding syntactic pattern. This theory builds on a number of experiments that have shown that speakers of languages whose correlates of phrasal accent are increases in duration and intensity tend to prefer head-initial abstract sequences whereas speakers of languages that realize stress through a combination of higher pitch and intensity (and possibly also duration) tend to prefer head-final sequences. This generalization is known as the ‘iambic-trochaic law’ (*cf. i.a.* Hayes (1995); Nespors *et al.* (2008); Shukla & Nespors (2010)), and is taken to be a basic law of grouping based on general auditory perception (that is, not specific to language). This law states that units (language or music) that differ in intensity tend to be grouped as constituents in which the most prominent element comes first, whereas units that differ in duration are grouped as constituents in which the most prominent element comes last. As Nespors *et al.* (2008) put it, “if [their] proposal is on the right track, one of the basic properties of syntax can be learned through a general mechanism of perception”. Summarizing then, the prosodic bootstrapping hypothesis claims

that beyond the observed typological correlation between prosodic and syntactic patterns, there is a causal developmental connection between them: babies use prosody to inform their guesses about the syntactic pattern of their target language and they generalize. Harmonic languages are more stable and easier to acquire, and –all things being equal– they constitute the unmarked pattern.

Regarding externalization, recent works such as Tokizaki (2018) have linked prosody and word order patterns within a radical externalization proposal. But there is no need of adopting a radical position if a moderate is sufficient: if the prosodic bootstrapping hypothesis just sketched is on the right track, it should not be surprising to observe PF “harmony” patterns in the alignment of stress and word order. But note that the explanation of such clusters of properties would not be grammatical/derivational but the outcome of a perceptual bias which favors prosodically harmonic grammars, and hence one that is prone to granularity effects. In other words, instances of languages that would not pattern strictly harmonically would not constitute *counterexamples* to a derivational law, but *outliers* in a bimodal distribution whose (non-harmonic) properties would have to be explained as historical ‘accidents’.

#### 4. In conclusion

A range of linguistic phenomena suggest that there are syntactic/semantic representations that are possible in some languages but impossible in others. This is at odds with a theory that places all cross-linguistic variation in PF. However, this does not mean that investigating the role of externalization in driving cross-linguistic differences is futile. Quite on the contrary, I believe that much insight can be gained by exploring how and when the outputs of syntactic structures are adapted to meet the requirements of externalization.

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