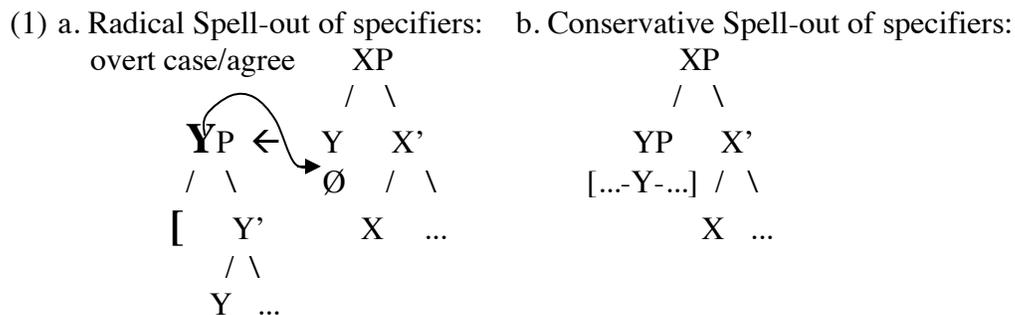


Spell-out Consequences

1. Parametric Differences in Spell-out?

There are two ways of executing multiple spell-outs. Computationally, **the radical solution is preferable**, in that it manages to work with a simpler syntactic object. At the same time, this solution presupposes **a procedure to match the radically spelled-out current to a crucial portion of the main current that corresponds to the vortex**, so not all languages are in a position to distribute resources in this way. We know independently that languages differ – even internally – on whether they license **null dependents**, or whether they overtly mark some domains (relevantly, specifiers) with overt **case-marking**. Some generally don't (English), some do rampantly (Basque), and various intermediate conditions exist as well, for reasons and in ways that are ultimately immaterial now. Whatever the source of this variation is, and however it is that learners acquire it, the point is: It should **affect whether a language undergoes the preferred option of radical MSO via these null elements and their matching antecedents**:



The interesting issue is how each option affects **other syntactic processes**. We may find relevant correlations in the terms explored in Chomsky (2001), for **‘surface semantic’ effects**. Keep in mind that in languages of the conservative sort (where configurational attachment of flattened spelled-out chunks is the mechanism employed for spell-out), the phrase-marker is not radically split in its way to the interpretive components (1b) – as is the case in the alternative (1a). In a language of the **conservative sort, it should be possible to have trivial chains with ‘deep’ and ‘surface’ interpretation associated to them, as we can reconstruct ‘deep’ characteristics of the configurational sort and also directly read ‘surface’ properties of the chain sort, from the phrase-marker itself: this object may be flattened by the Spell-out procedure, but it hasn’t lost its derivational information. But the conservative procedure is impossible for the radical Spell-out mechanism, as each spelled-out chunk follows its path to performance and unification takes place only in the interpretive components**, due to a concord system. In those conditions, **phase borders (for phonological purposes) and top labeled categories (the basis of the concord unification)** are the grammatical notions visible to the system. The system apparently anchors the labeled top to the ‘deep’ interpretation and the border to a ‘surface’ interpretation.

Factually, according to Huang 1984 languages divide in what he called **“hot” and “cool”, the former type being more prone to dropping arguments and other peripheral effects**. From the present perspective, languages without rich peripheral

effects – like French or English – are expected inasmuch as they typically present impoverished case/agreement systems. In the other extreme should be languages where peripheral effects are present, like Slavic and Germanic variants exhibiting robust agreement, case, or both. To be clear, with regards to Huang’s typology as related to the issue at hand (radical vs. conservative spell-out), while Japanese or Korean are not problematic (due to their case systems), Chinese is: it presents neither overt agreement nor case morphology, or any other indication that it should be of the “hot” type—but it is. This could either mean that this is ultimately not the right approach to this kind of variation, or that languages have another way of encoding radical spell-out. **The fact that Chinese does drop subjects indicates that they obviously have a way to do so, however this is done (potentially by default, in a language not coding a personal system).** In any case, the idea for variation as in (1) is simple: if the language exhibits pro-drop, it should not be of the “hot” type, thus presenting conservative spell-out. How learners acquire that, if not by default, is unclear, but at right angles to the discussion.

2. Reconstruction Effects

The radical vs. conservative spell-out version has consequences for reconstruction effects. If a given YP is entirely gone from a phrase-marker, and only what amounts to a null pronominal version of YP remains, **one should not get more reconstruction in such an instance than one does in (2b)**, vis-à-vis the otherwise analogous (2a):

- (2) a. *This picture of himself, Mary thinks that John likes.*
 b. * *This picture of himself, Mary thinks that John likes it.*

While this point is straightforward, there are confounding problems to keep in mind, so as not to cloud our testing grounds. One is the matter of **logophoricity in “picture NPs” as in (2)**. Moreover, while a language incapable of licensing null arguments couldn’t go into the radical dynamics in (1a) per the discussion above, it is **less clear that a language with this possibility could never go into the conservative situation in (1b)**. Again, economy alone would lead the system to prefer (1a) over (1b) – but this is a consideration *up to convergence*. **The system may go into less economical situations if this is the only way to lead to a convergent derivation**, for instance one involving the licensing of an anaphor. If this is the case, we will not be able to test the reconstruction predictions of these two versions of spell-out with anaphoric licensing. But we can use obviation.

Spanish is an interesting language to test the idea: It licenses *pro* in subject, but not object position, so we should **expect radical spell-out (all else equal) for subject, not object arguments** – where in fact we expect no separate spell-out. In turn, if this is correct we ought to see standard **reconstruction effects for objects, not for subjects**:

- (3) a. *Cuáles fotos de Lennon dijo él que no debían haber causado escándalo?*
 “Which pictures of Lennon did he say shouldn’t have caused a scandal?”
 b. *Cuáles fotos de Lennon dijo él que había tomado Bob Gruen?*
 “Which pictures of Lennon did he say Bob Gruen had taken?”

Spanish linguists consulted report **little difficulty in a reading for (3a) whereby Lennon and él ‘he’ co-refer – but they find this more difficult for (3b)**. Note that versions with a null pronominal instead of *él* ‘he’ sound bad with co-reference, in both instances. That might be an effect related to the **licensing of *pro*, which Frascarelli (2007) correlates with the presence of a null topic in the left periphery**. Such a topic (by hypothesis present in the licensing of the null pronominal, not of the corresponding full form) may be what induces the obviation effect for the name it would bind in (3).

Suppose we **embed the extraction, so that a further topic domain could license *pro* without interfering with the name inside the question phrase**:

(4) a. *Cuáles fotos de Lennon dijeron los otros Beatles que pro creía no debían haber causado tal escándalo?*
 “Which pictures of Lennon did the other Beatles say he thought shouldn’t have caused such a scandal?”

b. *Cuáles fotos de Lennon dijeron los otros Beatles que pro creía había tomado Gruen?*
 “Which pictures of Lennon did the other Beatles say he thought Gruen had taken?”

The pattern in (3) then reappears: **co-reference is fine in (4a), but degraded in (4b)** – though perhaps not impossible – despite the fact that we are now using *pro* instead of *él* ‘he’. This **contrasts with what we find in English, where co-reference is reported impossible in all of these instances**, as the translations of the examples indicate.

If this pattern holds (absence of obviation in domains where *pro* is possible, obviation elsewhere), it would have an explanation in terms of whether reconstruction takes place. If the displaced material that contains the name is not forced to reconstruct, there is no reason why this name should be obviative with anything that does not even c-command it. Crucially, **the appropriate c-command between the ‘wrong’ antecedent and the name only holds in the reconstruction site**. Here is where the two scenarios in (1) make different predictions, as (1a) involves an information split that (1b) does not.

A prediction ensues for languages, like Basque, that exhibit both subject and object agreement. Aside from being **‘cooler’ than, say, Spanish** (with more surface effects), the reasoning provided should hold here too, for amelioration of obviation effects involving displacement of a given expression over a co-referent pronoun in subject position – **and extend to comparable movements in object position**. In other words, whereas in Spanish we saw a contrast between the two examples in (3), **in Basque an example parallel to (3b) should sound as good as (3a) does in Spanish**:

(5) a. *Lennonen zein argazkik esan zuen berak ez zutela eskandalurik sortu behar?*
 “Which pictures of Lennon did he say shouldn’t have caused such a scandal?”

b. *Lennonen zein argazki esan zuen berak ez zituela Bob Gruenek egin?*
 “Which pictures of Lennon did he say Bob Gruen had taken?”

Basque linguists I have consulted give me basically the same answer that Spanish linguists do when asked about the status of (3a): these are much better than expected if reconstruction is at issue; that is, obviation between *Lennon* and the pronoun is not obligatory. Moreover, they don't seem to detect a contrast, this time, between (5a) and (5b). Indeed, **Ricardo Etxepare, a native speaker of both Spanish and Basque, reports finding the Basque examples better than the corresponding Spanish ones.**

3. Repair

While cyclicity conditions provide an argument for a derivational take on grammars, another powerful argument comes from the **exploration of derivational “dead ends” which can be repaired** as the derivation unfolds. Representational systems, for which conditions have an axiomatic character, are not designed to function this way. It makes no sense in one such system to say that condition X was violated by a structure, yet “later on” it gets repaired. In biology there are plenty of situations of the former sort, or we wouldn't be viable organisms from the moment we encountered an infection. The question is **whether mind-patterns too exhibit these “immune-style” activities.**

There is a sense in which the Virus Theory of cyclicity already constitutes an instance of repair, at the appropriate level of abstraction. So compare the **two views of cyclicity** in the system embodied by the Extension Condition and the Virus Theory:

(6) a. *Extension Condition* (Chomsky 1993:22)

[Syntactic operations] extend K to K', which includes K as a proper part.

b. *Virus Theory* (Chomsky 1995:233)

Suppose that the derivation D has formed Σ containing α with a strong [*uninterpretable*] feature F. Then, D is cancelled if α is a category not headed by α .

(6a) demands that operations target the phrase-marker root, while (6b) introduces the idea that extraneous features in a derivation must be eliminated as soon as detected. Bošković and Lasnik 1999 show that if the Virus Theory forces the system into the excision (by way of agreeing elements already in the derivation) of the uninterpretable features, and moreover this **process is immediate after the extraneous material is introduced**, it will target the place where the offending feature is placed: the root of the phrase-marker (6a). Why should the elimination of the feature take place *immediately*? Or for that matter, why should it take place at all? The virus interpretation, first discussed in Uriagereka 1998: chapter 4, provides a rationale. If we **liken the offending feature to a virus, and the computation cannot proceed without eliminating it, once detected**, the immediacy presupposed in the theory can be rationalized. But this is a repair mechanism.

The first instance of repair in the literature is actually much older, due to Ross 1969. He noted that an **island violation disappears under sluicing**:

(7) *That he'll hire someone is possible, but I won't divulge who (*that he'll hire is possible)* [Note the sub-extraction from a sentential subject.]

Chomsky 1972 assigned the ungrammaticality diacritic ‘*’ to any given island when it is crossed by a movement operation; an output condition forbidding ‘*’ in overt structures is what accounted for the deviance of island violations. **Lasnik 2001 and Merchant 2001 argue that if a later operation (sluicing in (7)) deletes the category containing the item marked as *, the derivation is then salvaged.**

Hornstein et al. (2007) observe that **MSO offers an understanding of eliminating the * diacritic.** A structure as in (7) is unlinearizable, in MSO terms. Such an object must be produced in order for the computational system to reach into the boldfaced sentential subject, and while examining its phrasal scaffolding, being able to extract *who* from it (a context-sensitive operation). **If (13) were attempting to surface as it is, with the unlinearized subject, it couldn’t make it into PF.** However, **PF deletion rescues the example:** It turns off the parallel PF material that includes the offending unlinearized chunk, thus allowing its representation to make it to LF. (The account relies on a movement-and-deletion analysis of Sluicing, contra Chung et al.’s 1995 approach via LF copying of the antecedent into a previously empty position by the Wh-phrase).

(8) *That he’ll hire someone is possible, but I won’t divulge who (~~*that he’ll hire t is possible~~)*

At the point a specifier is merged, there is a choice of whether to linearize it. If it is linearized, nothing can be extracted from it. If it isn’t, extraction is possible. **For reasons of cyclicity in the overall computation, there is no later opportunity to linearize.** So linearization fails, unless the problematic material needs no linearization.

Repair procedures give us a way to rationalize differences between **argument and adjunct sub-extraction.** Lasnik & Uriagereka 2005: chapter 7 discuss this sort of issue and propose a solution based on the Condition on Chain Uniformity:

(9) *Condition on Chain Uniformity*

A chain must be uniform, where a given chain $\kappa = \{\pi_1, \dots \pi_i, \dots \pi_n\}$, is *uniform with respect to P* if each π_i has property *P*.

Suppose *P* in (9) includes the A/A’ distinction. Then **all argument chains end up being non-uniform, as they go from a Case position to an A’ location.** This, however, need not be the end of a derivation, if the procedure has a repair mechanism to take care of this issue. **Suppose that the grammar can, under these circumstances, sever illicit chains at the time they would otherwise be identified as non-uniform.** Concretely:

(10) *Condition on Chain Severing (Definition)*

A chain κ is *severed* if and only if any of κ ’s defining elements is tampered with.

Note that, as stated in (10), **for the Condition on Chain Severing to be met one would have to violate Chomsky’s (2000, 2005) No-tampering condition** (though more on this below). Lasnik & Uriagereka consider situations whereby an intermediate trace deletes, as in Lasnik & Saito (1984). Apparently, **that amount of tampering has the effect of**

making a chain fall apart, just as snapping the weakest link in any real life chain may lead to the complex object's collapse. In turn, one also has to indicate what happens after a chain gets severed: What gets interpreted then? Lasnik & Uriagereka assume (11):

(11) *After-Severing Situation*

Where κ is the set $\{\pi_1, \dots, \pi_n, \dots, \pi_n\}$, for π any phrase-marker linked in the elaboration of κ , if κ is severed, then only those links π that happen to be in licensed configurations converge.

For instances of intermediate trace deletion, **the survivors of chain severing are the original trace in its thematic position and the operator that binds it – at that point yielding a binding (not chain) relation.** The gap in the argument position is then interpreted as a **null pronominal, in the same category as a resumptive pronouns** (an idea dating back to Cinque 1980 and 1990, and in the spirit of the ‘functional determination of empty categories’ in Chomsky 1982). We can think of the joint action of (16) and (17), in conditions as in (15), as a Repair Mechanism for Chains:

(12) *Repair Mechanism for Chains (RMC)*

Under conditions that violate the Condition on Chain Uniformity, any given chain can under go the Condition on Chain Severing and a valid binding representation may ensue through the After-Severing Situation.

With all that in mind, this mechanism needs to explain the **following contrasts:**

- (13) a. *Who do they say [that we will elect t]?*
 b. ?? *Who did it cause a stir [that we will elect t]?*
 c. * *When did it cause a stir (yesterday) [that we will elect a new leader]?*

(14) a. Sub-extraction within the main current:

$[_{CP} [_{Wh} \dots] C [_{TP} \dots t_{Wh} \dots]]$

b. Argument sub-extraction across a derivational vortex:

?? $[_{CP} [_{DP-Wh} \dots] C [_{TP} \dots [_{XP} \dots t_{Wh} \dots] \dots]]$

c. Adjunct sub-extraction across a derivational vortex:

* $[_{CP} [_{PP-Wh} \dots] [C [_{TP} \dots [_{XP} \dots t_{PP-Wh} \dots] \dots]]]$

(14a) vs. (14b) may be distinguished by timing for the RMC. In a non-uniform chain within a given current, it is reasonable for the RMC to re-interpret it as a binding procedure as part of cyclic transfer to LF. However, **when a non-uniform chain is forced to emerge across currents, the RMC cannot re-interpret it at that point.** It must, instead, store the information that there is a gap-in-waiting within that structural chunk, because of the MSO dynamics: material that is not inside a current will have to be dealt with separately, after spell-out (or linearization would fail). From this perspective, **the psychological effect we detected in conditions of the form in (14b) may be not so much the ungrammaticality of an impossible chain, but rather the repair cost of recasting the chain in binding terms – when made to wait in derivational time.**

The distinction between (14a)/(14b) vs. (14c) has to be more radical. Ideally, **in the latter instances we would be witnessing a truly impossible chain across a spell-out domain**. Of course, the issue here is why in this instance the Repair Mechanism for Chains cannot be invoked. It may seem as if this limitation emerges because these elements lack pronominal forms, as they are not individual-denoting (see Szabolcsi and Zwart 1993 for this reasoning). However, many adjuncts allow for pro-forms: *thus*, *then*, *there*, etc.; moreover, it is not obvious that a given expression denoting whatever adjuncts denote (a heterogeneous class) should have a putative pro-form expression reduced because of that. On the other hand, as Chomsky & Lasnik (1995: chapter 1) show, it is clear that **adjunct chains are uniform, in terms of the Condition on Chain Uniformity: they start in an A'-position, displace through intermediate A'-sites, and end up in an A'-location**. This uniformity comes at a price, though: the grammar is not justified, then, in severing a perfect chain, as it cannot identify it as problematic – and so the system is stuck with one such chain, for better and for worse. Chomsky & Lasnik originally, and Lasnik & Uriagereka building on this, show that **some Empty Category Effects can be accounted for under those assumptions**. In effect, that is what we need here too: a way to tease apart valid sub-extractions from weak islands when arguments are involved, as compared to impossible adjunct sub-extractions in similar conditions.

4. Is Linearization Represented?

An interesting issue for the MSO architecture emerges with regards to **whether the linearization output** (the fact that given symbols precede others, exhaustively) **is ever represented in the system**, or it is simply an epiphenomenon with no symbolic reality. The matter is of course empirical, and can be studied with paradigms as follows.

Aoun and Li 2003 show how **resumptive pronouns in Lebanese Arabic occur in places where traces are also permitted** (e.g. embedded sentential complements), **as well as within islands where traces correlate with island violations**. The classical explanation for this difference is that only traces are movement residues, therefore subject to island restrictions. If resumptives are licensed via binding instead, they should be able to finesse the locality restrictions island conditions impose. **Aoun and Li, however, argue that movement also obtains in the latter cases**. Their evidence comes from multiple interrogatives, which display **superiority effects**. Among several studying superiority (Rudin 1988, Bošković 1997, 1998, 1999, 2002, Hornstein 1995, Richards 1997, 1999, 2001, Pesetsky 2000, Boeckx and Grohmann 2003, etc.), **Bošković (2002) has argued that superiority reflects an economy condition that requires the Wh-phrase closest to the target of movement (typically, C') to move first**. Accordingly, in Bulgarian for instance, the first Wh-phrase in a Wh-cluster is the one whose launch site c-commands the launch sites of the other Wh-phrases. As Aoun and Li demonstrate, in Lebanese Arabic, **resumptives within islands display superiority effects identical to those displayed by traces and resumptives in non-island contexts**. So the language shows superiority effects in *all* multiple question environments: no resumption contexts (20), non-island contexts with resumption (21), as well as islands with resumption (22).

- (15)a. miin ?anna?to yzuur miin [No resumption]
 who persuaded.2pl 3ms.visit who
 “Who did you persuade to visit who?”
- b. *miin ?anna?to miin yzuur
 who persuaded.2pl. who 3ms.visit
 “Who did you persuaded who to visit?”
- (16)*miin ?anna?to miin yzuur-u [Resumption
 without island]
 who persuaded.2pl who to-visit-him
 “Who did you persuade who to visit (him)?”
- (17)a. miin ?enbasatto la?inno saami ?arraf-o ?a-miin [Resumption
 inside island]
 who pleased.2pl because Sami introduced-him to-whom
 “Who were you pleased because Sami introduced (him) to whom?”
- b. *miin ?enbasatto la?inno saami ?arraf miin ?al-e
 who pleased.2pl because Sami introduced whom to-him
 “Who were you pleased because Sami introduced who to him?”

Hornstein et al. 2007 takes this to suggest an **intimate tie between islands and phonetic gaps** (cf. Ross 1967). Such a connection is **sensible on a linearization approach to islands, movement operations that result in phonetic gaps affecting linearizations, vis-à-vis operations that do not alter PF**. Although one has to decide on **what is meant by “not altering PF”**. Fox and Pesetsky (2005) take the **linearization process to be a commitment to certain precedence relations, rather than freezing relevant elements in the place they occupy** in the terminal string at the point of linearization. In this approach, the displacements in (18b) are consistent with the linearization in (18a). Thus, even if the latter has been executed in a current, operations within it are permissible, so long as linearization properties already decided are unaltered:

- (18) a. ... [...X...Y...Z]...
 b. ... [...X... Y_i...t...t_i...Z]...

The question is **whether the resumptive pronoun is a mere pronounced occurrence of the antecedent**. (Remember: each copy is an occurrence of the displaced token element.) Thus, **if the resumptive pronoun emerges via movement, it should count as an occurrence in the relevant sense**. If it is, we will find ourselves in this situation:

- (19) a. ... [_{XP} ...X...Y...Z]...
 b. ... Y_i [_{XP}... X...Y_i...Z]...

Suppose that **XP is an island because it is out of the main current that must linearize through MSO**. We can **still move Y out of XP so long as a pronounced copy of Y signals its place within the linearized <...X...Y...Z> sequence**. Note that, **given the resumptive, the occurrence of Y within XP is arguably identifiable without needing**

to invoke any context (as would be the case for sheer gaps). The situation is no different from that arising for bound-variable binding:

- (20) a. *No priest told every nun that [her letters to him] would never be divulged.*
 b. *No bishop told every priest that [his letters to him] would never be divulged.*

Relevant dependencies are not via (context-sensitive) chains, but **associations for which it is enough to determine that a term exists within an identifiable (island) domain.**

It remains to be seen precisely **how this sort of occurrence emerges as a mere set of features instead of a full-fledged category.** This ought to have to do with the issues raised by **Nunes 2004:** elements within a chain cannot linearize with regards to one another unless (i) all but one have no PF realization *or* (ii) occurrences other than the linearized one linearize via a morpho-phonemic processes. This goes well with the fact that **resumptive pronouns tend to be clitics or mere agreement morphemes.**

That relates, again, to reconstruction effects. Though Lebanese Arabic resumptives are not restricted to island contexts, Aoun and Li show that it is **only possible to reconstruct a Wh-phrase that antecedes a resumptive in non-island contexts.** Thus, the possessive pronoun within the Wh-phrase in (21a) can be interpreted as a variable bound by ‘every teacher’, as the Wh-phrase antecedes a resumptive that is not within an island. In contrast in (21b) the resumptive is within an adjunct island, and the possessive pronoun within the antecedent cannot be understood as bound by ‘every teacher’:

- (21)
 a. ?ayya taalib min tulaab-a fakkarto ?enno kell m?allme hatna?-ii
 which student among students-her thought.2pl. that every teacher.fs will.3fs.choose-him
 “Which of her, students did you think every teacher, would choose (him)?”
 b. ?ayya taalib min tulaab-a ?enbasatto la?inno kell m?allme hatna?-ii
 which student among students-her pleased.2pl because every teacher.fs will.3fs.choose-him
 “Which of her, students were you pleased because every teacher, would choose (him)”

One possible way to explain these contrasts capitalizes on the fact that, **when the resumptive is within the island context (here, an adjunct), the scaffolding of that context is destroyed, as part of the MSO procedure.** This need not be the case when the resumptive is not within an island. Let’s follow Hornstein et al. (2007) in assuming:

(22) *Reconstruction Assumption*

A displaced element α can reconstruct to any of its occurrences α_i so long as α_i is fully identified within a phrasal context.

The intuition is that just as Agree or Move are, **Reconstruction too is a context-sensitive dependency requiring a fully assembled phrasal scaffolding.** The spell-out process destroys this scaffolding in the island instance, and therefore the reconstruction mechanism becomes unavailable. In contrast, **when the resumptive is not within an**

island, nothing prevents the system from using context-cues, as it would for any trace. (One also needs to explain, then, why the pronoun is pronounced at all.)

The latter point is worth remembering when comparing Fox & Pesetsky (2005) and the more basic approach in the original MSO. In MSO, the phrasal ordering is a consequence of the literal collapse of the syntactic scaffolding, which is somewhat different from the more representational approach, if the grammar has to know that a certain ordering has been committed to PF (and so long as that ordering is kept in ensuing manipulations, further operations *are* possible with the objects in question). Nothing in that view forces the destruction of the scaffolding to obtain the ordering. In any case, **the logic in (22) presupposes, in fact, the destruction of the relevant scaffolding – so that reconstruction is unavailable.** Note that, **as such, the account of resumptive pronouns (and their signaling a committed PF) is not contradictory with the flattening of structure relevant to the Reconstruction Assumption.** It could be that the way the Fox/Pesetsky idea is implemented is in terms of a flattened structure. For what's the alternative? **An ordering annotation would seem to be formally equivalent to a counter,** which the grammar is usually assumed to lack (Berwick and Weinberg 1984).

5. Interfacing Currents

Going back to Bresnan 1972, Uriagereka 1999:262 observed that **spelled-out domains should determine prosodic domains.** Dobashi 2003 proposes a similar hypothesis for phonological phrasing (see also Grohmann and Putnam 2006), although it is **Sato 2006 that takes the matter the most seriously.** He explores the following three predictions:

- (23) a. A head and its complement form a single Prosodic Domain [P-Δ].
- b. A complex specifier/adjunct forms an independent P-Δ without a head/comp.
- c. A simplex specifier/adjunct forms a P-Δ that also includes a head/comp.

These predictions follow from taking currents at face value. **Skeletal head-complement relations determine currents, but if given specifiers/adjuncts happen to be simplex, then they too should be part of a current.** A current ideally maps to a P-domain.

Sato 2006 argues for the validity of (23) on the basis of **Taiwanese Tone Shandi** (Chen 1987, data from Simpson and Wu 2002, Wu 2004), **Gilyak Lenition** (Kenstowicz and Kisseberth 1979, data from Krejnovich 1973), **Kinyambo High Tone Deletion** (Bickmore 1990), and **French Liaison** (Selkirk 1972, 1974). We can illustrate the basic idea with the latter phenomenon. In French liaison **a normally silent consonant is pronounced before a vowel-initial element in certain conditions.** The descriptive rule is as in (24), where a consonant is deleted before the sequence of # # (two word boundaries) or of # followed by a consonant-initial word.

$$(24) \quad \textit{French Liaison} \\ [-\text{sonorant}] \rightarrow \emptyset / _ \# \left\{ \begin{array}{l} [+ \text{consonant}] \\ \# \end{array} \right\} \quad (\text{Selkirk 1974: 579})$$

To illustrate, consider the following examples of when the liaison does happen (signaled as ‘^’) and when it does not (signaled as ‘/’):

- (25) a. des ^ennuis ‘(some) problems’ (Selkirk 1974: 580)
b. dans ^une sale ‘in a room’
c. Paul nous ^appelle. “Paul is calling us.”
d. Les garçons/enragent. “The boys are getting mad.”
e. Les immigrants/envoyaient/des lettres/à leurs familles.
“The immigrants were sending letters to their families.”

How can rule (24) be rationalized? Sato builds on the following generalization:

- (26) *Selkirk’s Generalization* [from Selkirk’s in 1974]
A liaison context exists between an inflected X and its complement, both dominated by X’. (Selkirk, 1974: 581)

The X-complement relation is the basis for a current. But what happens when specifiers or adjuncts are involved? Sato provides the following examples, involving double objects (27a) and resultatives (27b), both of which are taken to fall under generalization (23a):

- (27) *Specifier-Head Configuration*
a. *Donnez ces lunettes/à Marcel.* b. *Ils voulaient changer des métaux/en or.*
“Give these glasses to Marcel.” “They wanted to change metals into gold.”

Simply put, **the separate current undergoes early Spell-Out, and it is thus processed at PF separately from other currents in the derivation. Similar conditions arise for Head-adjunct configurations, for comparable reasons.** Sato illustrates the prediction as in (28), satisfying generalization (23b):

- (28) *Head-Adjunct Configuration*
Je réfléchissais/avant de répondre.
“I was reflecting before answering.” (Selkirk 1974: 588)

Finally, **liaison should be possible between a head and its specifier or adjunct if such an element is simplex**, as it need not belong to a separate current, situation (23c). Sato confirmed this prediction with his own informants, providing the following data:

- (29) *Complex vs. Simplex Subjects*
a. *Les garçons/étaient grands.* b. *Nous ^allons. Vous ^allez.*
“The boys were big.” “We go./You go.”
- (30) *Complex vs. Simplex Indirect Objects*
a. *Donnez/un gâteau à Marcel.* b. *Donnez ^en à Marcel.*
“Give a cake to Marcel.” “Give some of it to Marcel.”

(31) *Complex vs. Simplex Adjuncts*

- a. *Marie le caressait/aussitôt qu'elle le voyait.* b. *Marie les caressait aussi.*
“Marie caressed it as soon as she saw it.” “Marie caressed it too.”

In principle, **similar considerations arise about mapping into the LF interface.** Observables may arise because the mapping to LF is not entirely in synch with the mapping to PF; in other words, **the point of spell-out need not provide a single, and simultaneous, transfer to both components, even if that is the null hypothesis.** Indeed, languages may for some reason differ in this timing, in the spirit of similar proposals dating back to Huang (1982). We won't go into how that may relate to the specific MSO proposal, but the issue certainly arises in principle. For example, **it could be that what triggers the (non-default) overt displacement relates to eliminating a viral *-feature, which languages may differ in terms of “how rapidly” to eliminate.**

Magerdoomian 2002 presents an argument of that sort, concerning **lexicalization and how languages package meaning features into morphophonological units of different sizes.** In this study of causatives in Japanese and Eastern Armenian, the same **syntactic properties and semantic information are shown to surface as a single word in Japanese, while being realized as an entire phrase in Eastern Armenian.** For instance, the verb *tabesaset* in Japanese (37) and the causative phrase *batsel t'vets* in Armenian (38) both behave as analytic causatives: they consist of two *v*-cause heads, have agentive embedded subjects, do not give rise to idiomatic readings and are iterative:

- (32) *Osamu-wa Keiko-ni soba-o tabe-sase-ta*
Osamu-top Keiko-dat soup-acc eat-caus-past
“Osamu made/let Keiko eat soup.”

- (33) *Ara-n yerex-in pat'uhan-e batsel t'v-ets*
Ara-nom child-dat window-acc open-inf give-aor.1sg
“Ara made the child open the window.”

Despite the commonalities, Japanese causatives surface as a single morphophonological word *tabe-sase-ta*, while the Armenian verb does as a phrasal causative *batsel ... t'vets*. Magerdoomian argues that the surface realizations can be captured by a **parameter that tweaks spell-out conditions in their path to the PF interface, while the mapping to LF remains constant.** The basic verbal components are constructed by the same, unique computational procedures (in the spirit of Hale & Keyser 2002 and Marantz 1997). By **adopting a MSO approach and liberalizing the timing of the transfer of units to PF in one language more than in the other (the transfer to LF remaining constant and phase-based),** Magerdoomian captures the observed differences. For the Eastern Armenian causative in (38), PF-transfer applies at *vP*. All structure below *vP* is then realized as a single morphological unit (or PF-word), while the causative *v* head above *vP* is realized as the light verb *t'al* ‘give’. In the Japanese causative in (32) **the PF-transfer applies at a higher level, extending the domain of the morphological word to that level,** while displaying the same semantic and syntactic properties as in Armenian.

It may be thought that, in rigor, this approach is more an argument for Chomsky's phase-based system than for the MSO architecture, but this would be inaccurate. While Magerdoomian's account capitalizes on lexicalization below and above the vP phase – and in that sense argues for Chomsky's view – it is not less true that **the structures that lexicalize are *currents*, not more complex dependencies**. Things could have been more complex, including lexicalization of verbal forms that go beyond the current. To the extent that this does not happen, it is an argument for the MSO slicing of syntactic structures. **This also makes the point that the MSO architecture is not incompatible with a phase-based system**. It is not hard to imagine how a variety of **processes studied by Baker (1988) (at the time treated in terms of covert incorporations in the LF component) could be analyzed along these lines**.

6. Reprojections

One final argument for a derivational architecture comes from situations **whose phrasal topology remains constant in its mapping to the interfaces, but whose labeling is altered as the computation unfolds**. Hornstein & Uriagereka 2002 (H&U) pursues the intuition expressed in Larson & Segal (1995) that binary quantifiers are like transitive verbs, in that they take two arguments – a restriction and a scope. That being the case, the quantifier's arguments ought to stand in familiar relations (i.e. complement, specifier) with regards to the quantifier, just as they do with respect to transitive verbs. This forces H&U into what they call 'reprojection', illustrated below. The matter is interesting now in that such processes end up inducing LF-driven islands, in ways comparable to the sorts of PF-driven islands examined thus far in this monograph.

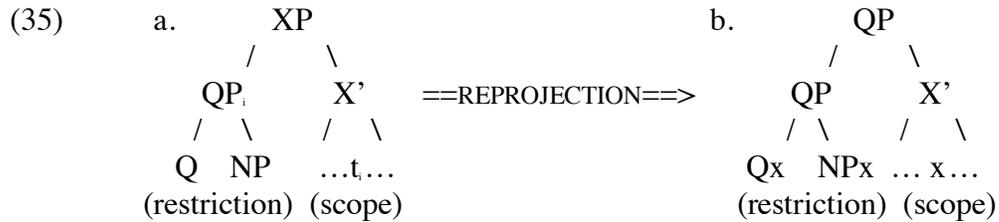
Relevant **Quantifier Induced islands, as studied by Beck (1996), arise for so-called split LF dependencies**, such as negative polarity licensing, if they take place with the licensee under the scope of a binary quantifier, while the licensor is outside:

- (34) a. [What did [nobody give [every child t]]]?
 b. [**Nobody** gave [two children **a red cent**]].
 c. * [**Nobody** gave [every child **a red cent**]].

The **bracketed material in (34a) is not an island for an overt dependency** between *what* and its trace, as expected, or even **for the covert dependency between the bold-faced elements** (licensor and licensee of negative polarity) **when the quantifier that can induce the relevant opacity (typically a specifier for the domain) is unary** – for instance a numeral expression (34b). However, **when the quantifier in question is binary as in (34c), then some sort of island appears**, strictly for the LF process. Honcoop 1998 lists, as obeying similar conditions, the *wat...für* split in Germanic languages, instances involving *why* adjuncts, and some Wh-in situ multiple-questions.

H&U presumes that **quantificational dependencies are transparently represented at LF**. In a binary quantifier, the restriction (e.g. *child* in (39c)) is coded as the *first* dependent of the quantifier; its scope (e.g. *nobody gave x a red cent* in (39c)) has to somehow be coded in *derived X'*-theoretic terms. Although the relation *every* enjoys with its restriction *child* in (39c) is standard (*child* is the complement of *every*), **the**

quantifier does not relate to its scope in any grammatically transparent way. This work addresses the difficulty by re-labeling the relevant phrase-marker as in (35):



Note that **XP (the target of Quantifier Raising by QP) is relabeled as QP in (40b), a derivational process that is assumed to take place covertly.** (The argument given for this is empirical: if reprojection took place overtly, among other things that would go wrong, linearization of relevant structures would be backwards.) Most significantly for our purposes, these projection/reprojection dynamics are associated to Quantifier Induced islands. Consider in particular **the context-sensitive dependency between *nobody* and *a red cent*** in each instance in (34). Minimally, this dependency must hold **between the context ‘sister of T’ (for *nobody*) and ‘sister of (the trace of) *gave*’ (for *a red cent*), where the notion ‘between’ is arguably of the Probe-Goal sort, from *nobody* to a relevant target in its domain.** The question is how the reprojection affects the probing.

The intervening labels that have to be reconsidered upon reprojection entail what Uriagereka (1998) referred to as “overwriting” and Chomsky (2000, 2005) calls “tampering”. We noted how the **tampering mechanism, in intermediate trace deletion, can result in the elimination of a chain** for the purposes of the Condition on Chain Severing. In this regard, it should be noted that **overwriting is actually not exactly the same as tampering, particularly if the latter also includes total deletion:** It should be clear that **a deletion is the ultimate tampering, but not an overwriting, as nothing occupies the place of what was there before in deletion.** So if we will, in fact, be needing a (radical) form of tampering for the Condition on Chain Severing, **we cannot have an absolute ban against overwriting in derivations, or there would not be any deletions.** In contrast, **a more specific ban against overwriting can be kept, stated as a conservation condition as in (36):**

(36) *Ban Against Overwriting*

No operation can result in the overwriting of non-interpreted labels.

The intuition is that **derivational manipulations on labels arise only if these have been partially interpreted.** Reprojections aside, **these would be of the sort possibly needed for traditional forms of restructuring or reanalysis or even multiple operator amalgams for the purposes of so-called absorption** (Higginbotham and May 1980) – and see in this regard **Pesetsky’s *exfoliation* or Müller’s *removal*.**

All of that **only makes sense in a system involving distributed interfaces,** either of the Distributed Morphology sort (Halle and Marantz 1993) or of the Distributive Semantics sort (Uriagereka 2008): **then a given label can undergo several cycles of**

interpretation, and the Ban Against Overwriting would allow its manipulation from a lower cycle to an upper one. Now, note that, in situations of reprojection, not only will the changed label itself, in fact, need to overwrite, but also all the dominating formal objects that contain said label within. Consider then the T' that determines the context of *nobody* in (34). That constituent is {T, {T, VP}} prior to reprojection, and {T, {T, DP}} thereafter. Relevant to this situation, Hornstein et al. (2007) stipulate a restriction on context-sensitive dependencies (and recall, also, the Reconstruction Assumption in (22)):

(37) *Conservation Condition CC*

A context-sensitive dependency α must be unambiguous throughout α 's derivation.

The CC prevents the formation of context-sensitive dependencies across a domain that has involved overwriting. The Quantifier Induced island effect then follows. In contrast, the CC doesn't prevent: (i) the formation of an overt syntactic dependency as in (34a) if established *prior to reprojection*; (ii) the relation between a reprojected quantifier and its scope, since after reprojection the latter is a *context-free* relation between a head and its specifier, not a context-sensitive dependency affected by the Conservation Condition; (iii) the relation between the quantifier and its trace, which (although being context-sensitive), originates covertly, hence the labeling relevant to it is the already reprojected one. Finally, all such considerations are moot for unary quantifiers, as they do not involve reprojection to start with – therefore no overwriting emerges in their presence (34b).

Note that the CC and the treatment above has consequences for the Reconstruction Assumption in (22). If that processes is sensitive to rejections, perhaps the assumption in question is a side-effect of the CC, a more general condition.

References

- Baker, M. 1988. *Incorporation: A Theory of Grammatical Function Changing*. IL: University of Chicago Press.
- Beck, S. (1996). Wh-constructions and Transparent Logical Form. PhD dissertation, Universität Tübingen.
- Bickmore, L. S. (1990). "Branching Nodes and Prosodic Categories: Evidence from Kinyambo," in S. Inkelas and D. Zec, *The Phonology-Syntax Connection*. University of Chicago.
- Boeckx, C. and Grohmann, K. (2003). *Multiple Wh-Fronting*. Amsterdam: John Benjamins.
- Bošković, Ž. 1998. "LF Movement and the Minimalist Program", in Proceedings of the North East Linguistic Society 28, 43-57. GLSA, University of Massachusetts, Amherst.
- Bošković, Ž. 1998. "Multiple Wh-Fronting and Economy of Derivation", in Proceedings of the West Coast Conference on Formal Linguistics 16, 49-63. Stanford University.
- Bošković, Ž. 1999. "On Multiple Feature-Checking: Multiple Wh-Fronting and Multiple Head-Movement," in Epstein and Hornstein, *Working Minimalism*, Cambridge: MIT Press.
- Bošković, Ž. 2002. "A-movement and the EPP", *Syntax* 5: 167-218.
- Chen, M. (1987). 'The Syntax of Xiamen Tone Sandhi', in *Phonology Yearbook* 4: 109-149.
- Chomsky, N. 2000. "Minimalist inquiries: the framework", in R. Martin, D. Michaels and J. Uriagereka, *Step by Step*. Cambridge, MA: MIT Press.
- Chomsky, N. 2001. "Derivation by phase", in M. Kenstowicz, *Ken Hale: A Life in*

- Language*. Cambridge, MA: MIT Press.
- Chomsky, N. 2005. "Three factors in language design," *Linguistic Inquiry*, 36: 1-22.
- Chomsky, N. and Lasnik, H. 1993. "The theory of principles and parameters," in J. Jacobs et al., *Syntax: An International Handbook of Contemporary Research*, Vol. 1., Walter de Gruyter. (Reprinted in N. Chomsky, *The Minimalist Program*. MIT Press, 1995)
- Fox, D. and Pesetsky, D. 2005. "Cyclic linearization of syntactic structure", *Theoretical Linguistics*, 31: 1-46.
- Frascarelli, M. 2007. "Subjects, Topics and the Interpretation of Referential Pro: An Interface Approach to the Linking of (Null) Pronouns", *Natural Language & Linguistic Theory* 24, 4.
- Hale, K. L. and Keyser, S. J. (2002). *Prolegomena to a Theory of Argument Structure*. Cambridge, MA: The MIT Press.
- Honcoop, M. 1998. *Dynamic Excursions on Weak Islands*. Amsterdam: Holland Academic Graphics.
- Hornstein, N. 1995. *Logical Form: From GB to Minimalism*. Oxford: Blackwell.
- Hornstein, N., Lasnik, H. and Uriagereka, J. 2007. "The Dynamics of Islands: Speculations on the Locality of Movement," *Linguistic Analysis*, 33: 149-175.
- Huang, C.-T. J. 1982. *Logical relations in Chinese and the theory of grammar*. Doctoral dissertation, MIT.
- Huang, C.-T. J. 1984. "On the distribution and interpretation of empty pronouns," *Linguistic Inquiry*, 15: 531-574.
- Kenstowicz, M. and Kisseberth, C. (1979). *Generative Phonology*. San Diego: Academic Press.
- Krejnovich, E. (1973). *Fonetika nivxkogo jazyka* (Phonetics of Nivkh (Gilyak) language). Leningrad: Uchpedgiz.
- Larson, R and Segal, G. 1995. *Knowledge of Meaning*. Cambridge, MA: The MIT Press.
- Lasnik, H. and Saito, M. 1984. "On the Nature of Proper Government," *Linguistic Inquiry*, 15: 235-289.
- Marantz, A. (1997). 'No Escape from Syntax: Don't Try Morphological Analysis in the Privacy of your own Lexicon', in *UPenn Working Papers in Linguistics*, 4: 201-225.
- Magerdoomian, K. 2002. *Beyond words and phrases: a unified theory of predicate composition*. Doctoral dissertation, University of Southern California.
- Pesetsky, D. 2000. *Linguistic Universals and Universal Grammar*, in *MIT Encyclopedia of Cognitive Science*.
- Richards, N. 1997. *What Moves Where When in Which Language*. Ph.D. thesis. MIT.
- Richards, N. 1999. "Featural Cyclicity," in S.D. Epstein and N. Hornstein, *Working Minimalism*. Cambridge, MA: The MIT Press.
- Richards, N. 2001. *Movement in Language*. Oxford: Oxford University Press.
- Rudin, C. 1988. "On multiple questions and multiple WH fronting," *Natural Language and Linguistic Theory*, 6: 445-501.
- Sato, Y. 2009 "Spelling-Out Prosodic Domains: A Multiple Spell-Out Account", in *InterPhases: Phase Theoretic investigations of Linguistic Interfaces*, Oxford: Oxford University Press.
- Selkirk, E. (1972). *The Phrase Phonology of English and French*. Ph.D. Thesis. MIT.
- Selkirk, E. (1974). 'French Liaison and the X' Convention', *Linguistic Inquiry*, 5: 573-590.
- Simpson, A. and Z. Wu. 2002. "IP-raising, tone sandhi and the creation of particles: Evidence for cyclic spell-out." *Journal of East Asian Linguistics*, 11.1.
- Uriagereka, J. 1998. *Rhyme and Reason*. Cambridge, MA: The MIT Press.