

Syntactic Reduplication and the spellout of movement chains

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1 Introduction

Under the Copy Theory of Movement (Chomsky, 1995), traces are taken to be unpronounced copies of a moved constituent.

(1) John_i was kissed t_i .

However there are instances where “traces” do in fact receive phonological form. For example, a raised verb in Vata may be spelled out in both head and tail position to express intensification:

(2) **pā** *ń* *ka'* *mÉ* **pa'** *ā*
throw you FUT-A it **throw** Q
“Are you going to THROW it?”

Another example is Contrastive Reduplication in English, which Ghomeshi et al. (2004) argue is the result of movement. In Contrastive Reduplication (CR), the repetition of some syntactic constituent to express prototypicality:

(3) I don't LIKE-HIM-like-him.

Assuming a copy theory of movement permits phrase markers with multiple copies of a single item. However, examples like this pose a theoretical problem, since in most cases of movement only one copy is pronounced.

According to Chomsky (1995); Kayne (1994); Nunes (1995, 1999, 2004), the reason only one copy of a moved constituent is spelled out is that copies, which are treated as the same entity with respect to the computational system, cannot be given a linear order with respect to one another. Because a surface form with multiple copies spelled out would violate fundamental properties of strict linear order, only one copy may be realized.

What, then, makes cases of multiple-copy spellout possible? Grohmann and Nevins (2004) argue that phonological distinctness — differences in phonological form between the two copies — allow multiple-copy spellout by evading restrictions on identical items. Pesetsky (1997) makes the relevant constraint violable. I will show that both these accounts greatly overgenerate the typology of multiple-copy spellout. Instead, I will argue that semantic distinctness is what allows both copies to be spelled out.

I analyze multiple-copy spellout as instances of *Syntactic Reduplication*. That is, multiple copies can be pronounced when repetition of the copied constituent expresses a specific meaning, carried by an abstract reduplicative morpheme. The reduplicative morpheme merges with a raised copy derivationally rather than inflectionally, which renders it opaque to linearization — the two copies arrive at linearization as distinct, permitting multiple-copy spellout. The primary focus here is Contrastive Reduplication, but a range of data is considered.

This paper is organized as follows. In Section 2, I discuss the range of phenomena analyzed as Syntactic Reduplication, and I provide a syntactic analysis in which copy movement driven by a reduplicative morpheme delivers a phrase marker with multiple copies of the item undergoing reduplication. In Section 3, I discuss the factors governing the spellout of movement chains, and propose a modification to the current theory that allows a copy to be rendered invisible to Linearization when it undergoes a derivational morphological combination with a reduplicative morpheme.

In Section 4, I return to non-local cases of syntactic reduplication, comparing these cases to single-copy focus movement and arguing for the inclusion of reduplication in the range of realizations of focus cross-linguistically. Finally, Section 6 discusses previous accounts of movement chain spellout, and shows that they do not successfully generate the typology of the process.

2 Syntactic Reduplication

In syntactic reduplication, some semantic meaning is realized by copying of some syntactic constituent; this is similar to, but distinct from, the range of reduplicative phenomena familiar in phonology and morphology.

In some cases, syntactic copying is local — both copies appear adjacent to each other. Contrastive Reduplication in English (CR) (Ghomeshi et al., 2004) forces a prototypical or canonical

reading of the item undergoing reduplication. For example:

(4) English Contrastive Reduplication (Ghomeshi et al., 2004)

- a. I'll make the tuna salad, and you make the SALAD–salad.
- b. Those GUY–guys, y'know? Those guys with skills?
- c. I don't LIKE-HIM–like-him.
- d. Well, he didn't GIVE-IT-TO-ME–give-it-to-me (he only lent it to me).

In (4a) SALAD–salad restricts the set of all possible things denoted by the word 'salad' to only those that are prototypical — e.g., a green salad.

Echo Reduplication in Bengali (Fitzpatrick-Cole, 1996) has the opposite effect, widening the set denoted by the reduplicated item to include other, similar kinds of things. For example:

(5) Bengali Echo Reduplication (Fitzpatrick-Cole, 1996)

- a. *kalo makorša* 'black spiders'
kalo makorša ṭalo makorša 'black and such spiders'
- b. *k^hub patla šari* 'very thin sari'
k^hub patla šari ṭub patla šari 'very thin and such sari'

In (5a), the reduplicated form *kalo makorša ṭalo makorša* can refer not only to black spiders but also to spiders of colors that are similar to black.

Echo reduplication indicating 'as such' can also be found in e.g. Tamil (Keane, 239-261) and Kannada (Lidz, 2001). English Shm-reduplication (Grohmann and Nevins, 2004) serves as a pejorative marker. Shm-reduplication differs from CR and Echo reduplication in that the particular meaning it expresses operates only on topics, and hence it does not appear in argument position — see Grohmann and Nevins (2004) for an explanation.

Additionally, there are cases where copying is non-local. In Vata (Kru, Ivory Coast) (Koopman, 1984), a verb is doubled to express intensification:

- (6) *pā* *ń* *ka'* *mÉ* *pá'* *ā*
throw you FUT-A it **throw** Q
"Are you going to THROW it?"

A similar construction is found in Turkana (Nilotic, Kenya) (Dimmendaal, 1983), where a clefted verb can be spelled out twice, again to express intensification:

- (7) *k-à-ìmùrì-a-kì* *è-ra-ì* *a-k-ìmuri-a-kìni*
 T-1SG-**forget**-E-DAT 3SG-be-ASP INF-**forget**-E-DAT
 “I really FORGOT!”

Finally, the “double construction” in ASL (Petronio and Lillo-Martin, 1997) also expresses intensification through non-adjacent copying:

- (8) HE^{topic} **hate** LIGHTS-FLASHING-ON **hate**
 “He HATES lights flashing on and off.”

In these cases, again, a particular meaning is expressed through copying — movement alone is not sufficient to express intensification in these languages. The syntactic analysis in Section 2.2 and Section 3 deals primarily with adjacent copying, but long-distance cases are discussed in Section 4.

2.1 Comparison with Morphological Reduplication

Reduplicative processes have received considerable attention in the morphological and phonological domains (see e.g. Inkelas and Zoll (2005), Kiparsky (1986), McCarthy (1982), McCarthy and Prince (1995)). It is typically understood, following McCarthy and Prince (1995), as involving an abstract RED morpheme, which receives its segmental content via phonological copying. I will refer to phemonema as this sort as Morphological reduplication.

Morphological reduplication may take a full word or some (often, but not necessarily, contiguous) subset of its phonological content. Partial reduplication always results in the copying of some particular prosodic unit.¹

Syntactic reduplication is different from other reduplicative processes in several ways. First, it may take constituents larger than a word. The reduplicated constituent in (4c) is a verb and its object, and the constituent in (5a) is an adjective-noun sequence.

The generalization common to English, Bengali, Kannada, and Tamil is that syntactic reduplication may take a constituent as small as X⁰ and as large as XP, where X is some lexical head.²

¹A given RED morpheme always results in copying of a consistent prosodic unit, but a language may contain multiple reduplicative morphemes which each take different prosodic units (e.g. Lushootseed (Urbanczyk, 1996)).

²There are interesting, language-specific restrictions on what kinds of XPs are eligible to be reduplicated; a full account is beyond the scope of this paper, and must be left to future research.

Secondly, the level of constituency relevant for reduplication is syntactic, and not phonological (c.f. Fitzpatrick-Cole (1996), who suggests a prosodic account). Syntactic and prosodic constituency often coincide, since the latter is based on information about the former, but there are cases where prosodic constituents do not obey syntactic constituency. In cases of such mismatch, reduplication still respects syntactic constituency.

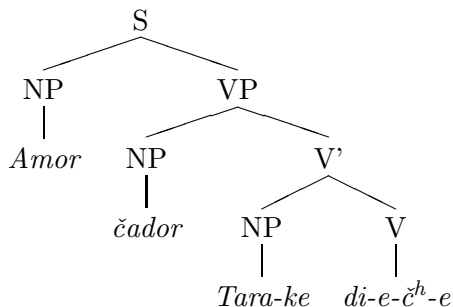
For example, cliticization processes in English can create prosodic constituents that do not correspond to syntactic constituents. Ghomeshi et al. (2004) points out that the form in (9b), while it corresponds to a legitimate prosodic constituent, is not well-formed as a reduplicant:

- (9) “I wouldn’t date a linguist”
- a. I wouldn’t date=a linguist
 - b. *I wouldn’t DATE-A-date-a linguist

A similar situation can be found in Bengali — given-marking and fast speech license prosodic constituents that are not well-formed syntactic constituents, but such prosodic units cannot serve as the base for reduplication. For example, the parsing in (10a) represents one of several options for P-Phrase parsing in fast speech. Here, (*čador Tara-ke*) is a well-formed prosodic constituent. However, the reduplicated form in (10b) is not well-formed, because it does not correspond to a syntactic constituent.

- (10) Fast Speech Restructuring (Hayes and Lahiri, 1991)

Amor čador Tara-ke di-e-č^h-e
 Amor scarf Tara-OBJ give-PERF-PRES-3P
 “Amor gave a scarf to Tara”



- a. (Amor) (čador Tara-ke) (di-e-č^h-e)
- b. *čador Tara-ke řador Tara-ke

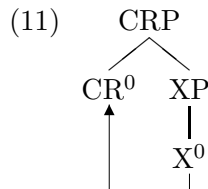
Despite these differences, Syntactic and Morphological Reduplication share many fundamental properties. In both cases, a particular meaning is expressed via copying — I propose that Syntactic Reduplication, like Morphological Reduplication, involves an abstract reduplicative morpheme.

In Morphological Reduplication, the abstract reduplicative morpheme may contain some degree of fixed phonological material, in addition to the phonological content it receives through copying (Alderete et al., 1999). This is also true of Syntactic Reduplication — the *shm-* in Shm-Reduplication, for example. The phonological material fixed in Contrastive Reduplication is not a segment, but rather a specific pitch contour — the same pitch contour that we find with prosodically-marked contrastive focus in English always appears on the first copy in CR.

The analysis given below reflects both the similarities and differences between the two types of reduplication; there is an abstract reduplicative morpheme, but the mechanism by which copying occurs is syntactic, not phonological.

2.2 Copying via movement

Ghomeshi et al. (2004) provide an account of Contrastive Reduplication in a Parallel Architectures framework, but they suggest a starting point for a Minimalist approach. I will adopt a modified version of their suggestion. The basic intuition of Ghomeshi et al. (2004)’s suggestion is this: a functional head with strong EPP features compels (copy) movement. Their proposed structure is as in (11):



CR^0 , under this view, is a functional head that can take any lexical phrase as its complement. The version of this proposal that I adopt takes CR^0 to be not a functional head but an ordinary A^0 or Adv^0 with a reduplicative morpheme as its terminal³. This is desirable for several reasons; it

³I assume that there are two versions of the morpheme involved in CR, one listed as an Adjective and one listed

captures the generalization that this process expresses a kind of semantic content more consistent with lexical categories than functional ones, and it reflects the fact that the structures eligible for reduplication are the same structures that adjectives and adverbs can modify. Additionally, it makes use of existing lexical categories (instead of positing a new — and possibly language-specific — kind of functional head).

The distribution of syntactic reduplication parallels the distribution of adjectives and adverbs in the languages where it is found. For example, in (12), reduplication and the adverb “really” are syntactically interchangeable:

- (12) a. Do you LIKE-like him?
b. Do you really like him?

Note that they are not, however, equivalent in meaning. In (12a), only a reading of prototypicality is available; that reading is also available in (12b), but other readings are also possible (e.g. “Is it true that you like him?”). The same is true for modification of nouns (13), adjectives (14), and contentful prepositions (15):

- (13) a. Should I wear a HAT-hat?
b. Should I wear a real hat?
- (14) a. They’re rich, but not RICH-rich.
b. They’re rich, but not really rich.
- (15) a. Not ACROSS-across from him, diagonally across
b. Not really across from him, diagonally across.

In all the above cases, the examples with contrastive reduplication and the examples with a plain adjective or adverb are syntactically equivalent. Thus, it seems reasonable to conclude that the projection involved in this process is equivalent to a projection headed by an A^0 or an Adv^0 — the reduplicative morpheme itself is, like any other morpheme, listed as either an Adjective or an Adverb.

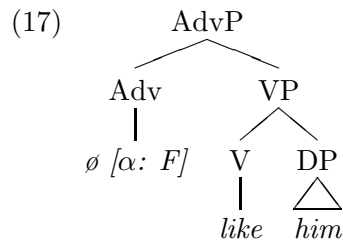
as an Adverb — why these are phonologically identical in this case but not in others (e.g. ‘real’ and ‘really’) is an interesting question, but beyond the scope of this paper.

Analyzing the relevant projection as A^0 or Adv^0 has the additional effect of allowing the locality restriction in CR (the copies are always adjacent) to follow from independent properties of the syntax. Restrictions on the order of Adjectives and Adverbs may prevent the construction of contexts where copying across some intervening material would be possible — we can prevent (16a) for the same reason (16b) is unacceptable:

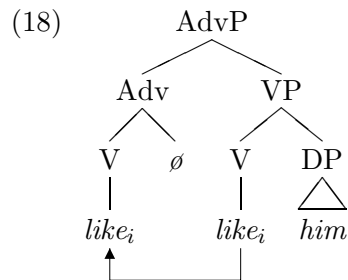
- (16) a. *LIKE usually like him
 b. *prototypically usually like him

If some order of Adjectives and Adverbs were permitted that allowed the reduplicative morpheme to be separated from its desired base, relativized minimality would prevent movement across another movement-eligible head, and copying would be local.

Under this revised version of the proposal, movement is driven by feature checking of a reduplicative morpheme in head position in the projection. The basic structure, pre-movement, is as in (17):⁴

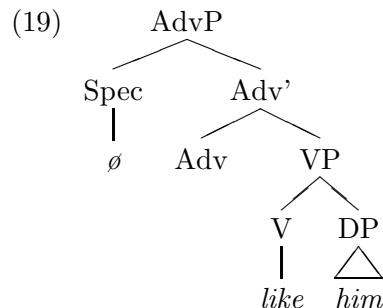


To check the relevant features, the head of the complement VP moves into Adv^0 position, resulting in a form as in (18):

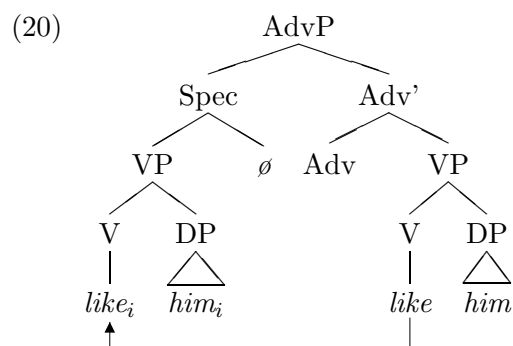


Syntactic reduplication may optionally take larger constituents. When larger constituents are copied, the reduplicative morpheme is base-generated in Spec position rather than in head position. The structure prior to movement is as in (19):

⁴I will be assuming a theory of Adjectives and Adverbs where an AP selects a lexical XP as its complement; it has also been proposed that APs are adjoined. This is of little consequence to the analysis here.



Because movement to Specifiers involves phrases, while movement to heads involves heads, a targeted head’s constituent will be pied-piped as in (20):



Evidence that this is pied-piping comes from the fact that *LIKE-like him* and *LIKE-HIM-like-him* — single-word and multiple-word copying — have identical meanings. It is not necessary for semantic or feature-related reasons to copy *him*, rather that constituent is coming along for the ride because movement to a specifier position requires an XP.

For ease of exposition, the majority of this paper will focus on cases where a single word has undergone reduplication. However, it is important to note that the ability to take phrasal constituents is a defining property of syntactic reduplication; the account developed for the linearization and spellout of single-word cases extends to the phrasal cases as well.

2.3 Iconicity, scope, and semantic computation

It is important to note that the meaning associated with a reduplicated form is not simply the meaning of one copy applied to the meaning of the other. This is not especially clear with respect to Contrastive Reduplication, however the point becomes apparent when we consider other cases. As we saw earlier, reduplication in Bengali contributes the meaning “and such” (Fitzpatrick-Cole, 1996):

(21) kalo makorša ‘black spiders’

kalo makorša ɽalo makorša ‘black and such spiders’

Additionally, Shm-Reduplication in English (Grohmann and Nevins, 2004) serves as a marker of pejorative mood⁵:

(22) Money, shmoney, who needs it anyway?

It does not follow that deriving meanings like “and such” and the expression of pejorative mood compositionally from two instantiations of the meaning of the item undergoing reduplication is possible. Applying the meaning of “black spiders” to the meaning of “black spiders” will not result in something that denotes a set including things other than black spiders. Likewise, applying the meaning “money” to the meaning “money” will not result in something that expresses the speaker’s attitude of pejoration.

Additionally, if the semantic result of copying was indeed a result of applying a particular semantic meaning to another instantiation of that same meaning, there is no obvious reason that the pragmatic forces involved should resolve so differently from language to language (English and Bengali) or even within the same language (CR and Shm-Reduplication in English).

To cast this observation in different terms, reduplication is not *iconic* (cf. Regier (1998)). There is no substantive, operational connection between the meaning expressed by a reduplicative process and the fact that reduplication is the mechanism via which that meaning is expressed.⁶

Since reduplication is not iconic, and the meaning of the reduplicated form is not simply composed from two instantiations of the meaning of the item undergoing reduplication. There is another meaning involved, namely that of the reduplicative morpheme.

This raises an important question, namely, where is the meaning of the movement chain computed? If both copies are semantically interpreted, in a structure like (18) above, there’s no obvious way to produce the meaning “prototypically like him” — *like* and *him* combine semantically, and so do the reduplicative morpheme and the raised copy of *like*, and combining something that means

⁵Grohmann and Nevins (2004) observe that, semantically, Shm-Reduplication behaves like an expressive (Potts, 2003).

⁶There are, however, some interesting cross-linguistic trends. While these trends may perhaps represent some historical connection to iconicity, they are not robust enough to reflect any inherent properties of reduplication itself.

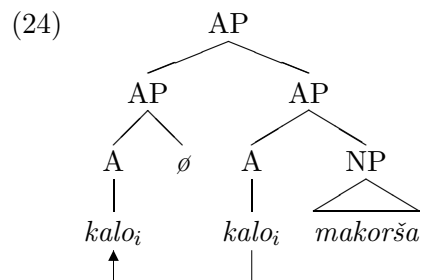
“prototypically like” and “like him” does not necessarily give us something that means “prototypically like him”. It makes sense, then, that the meaning of the copied constituent is only interpreted once.

As we saw above, LIKE-*like him* and LIKE-HIM-*like-him* are equivalent in meaning. This is also true of Echo Reduplication in Bengali — (23a) and (23b) are equivalent:

- (23) a *kalo ṭalo makorša* ‘black and such spiders’
 b *kalo makorša ṭalo makorša* ‘black and such spiders’

The interesting property of this example is that the meaning “and such” applies only to *kalo* ‘black’ and not to the entire phrase *kalo makorša*. In order for the pied piping in (23b) to be possible, the reduplicative morpheme must c-command the entire phrase — why, then, does its meaning not apply to the entirety of its sister constituent?

We can derive these semantic facts by positing that the meaning of the copied constituent must be interpreted in the raised position. In a structure like (24), the combination of *kalo* and *makorša* results in a constituent that just means *makorša* ‘spider’ — *kalo* is computed higher, where it combines with the reduplicative morpheme to form a constituent that means ‘black and such’.



The combination of these two constituents gives us the meaning ‘black and such spiders’. In cases of pied-piping, only the meaningfully moved element is computed up high — if *kalo makorša* is copied, *makorš* is pied-piped and its meaning is computed in situ. However, *kalo* is the pied-piper and its meaning is computed up high just like in (24).

This is unusual, since other instances where only one copy in a movement chain is semantically computed involve computation of the *lower* copy, and not the higher one. However, there is no principled basis for this tendency, and this case serves to fill what would otherwise be a somewhat mysterious typological gap.

It should be noted that, while higher-copy semantic computation is motivated for Bengali, in English CR either the higher or lower copy would be consistent with the data available. It is difficult, if not impossible, to identify what difference in meaning there would be between the meaning of “prototypically” applied to *like* and then combined with *him* and the meaning of “prototypically” applied to *like him*.

2.4 Summary

To summarize, movement compelled by feature checking of a reduplicative morpheme in A/Adv position results in multiple copies of the reduplicated item. In short, “A copy theory of movement buys us a movement theory of copying” (Ghosheshi et al., 2004, 347) — however, ensuring that both these copies are spelled out is far from trivial. The following section will discuss in more depth how to bring about that state of affairs.

One advantage of this solution proposed above is that it is not language-specific or construction-specific. The projection posited by Ghosheshi et al. (2004) is specific to Contrastive Reduplication, but here the variable is not the identity of the projection but rather the denotation associated with the reduplicative morpheme.

3 Chains and Copy Spellout

Assuming the copy theory of movement permits the creation of a phrase marker with multiple copies of an item undergoing reduplication. However, in most other instances of copy movement, only one of the copies is spelled out with a phonological form. What is responsible for the deletion of copies in a movement chain, and what makes the chain resulting from syntactic reduplication different?

Nunes (1995, 1999) argues that copies in a movement chain cannot be given a linear order with respect to one another because they are nondistinct, and so only one may be given phonological form. I will show that fusing with the reduplicative morpheme involved in syntactic reduplication allows the copies to escape this consequence of linearization.

Section 3.1 provides a summary of Nunes’ proposal, and shows how linearization would apply to reduplicated forms under such an account, and Section 3.2 argues that the two identical elements

involved in reduplication must necessarily begin as copies. Finally, Section 3.3 shows how combining with a reduplicative morpheme blinds Linearization to the fact that the form created by that combination contains a copy, and 3.4 shows how that preserves single-copy spellout in cases of more traditional feature combination.

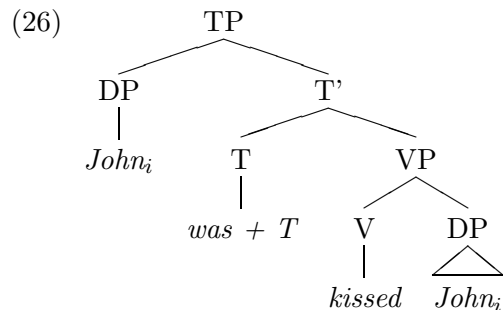
3.1 Linearization of chains

Fundamental to Nunes (1995, 1999)’s account of the spellout of movement chains is the fact that copies are treated as nondistinct with respect to linearization. Copies, then, must be distinguished from items that are simply surface-identical but whose identity is of no consequence to the derivation. Chomsky (1995) proposes the following criterion for determining the distinctness of two lexical items:

- (25) “ l and l' are thus marked as distinct for C_{HL} if they are formed by distinct applications of Select accessing the same lexical item of N.” (Chomsky, 1995, 227)

Under this definition, copies — which arise from a single lexical item in the numeration — are therefore not distinct with respect to the computational system.

Thus, as Nunes points out, in the structure in (26), the two occurrences of *John* are one item in the numeration:



Instead of being distinct items resulting from a copying operation, the two links in a movement chain can be seen as one item appearing in two locations. What happens when we attempt to give a representation like that a linear order?

Nunes assumes Kayne (1994)’s Linear Correspondence Axiom (LCA), given in (27):

- (27) **Linear Correspondence Axiom:** Let X , Y be nonterminals and x , y terminals such that X dominates x and Y dominates y . Then if X asymmetrically c-commands Y , x precedes y .

The upper copy of *John* in (26) asymmetrically c-commands *was*; the LCA will thus give us a linear order $\langle John, was \rangle$. In turn, *was* asymmetrically c-commands the lower copy of *John*. The LCA will thus give us a linear order of $\langle was, John \rangle$.

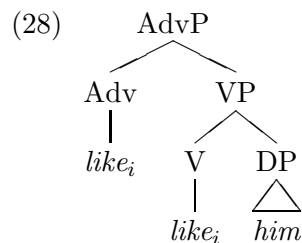
This violates asymmetry (if α precedes β , then β does not precede α). According to the computational system, there is only one instance of *John*; if *John* precedes *was*, then *was* cannot precede *John*, but that is exactly the linear order produced by the LCA for the phrase marker in (26).

Additionally, the upper copy of *John* asymmetrically c-commands the lower copy of *John*; the LCA will give us the linear order $\langle John, John \rangle$. This violates the irreflexivity condition (if α precedes β , $\alpha \neq \beta$). Again, since the computational system only recognizes one instance of *John*, the linear order produced by the LCA is precisely the situation forbidden by irreflexivity: *John* must precede itself.

Note that the linear order produced by the LCA is perfectly legitimate if the two instances of *John* arise from distinct items in the numeration. Thus, a sentence like *John_i kissed John_j* is given a linear order with both instances of *John* spelled out regardless of their surface similarity. The crucial difficulty with movement chains arises from the nondistinctness of the links in the chain, since this is what causes asymmetry and irreflexivity to be violated.

Asymmetry and irreflexivity are both defining properties of strict linear order; violations will cause the derivation to crash. The solution is to delete one of the copies — see Nunes (1995, 1999) for why deletion is the solution, and for why the head of the chain is spelled out instead of the tail.

If we apply the LCA to the movement chains resulting from syntactic reduplication, a structure like (28) encounters some of the same linearization problems that we saw in (26) above:



The upper copy of *like* asymmetrically c-commands the lower copy, resulting in a linear order of $\langle like, like \rangle$. Again, just as we saw above, this violates the irreflexivity condition, since *like* must somehow precede itself.

According to Nunes (1995, 1999), we expect a phrase marker like this to be mapped onto a linear order where the lower copy has been deleted. However, this does not happen, and indeed it should not: the resulting string *like him* would be indistinguishable from a form that had not undergone reduplication. Instead, we get the string LIKE-*like him*.

3.2 The Necessity of Copies

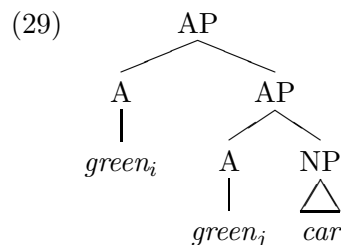
Nunes (1999), referring to a comment from Chomsky (1995), suggests that it may be possible to change a copy prior to linearization, thus rendering it visible to linearization as a separate entity. The mechanism by which he accomplishes this, Morphological Restructuring, is not explicitly developed. However, the intuition is a crucial one.

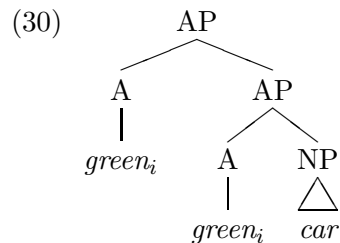
According to Chomsky (1995), items are distinct for the computational system only if they arise from different items in the numeration. Copies, therefore, are nondistinct because they arise from a single operation of Select. I argue that it is necessary to allow copies that undergo certain changes to become distinct with respect to linearization.

As we have just seen, treating the copies that arise from a syntactic reduplication process as nondistinct fails to produce the attested results; we are unable to linearize the two copies with respect to each other, and the lower copy is predicted to delete.

However, treating the two copies as being formed by distinct applications of Select — the only alternative under Chomsky’s criterion for distinctness — will crucially fail to capture the generalization that, in syntactic reduplication, identity between the two items in the construction is not coincidental.

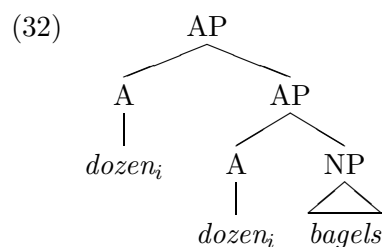
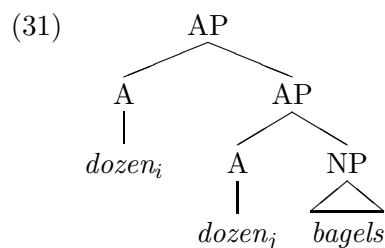
To illustrate this point, it is necessary to compare syntactic reduplication to processes where surface identity between two lexical items is not the result of some kind of copying relationship. For example, there is a difference in meaning between the iteration of adjectives (29) and CR (30):





In the structure in (29), the two instances of the word *green* are independent, and separate items in the numeration. A prototypical reading, while available, is not forced or specifically expressed — *a green, green car* can be used to refer to a car that is, for example, a garish shade of bright lime green. However, in the structure in (30), the two instances of *green* are the result of a copying relationship, and a prototypical reading is forced. Referring to a bright lime green car as *a GREEN–green car* would be infelicitous.

Likewise, we find a quite sharp difference in meaning between the structure in (31) and the one in (32):



In (31) the two instances of *dozen* are distinct items in the numeration — *a dozen dozen bagels* is appropriate in a context where bagels are sold in units of a dozen and the speaker is referring to a dozen of such units.⁷ In (32), a prototypical reading is forced — *a DOZEN–dozen bagels* is appropriate in a context where the speaker is contrasting a prototypical dozen (exactly twelve bagels) with a “baker’s dozen” (thirteen bagels).

Comparing instances of syntactic reduplication with cases of coincidental surface identity between elements makes it clear that treating the two elements in reduplicative processes as distinct

⁷Thank you to Pasha Siraj for pointing out this example.

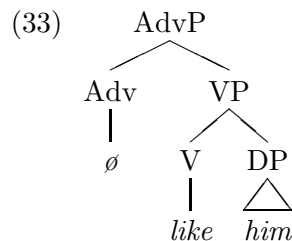
in the numeration will fail to produce the right results.

What is needed, then, is a third option: copies that begin as a single item in the numeration, but arrive at linearization as distinct. Section 3.3 will discuss the mechanics of how this happens, but first it is necessary to clarify one final aspect of the process.

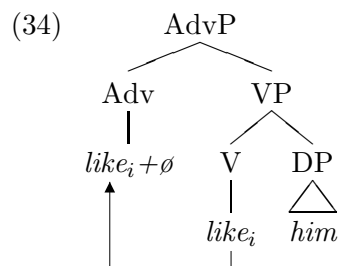
3.3 Multiple Copy Spellout

The mechanism by which copies are rendered distinct is the same mechanism driving movement, namely the reduplicative morpheme associated with the process.

Prior to movement, the structure responsible for driving reduplication is as in (33):



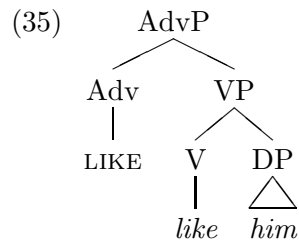
The reduplicative morpheme sitting in Adv^0 position carries the (arbitrary, lexically listed) meaning expressed by reduplication. When movement is compelled, the raised copy combines with that reduplicative morpheme as in (34):



The unit formed by the combination of the raised copy and the reduplicative morpheme — the reduplicant, represented in small caps — is the result of a *derivational* rather than inflectional morphological combination. This also has the desired effect of being category-changing — a reduplicated verb is no longer functioning syntactically as a verb, but rather takes on the syntactic (though not necessarily semantic) role of the reduplicative morpheme.

This particular property of reduplication is what permits both copies to be spelled out. The LCA and conditions on asymmetry and irreflexivity cannot see the internal structure of words resulting from derivational morphological combinations.

Because Linearization is blind to the internal structure of a reduplicant, it cannot see that LIKE contains both *like* and \emptyset . Thus, it is treated as distinct from *like*:



Because LIKE and *like* are distinct, the LCA will give us the order $\langle \text{LIKE}, \textit{like} \rangle$ — neither asymmetry nor irreflexivity is violated.

There seems to be additional evidence that the internal structure of a reduplicant — while relevant to determine constituency in copying — is no longer accessible later in the derivation. In Bengali, a Phonological Phrase can consist of either a Prosodic Word or a larger syntactic constituent (Hayes and Lahiri, 1991). In its unreduplicated form, *kalo makorša* may be phrases as either (36a) or (36b):

- (36) a. (kalo)(makorša)
 b. (kalo makorša)

However, the option in (36a) is no longer available if *kalo makorša* is a reduplicant. This seems to suggest that the internal structure of the string is not available for prosodic assignment.

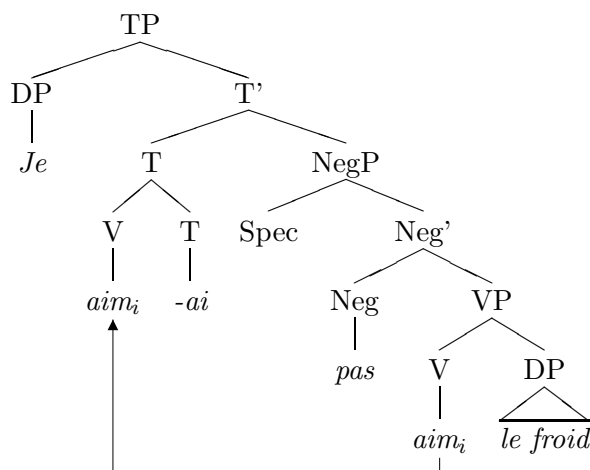
The central claim here is a simple one, but it makes rather powerful predictions. Syntactic reduplication involves a derivational morphological combination, creating a word whose internal structure is invisible, blinding Linearization to the fact that contained in that word is a unit with a nondistinct copy elsewhere in the tree. To limit the power of this fusion operation, it must necessarily be restricted to *derivational* morphology — inflectional morphology, as we will see in the following section, cannot hide copies in this manner.

3.4 Single-Copy Spellout

Since other movement operations that result in morphological combination involve *inflectional* morphology, they are predicted to result in single-copy spellout.

For example, in French, verbs raise to T to be valued for tense:

(37) *Je n'aimai pas le froid* 'I didn't like the cold'



The verb has raised into T position, and combines with the T head. This results in a morphological combination; *aim* and *-ai* combine to form a word, *aimai*. Crucially, though, this is inflectional. Inflectional morphology does not shield the copy from Linearization — it has not been blinded to the internal structure of the word.⁸

The LCA will give us the linear orders $\langle aim_i + ai, pas \rangle$ and $\langle pas, aim_i \rangle$, violating asymmetry. The LCA will also give us $\langle aim_i, aim_i \rangle$, violating irreflexivity. The result is that only one copy will be able to be spelled out.

The generalization here, then, is that movement operations that involve a raised copy combining with a morpheme or feature are safe from multiple-copy spellout, because those combinations result in forms whose internal structure is visible to Linearization. Syntactic reduplication is unique, due to the fact that it involves an interaction between movement and derivational morphology.

3.5 Summary

The basic synopsis of the analysis outlined above is as follows. Copies, which are treated as a single item with respect to the computational system, cannot be given a linear order with respect to each other. However, treating the two identical items in reduplicated form as distinct in the numeration predicts that their identity is coincidental, and does not distinguish between reduplication and constructions like the iteration of adjectives.

⁸It should be noted that the LCA does not linearize word-internal morphemes with respect to each other. However, asymmetry and irreflexivity conditions still apply to the relationships between those sub-parts and other items in the tree.

Because the syntactic reduplication involves derivational morphological combination, Linearization is blind to its internal structure, and giving the reduplicant a linear order with respect to nondistinct copies of one of its components no longer violates irreflexivity or asymmetry. Crucially, this is restricted to reduplicative processes — the internal structures of inflectional morphological combinations are still visible to Linearization, and syntactic reduplication uniquely combines movement and derivational morphology. This means that single-copy spellout is predicted in most movement contexts, e.g. V to T movement.

This analysis makes certain predictions about the typology of multiple-copy spellout. Namely, multiple-copy spellout is predicted only in contexts where some particular meaning is being expressed by a reduplicative morpheme.

4 Distance and Emphasis

4.1 Non-local Reduplication

The cases discussed in the analysis so far have all been examples of *adjacent* syntactic reduplication. However, as we saw in Section 2, there are also cases where non-adjacent doubling is used to express some particular meaning. In Vata (Kru, Ivory Coast) (Koopman, 1984), a raised verb is spelled out in both head and tail position to express intensification:

- (38) ***pā*** *ń* *ka'* *mÉ* ***pa'*** *ā*
throw you FUT-A it **throw** Q
 “Are you going to THROW it?”

Again we see, with these examples, that if Linearization is applied with these copies treated as nondistinct, we will be unable to give these structures a linear order.

For example, in (38), the higher copy of *pa* ‘throw’ asymmetrically c-commands the lower copy. This should give us the order $\langle pa, pa \rangle$, which violates irreflexivity because it must somehow precede itself. The same is true for the copies of the reduplicated items in (7) and (8)

Analyzing these cases in terms of syntactic reduplication, however, allows multiple-copy spellout. The raised copy combines with a reduplicative morpheme whose meaning interprets the set of alternatives generated by focus as emphasis or intensification. Because this is derivational rather than inflectional, Linearization will be unable to see its internal structure.

Exactly as we saw in cases of local reduplication, neither asymmetry nor irreflexivity is violated, and both copies will be spelled out.

4.2 Focus

In Vata, Turkana, and ASL, focus is realized through multiple-copy spellout. However, there are languages where a constituent moves into focus position and is only spelled out once. For example, in Hungarian (Brody, 1990; Horvath, 1986), a focused constituent moves to the left:

- (39) a. *Bemutattam Jánost az unokahúgomnak*
 in-showed-1SG John-ACC the niece-my-DAT
 “I introduced John to my niece”
- b. *az unokahúgomnak mutattam Jánost*
 the niece-my-DAT showed-1SG John-ACC
 “I introduced John TO MY NIECE”

The constituent ‘my niece’ is raised to the left in (39b), where it is focused. However, only the higher copy is spelled out. How can we explain the difference between (39b) and cases like (6-8) above?

Cross-linguistically, focus is realized in diverse ways. In English, a focused constituent remains in situ and is marked with prosodic cues:

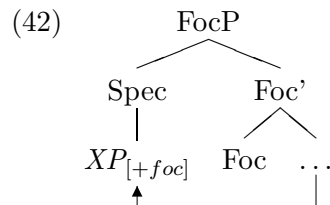
- (40) He brought BILL to the party, not Joe.

In Irish, the particle *féin* marks focus (McCloskey, 1999):

- (41) *Níor chuir duine amháin féin ina-éadan*
 NEG-[PAST] put person one even against-him
 “Not even one person opposed him”

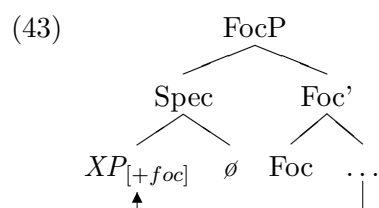
These are all ways of realizing focus, which involves generating and interpreting a set of alternatives (Rooth, 1985). If focus can be realized via movement, prosodic cues alone, or overt morphemes (particles), it can also be realized by syntactic reduplication.

The difference between Hungarian and Vata, then, is whether a reduplicative morpheme is involved in the process. In Hungarian, a focused constituent raises to a Foc^0 position:



The raised constituent combines with the feature in Foc position in the ordinary way; this is not a derivational morphological combination, and so the internal structure of the combination is visible to Linearization.

In Vata, however, there is a reduplicative morpheme in Focus position:



The raised constituent combines with a reduplicative morpheme, and the resulting form's internal structure is invisible to linearization.

The result is that in Hungarian (and languages like it) only a single copy is spelled out. However, in Vata (and languages like it) the presence of a reduplicative morpheme forces multiple-copy spellout in focus position.

Finally, analyzing these non-local cases as expressions of focus allows us to escape locality for the same reason that analyzing CR as an Adjective or Adverb forced locality — the focus position the raised copy is moving to is independently distant from the base copy, as we see in languages with focus movement without reduplication. The category of the reduplicative morpheme determines its position, and whether or not that position is local determines whether or not the copies will be adjacent.

5 Apparent Counter-Examples

5.1 Wh Scope Markers

One apparent example of multiple-copy spellout not involving reduplication is scope marking in Wh-questions. In a number of languages, the same wh-word may appear in Spec-CP position in both a matrix and an embedded clause:

(44) Romani (McDaniel, 1986)

***Kas** misline **kas** o Demiri dikhlâ?*
whom you-think **whom** Demir saw
“Who do you think Demir saw?”

(45) Frisian (McDaniel, 1986)

***Wêr** tinke jo **wêr**’t Jan wennet?*
where think you **where**-that Jan lives
“Where do you think that Jan lives?”

The purpose of the matrix wh-word is to extend the scope of the lower one (Riemsdijk, 1983). (McDaniel, 1986) analyzes examples of this sort as arising through chains; under such an account, the higher wh-word would be a copy of the lower one, and examples like (44) and (45) would involve spelling out both the head and the tail of the chain.

One possible approach would be to suggest that the scope marker itself is somehow a reduplicative morpheme, and that the combination of the upper copy with that morpheme is what permits both copies to be spelled out.

However, similar constructions exist where the Wh-words are not identical:

(46) Romani (McDaniel, 1989)

***So** o Demiri mistinol **kas** Arifa dikhla?*
what does Demir think **whom** Arifa saw
“Who does Demir think Arifa saw?”

(47) German (Riemsdijk, 1983)

***Was** glaubst du **mit wem** Maria gesprochen hat?*
what think you **with whom** Maria spoken has
“Who do you think Maria has spoken to?”

There is reason to believe that the two wh-elements in constructions like these are not in fact related via a movement chain. Dayal (1994) argues against a direct dependency approach, and instead proposes an alternative in which “two local *wh*-dependencies [are] linked via coindexation of the dominating nodes” (Dayal, 1994, 153).

An indirect dependency approach has a number of independent advantages over a direct dependency approach. For example, it extends more easily to cases where a scope marker controls multiple wh-words and to cases where a scope marker controls a wh-word in situ.

Under an indirect dependency approach, the scope marker and the contentful wh-word are base-generated separately. Because they are distinct items in the numeration, and not the result of a movement chain, no additional explanation is necessary for the fact that they are given a linear order with respect to each other.

The question remaining to be accounted for is why, under some circumstances, the scope marker and the lower wh-word are identical. It seems reasonable to develop an account for this identity that does not rely on movement chains, however doing so is beyond the scope of this paper.

5.2 Clitic Climbing

In Spanish (and in a number of other Romance languages) a clitic in an embedded infinitival clause (48a) may optionally “climb” and appear in the matrix clause (48b)⁹. Clitics in Spanish precede a finite form and follow a nonfinite form:

- (48) a. *(yo) iba a matarlo*
 (I) went to kill-**it/cl**
 “I was going to kill it.”
- b. *(yo) lo iba a matar*
 (I) **it/cl** went to kill
 “I was going to kill it.”

The construction in (48b) has been analyzed as involving movement of the clitic — base-generated in position in (48a) — to its position in the higher clause.

In certain dialects of Chilean Spanish (49) and Argentinean Spanish (50), a clitic may appear in both positions:

- (49) Chilean Spanish (Sivla-Corvalán, 1989)

(yo) lo iba a matarlo
 (I) **it/cl** went to kill-**it/cl**
 “I was going to kill it.”

⁹There are some restrictions on the matrix verb; see Cinque (2000) for a discussion of those facts.

(50) Argentinean Spanish (Nunes, 2004)

(yo) lo odio a hacerlo
(I) it/cl hate to do-it/cl
“I was going to kill it.”

Under a movement account of clitic climbing, the examples in (49) and (50) involve spelling out both the head and the tail of the clitic’s movement chain. If a movement analysis is correct, this serves as a counter-example to the claim that the only condition under which multiple copies may be spelled out is when a reduplicative morpheme is present.

However, there is an alternative to a movement analysis. Sportiche (1996) and others have argued that clitics are base-generated; it seems reasonable to suggest that (48a) and (48b) are not derivationally related but are in fact independent constructions differing with respect to the base-generation position of the clitic.

Under such an account, the constructions in (49) and (50) would not involve multiple-copy spellout, but would rather involve base-generation of multiple clitics. The restriction against such constructions in other dialects can be seen not as the result of conditions on linearization but relating to the markedness of multiple cliticization. If the two clitics are not the result of a movement operation, Linearization is able to give them an order with respect to one another in the ordinary way.

6 Comparison with Previous Accounts

In this section, I discuss two alternative proposals — anti-locality and violable constraints — and show how they fail to predict the attested typology of copying processes.

In Section 6.1, I show that anti-locality fails to address the cases of long-distance reduplication, which can cross clause domain boundaries. Additionally, I show that allowing “PF distinctness” to play a role in multiple-copy spellout results in typological over-generation.

In Section 6.2, I show that treating the relevant properties of the LCA — asymmetry and ir-reflexivity — as violable constraints disastrously over-generates the predicted typology if constraint rankings are permuted.

6.1 Too-local movement

Grohmann and Nevins (2004) provide an account of multiple-copy spellout in Shm-Reduplication in English based on domain locality. The basic intuition is that syntactic reduplication involves multiple copies within some local domain, and this forces them to be spelled out with distinct phonological forms.

Their account relies on Grohmann (2003)’s *Condition on Domain Exclusivity*, given here in (51):

(51) Condition on Domain Exclusivity

For a given Prolific Domain $\Pi\Delta$, an object O in the phrase-marker must receive an exclusive interpretation at the interfaces, unless duplicity of O yields a drastic effect on the output of that $\Pi\Delta$.

The Prolific Domains are taken to be the Thematic Domain, the Agreement Domain, and the Discourse Domain (corresponding with vP, TP, and CP respectively). The “drastic effect on the output” is the distinctness of phonological form — in their case, the expression of the *shm-* in forms like *money*, *shmoney*.¹⁰

An account based on locality cannot account for cases of long-distance reduplication. For example, the verbal doubling construction in Vata, seen in (6) above, crosses domain boundaries:

- (52) $\mathbf{p\bar{a}}$ $[_{TP} \acute{u} \quad ka' \quad [_{vP} m\acute{e} \quad \mathbf{pa'}]]$ \bar{a}
throw $[_{TP} \text{you} \quad \text{FUT-A} \quad [_{vP} \text{it} \quad \mathbf{throw}]]$ Q
 “Are you going to THROW it?”

The raised verb *throw* involves multiple-copy spellout *across* both the vP boundary and the TP boundary. Thus, the two copies spelled out are in distinct Prolific Domains.

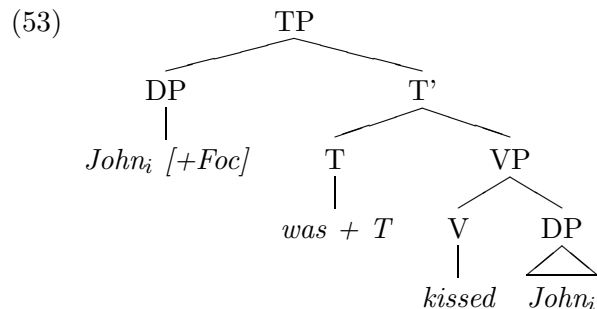
The Condition on Domain Exclusivity has nothing to say about such cases. Grohmann and Nevins (2004)’s analysis cannot account for the difference between the Vata example above and situations where a focused constituent is raised into topic position and does not induce multiple-copy spellout, such as Hungarian.

¹⁰It is interesting to note that the *shm-* here appears on the second copy and not the first. See Nevins and Vaux (2003) for a more complete account of the phonological factors involved in this sort of reduplication.

In the account developed in this paper, the difference between Vata and Hungarian is whether focus is realized through focus features, which combine in the ordinary way with the raised copy (as in Hungarian), or through a reduplicative morpheme, which combines with the raised copy derivationally, creating a word whose internal structure is invisible to Linearization (as in Vata).

Finally, it seems that allowing PF distinctness to influence whether a copy can be spelled out or not runs into some trouble; namely, how are we to define distinctness? The two copies in CR in English differ only in the particular prosody associated with the first copy — if this degree of change is to be considered sufficient to allow multiple-copy spellout, it predicts that forms that are at least that different should be multiply spelled out, regardless of whether doing so contributes meaningfully to the derivation.

For example, placing contrastive focus on *John* in a sentence like “John was kissed” in (53) would be predicted to instigate multiple-copy spellout:



In the resulting form, the higher copy of *John* will bear contrastive focus prosody. If PF distinctness is sufficient to render copies distinct, then both copies will be permitted to be spelled out, resulting in the form in (54):

(54) **John* was kissed John.

As this example illustrates, phonological distinctness alone is not enough to permit multiple copies to be spelled out — therefore, I reiterate Chomsky (1995)’s suggestion that whatever applies to create distinctness between two copies must derivationally precede the LCA’s operations.

6.2 Violable constraints

Another possible analysis takes irreflexivity, or some similar condition requiring each item in the numeration to receive only one form at PF, to be a violable constraint using Optimality Theory

(Prince and Smolensky, 1993/2004) — for example, Pesetsky (1997)’s SILENTTRACE constraint:

(55) SILENTTRACE: Do not pronounce traces.

There are several possible ways to get an account of Syntactic Reduplication using the interaction of violable constraints. One is to suggest that there is some highly-ranked constraint demanding the realization of semantic content (similar to Kurisu (2001)’s MORPHREAL constraint), and in the case of reduplicative processes this necessarily forces a violation of SILENTTRACE.

Another way to get multiple-copy spellout is to follow (Grohmann and Nevins, 2004)’s suggestion that phonological distinctness satisfies whatever constraint prohibits multiple-copy spellout. Again, we run into the problem of defining phonological distinctness in such a way as to include attested cases but exclude unattested cases.

Either way, an account based on violable constraints grossly overgenerates the predicted typology of multiple-copy spellout. Permutation of the constraints involved would predict, for example, a language where SILENTTRACE ranked below all other constraints, and multiple-copy spellout occurred rampantly. Even without taking the permutation to such an extreme, we would still predict to find many more situations where multiple-copy spellout could possibly be permitted in some language.

However, we find only cases where multiple-copy spellout is used to express a specific semantic meaning. Restricting the set of operations that can render copies distinct to those that may precede the LCA sufficiently limits the predicted typology of the phenomenon.

7 Conclusion

The central topic in this paper has been the spellout of movement chains; under a copy theory of movement, traces are not grammatical primitives, but rather unpronounced copies of the moved element. At issue here are the factors restricting the realization of phonological form to a single link in the chain, and the conditions under which multiple chain links can be spelled out.

This paper has approached that issue from the viewpoint of syntactic reduplication, a process by which a particular meaning is manifested via syntactic copying. I have shown that in syntactic reduplication, movement results in two copies of the reduplicated item, both of which are spelled

out.

Multiple-copy spellout is accomplished via the same mechanism driving movement in these cases, a reduplicative morpheme that combines with a moved copy to form a reduplicant — the reduplicant is a morpheme in its own right, associated with the phonological form of the copy but the meaning of the reduplicative morpheme. In this way, syntactic reduplication is parallel to morphological reduplication.

I extend the view of chain spellout established by Chomsky (1995), Kayne (1994), and Nunes (1995, 1999, 2004) — in their view, copies are nondistinct entities and hence the LCA cannot linearize them with respect to one another — to include a specific mechanism by which a copy may be in some sense “hidden” as such from the LCA.

This mechanism is a particular property of reduplication; when a copy combines with a reduplicative morpheme, the morphology involved is derivational rather than inflectional. Because Linearization is blind to the internal structure of words created by derivational morphological combinations, asymmetry and irreflexivity are not violated by giving the reduplicant a linear order with respect to a copy of one of its sub-parts.

This differs crucially from inflectional morphological combination, which is not opaque to Linearization. Further, reduplication uniquely combines movement and derivational morphology. The prediction made by the theory advanced in this paper is that multiple-copy spellout should occur only in cases of reduplication.

The prediction fits nicely with attested cases of multiple-copy spellout, both with respect to adjacent reduplication and with respect to long-distance cases of verbal emphasis. In all instances, a specific semantic meaning (represented by the reduplicative morpheme) is being expressed by the copying process.

One advantage of this approach is that it makes use of existing theoretical devices. Instead of positing a new functional head, a reduplicative morpheme is base-generated in whatever location its particular lexical category may appear in (in the case of CR in English, Adj or Adv position). The properties of Linearization that block multiple-copy spellout (irreflexivity and asymmetry) and those that permit it (the invisibility of the internal structure of derivational morphology) are independently necessary. It is not necessary to posit anything new that is specific to this process.

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