# REDUPLICATION FEEDING SYNTACTIC MOVEMENT*

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## 1. Introduction

The study of reduplication has, for the most part, been reserved for phonologists and morphologists. There are, however, syntactic constructions that are arguably created via reduplication. This raises several questions that will be addressed in this paper. First, does reduplication occur in different modules of the grammar, and, if so, is there any common denominator to all the occurrences? Secondly, if it can happen in syntax, can this process be used to account for otherwise puzzling phenomena? I will argue that all reduplication is *phonological* copying that is triggered in *syntactic* environments. What appears to be morphophonological reduplication is, in fact, reduplication triggered in the syntactic configuration created through head-movement. Further, I will argue that once reduplication is acknowledged as a process that can create units visible to further syntactic computation, we are better equiped to address puzzles raised by constructions such as predicate clefting in Vata and Yiddish.

## 2. Background: Phonological reduplication

### 2.1. Phonological reduplication

In a typical example of reduplication, a subpart of a word is repeated and this form of the word has not only additional phonological but additional semantic content. In Malagasy, a Western Malayo-Polynesian language, *mitsambikina* means to jump while *mitsambikmbikina*, where the phonological unit of a foot, *mbiki*, is repeated, means to jump around. In order to argue that certain syntactic constructions are also created via reduplication, I show that similar generalizations concerning form and function can be made for both the syntactic and phonological varieties of reduplication.

Looking at the function of reduplication, one is immediately struck by the uniformity in the crosslinguistic use of reduplication. Moravcsik (1978:316) writes "There is no *a priori* reason why reduplication, or any other form device of language, should serve as the expression of some meanings rather than as that of

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others. Nonetheless, as pointed out by a number of linguists, the particularly (sic) meanings associated with reduplication strikingly recur across languages". For example, as we have just seen, Malagasy uses reduplication for iterative events, as does Tzeltal, Thai, Tiwi, Ewe, Sudanese, and Rotuman. Samoan, Papago, and Amharic use reduplication for plurals.[1] While Moravcsik nevertheless concludes that "no explanatory or predictive generalization about the meanings of reduplicative constructions can be proposed" (1978:325), in many of the cases, reduplication has the meaning of number (plural, all/every, distributive plurals, repeated events, reciprocals) or amount of emphasis (more emphasis, diminuition, attenuation) and we will see the same is true of syntactic reduplication.

As far as form is concerned, there are also similarities between phonological and syntactic reduplication. Phonological reduplication can target different phonological units. In Tagalog, one use of reduplication targets a syllable (*maglakad* 'walk' becomes *maglalakad* 'walk repeatedly') and another use of reduplication targets a foot (*maglakad* 'walk' becomes *maglakadlakad* 'walk a little'). Below we will see that syntactic reduplication can also target syntactic units of difference sizes.

## 2.2. Theoretical status of reduplication

Since Marantz (1982) it has been assumed that reduplicative morphemes are simply morphemes with a shape and no content. I will assume along with him that reduplicative morphemes undergo whatever processes other morphemes do, the only difference being that they must borrow their melodic tier from a host. The question arises, however, whether reduplication only occurs in the form of an affix. It is immediately clear that certainly reduplication-like effects occur in non-affixal environments. One such example from Malagasy is given below.

(1) Malagasy: Keenan and Razafimamonjy (1995:18)

| | | |
|---|---|---|
| a. | iza | 'who' |
| b. | na IZA na <u>iza</u> | 'anyone' 'whoever' |
| c. | zanak'iza | 'whose child' |
| d. | na ZANAK'IZA na <u>zanak'iza</u> | 'anyone's child' 'whoever's child' |

In the next section, I will look at other cases of reduplication which have internal syntactic structure and which are arguably created in the syntactic rather than in morphological or phonological component of the grammar.

[1] See Travis (2001) for arguments that reduplication is not iconic. The main argument is that, while there are two instances of a particular string, reduplication never has the meaning of dual, but is rather always (non-delimited) plural.

## 3. Syntactic reduplication vs. phonological reduplication

### 3.1. Data

Pi (1995) details a phenomenon in English syntax which has many of the characteristics of reduplication. In the sentences below, we can see that we have material that is repeated in order to give the meaning of plural.

(2) a. The butterfly fluttered from FLOWER to flower.
b. Jon washed PLATE after plate for hours after the party.
c. The careful artist completed the mosaic TILE by tile.
d. Eric can drink MUG upon mug of coffee in a single hour.
e. In FAIRY TALE after fairy tale, good triumphs over evil

It is important to note here, that it isn't simply repetition embedded in an otherwise grammatical sentence. Without the repetition, in fact, these structures would not be grammatical.

(3) a. * The butterfly fluttered to flower.
b. * Jon washed plate.

These elements work like bare plurals thereby allowing them to appear without a determiner. The construction illustrated in (2), which I will call iterative reduplication, I consider to be an example of syntactic reduplication.

### 3.2. Similarities to phonological reduplication

Syntactic reduplication is similar to phonological reduplication in both form and function. In terms of form, we will see that the iterative construction can copy different domains, it may not add contentful information that is not included in its host, and the copying mechanism is sensitive to constituency. These three characteristics are illustrated below.

(4) Different domains copied
a. CUP after cup of coffee
b. CUP OF COFFEE after cup of coffee
c. CUP after steaming cup of coffee
d. STEAMING CUP after steaming cup of coffee
e. STEAMING CUP OF COFFEE after steaming cup of coffee

(5) Material from rightward host
*steaming CUP after cup of coffee

(6) Sensitive to constituency[2]
[ [ steaming cup ] of coffee]
*CUP OF COFFEE after steaming cup of coffee

Syntactic reduplication is also similar to phonological reduplication in function. In the construction investigated by Pi (1995) the meaning conveyed is one of iteration, both of the item and the event. He shows that the function of the reduplication construction is not identical to the bare plural. In the event described by 'Student after student visited the professor on Monday', it can't be that the students visited the professor all at once (vs. Students visited the professor on Monday). The use of phonological reduplication to encode plurals or event iteration is well-documented. The examples that Moravcsik (1978) gives are: plural (Samoan, Papago, Amharic) and repeated events (Tzeltal, Thai, Twi, Ewe, Sudanese, Rotuman). Further, we saw in example (1) above where syntactic reduplication was used for indefinite pronouns. Phonological reduplication is also used to encode indefinite pronouns. Moravcsik (1978) gives examples of this from Sundanese, Javanese, and Ngbandi.[3]

### 3.3. Contrastive reduplication

Ghomeshi et al (2004) investigate another type of reduplication which they label contrastive reduplication. This is also a wide-spread construction in English and some illustrative examples are given below.

(7) a. I want a SALAD salad not a tuna salad.
b. They are TOGETHER together.

In their paper, they show that this sort of reduplication is constrained, but the constraints seem to be neither phonological (8a,b) nor syntactic (8c,d).

[2] I acknowledge that this might not be the usual analysis of constituency for this structure where the adjective is merged with the head before the PP is merged. Also, as has been pointed out to me by Jonathan Bobaljik, this constituency creates problems for a compositional view of semantics since *steaming* modifies *cup of coffee* and not *cup*. I believe that this is part of a larger issue of 'manner tags' that are adjoined to v and have scope over the whole event (such as 'The carpenter hammered the nail flat' where 'hammer' would be a manner tag adjoined to v). Since this is part of a much larger discussion, I leave it aside for now.

[3] I am assuming, perhaps wrongly, that these languages use phonological reduplication rather than syntactic reduplication (i.e. the unit that is copied is phonologically defined rather than syntactically defined) but more research on these constructions is required to confirm this.

(8) a. She's a GIRL-girl.
b. * She's not my GIRL-girlfriend.
c. Do you LIKE HIM-like him?
d. * Do you LIKE BILL- like Bill?

While it is difficult to characterize what is being copied, it is fairly easy to see where the copy appears. In the words of Ghomeshi et al. 'CR fills a slot that is syntactically available for other material'.

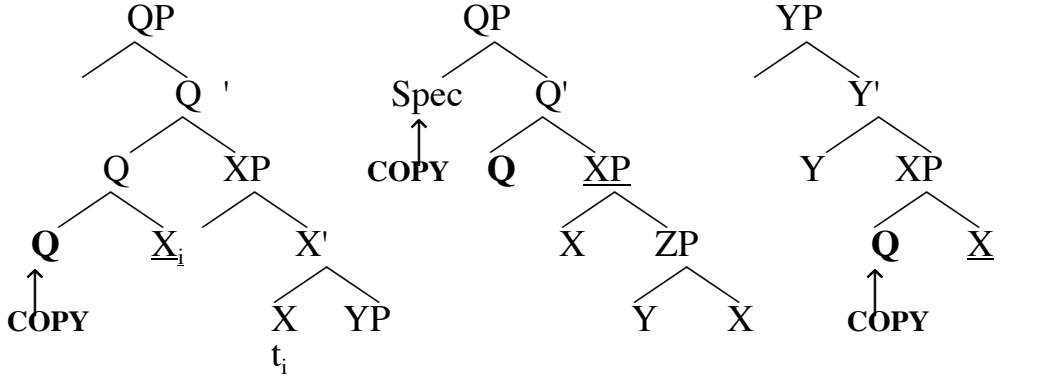
(9) a. It is part of the ____ [real/concrete] highway, not the information highway.
b. I'll make the tuna salad and you make the _____ [real/green] salad.
c. They weren't ____ [really] together, they were just studying together.

In the next section I argue that all reduplication, in fact, 'fills a slot that is syntactically available for other material'.

## 4. Reduplication as syntax

At this point we have motivation to say that at least some reduplication is part of syntax, but here I argue that all reduplication is a reflection of a particular syntactic environment. Below I give the three relevant structures that account for phonological reduplication (10a), iterative reduplication (10b), and contrastive reduplication (10c).[4]

(10) a. Phonological b. Iterative c. Contrastive




magLAKADlakad CUP after cup of coffee a SALAD salad

In all three cases, a certain configuration has been created in the syntax where a head Q (for quantity) has been merged into the structure. If this Q head is realized as a reduplicative morpheme, then it will create a copy of (a subpart of) its sister.[5] When its sister is a head, as in (10a) and (10c), then the copy can be realized in the

[4] In Travis (2001) I gives examples of a fourth type taken from Lidz (2001) that arises from a conjunction structure.
[5] In the case of iterative reduplication, the Q head may also contain an element such as *after*, *by*, *upon*.

Q head. If the sister is an XP as in (10b), then the copy will have to be realized in the Specifier position.

The first case is phonological reduplication, where the reduplicated material appears to function grammatically as an affix. As with other affixes, the affixal material (or feature set) is generated in a syntactic head. A feature of the head will trigger head movement, and it is after head movement that phonological material is copied into the affixal skeleton. In this case, since the sister is a head, the subparts of the sister must be phonologically determined. (10b) represents the iterative type of reduplication discussed by Pi (1995). In this case, there is no head movement so when the Q head copies a subpart of its sister, it will copy a subpart of an XP (rather than a subpart of an $X^0$). Now the subpart will be syntactically (rather than phonologically) determined. The last case, illustrated in (10c), is more difficult to characterize as Ghomeshi et al (2004) point out. The 'syntactic slot' that they describe appears to be a pre-head adjective or adverb. I have argued elsewhere (Travis 1988) that prehead modifiers are defective elements in that they do not project but are head-adjoined to the elements that they modify. The difference between (10a) and (10c), where in both cases the sister of Q is a head, is that in (10a) Q projects, while in (10c) the sister projects. While I do not have an account for all of the details of this sort of reduplication, all differences between (10a) and (10c) should reduce to this difference in structure.[6]

## 5. Syntactic structure and puzzles

Having set up this view of reduplication as a syntactic phenomenon that can target and create syntactic units, I now briefly outline two immediate uses that can be made of it. In one case, since, by hypothesis, reduplication of type (10b) targets syntactic units, we can use this type of reduplication to understand the syntactic make-up of the sister XP. In the other case, we will see how syntactic reduplication can be used to account for an otherwise puzzling phenomenon.

### 5.1. Iterative reduplication as a probe on structure

While, as Pi (1995) has shown, more than just a head can be copied in cases of iterative reduplication, the extension of the copy beyond the head is constrained to certain cases as the examples below show.[7]

(11) a. I drank CUP after <u>cup</u> of coffee.
b. I drank CUP OF COFFEE after <u>cup of coffee</u>.
c. I met with STUDENT after <u>student</u> of linguistics.
d. ?? I met with STUDENT OF LINGUISTICS after <u>student of linguistics</u>.

[6] This head-adjunction is a poorly understood syntactic configuration. As mentioned in footnote 2, material in this position is able to have wider semantic scope. It may be this flexibility that allows it to copy material beyond the sister itself as in 'Do you LIKE-HIM <u>like-him</u>?'.

[7] Thanks to Susi Wurmbrand for sending me in the direction of these facts.

e. I met with STUDENT after student from Quebec.
f. ?? I met with STUDENT FROM QUEBEC after student from Quebec.

The facts above are in line with observations made by Selkirk (1977:304) with respect to pseudo-partitives which act as, in her words, 'simple NPs'. *Cup of coffee* will form some sort of unit that *student of physics* will not form. Other syntactic facts concerning pseudo-partitives, taken from Selkirk, are given below. (12) shows that the subpart of a pseudo-partitive are more restricted in that they cannot extrapose (where the added possessive disallows the pseudo-partitive reading). (13) shows that pseudo-partitives are less restricted in that they appear to violate the Right Roof Constraint.

(12) a. They devoured seven boxes of (your) delicious fudge last night.
b. They devoured seven boxes last night of *(your) delicious fudge.

(13) a. [A number of [pictures t]] were taken yesterday of John.
b. * [A picture of [boys t ]] was taken from France.

Further, we can see that pseudo-partitives allow Modification at a Distance, again suggesting that the NP within the NP is acting like the semantic head of the whole NP.

(14) a. a hot cup of coffee
b. a hungry pack of wolves
c. a juicy bunch of grapes

Now, returning to the question of reduplication, we can see that the elements that act like pseudo-partitives are the elements that can be copied.

(15) a. I ate BOX OF DELICIOUS FUDGE after box of delicious fudge last night.
b. * I ate BOX OF YOUR DELICIOUS FUDGE
after box of your delicious fudge last night.
c. * I ate BOX OF YOUR FUDGE after box of your fudge last night.
d. I ate BOX after box of your fudge last night.

It seems to be that something about the syntactic structure of pseudo-partitives both resists extraposition and allows reduplication. Making syntactic sense of Selkirk's claims that a pseudo-partitive acts 'like a simple NP', we can say either that these are NP shells similar to Larson's VP shells, where the pseudo-partitive is a little n (similar to Chomsky's little v (Chomsky 1995)), or we could say that the pseudo-partitive acts like a classifier. At this point I just offer this a suggestion of an account.

## 5.2. Predicate clefts as XP movement

We have seen that some forms of reduplication are sensitive to syntactic structure. Now I turn to a case where reduplication creates syntactic structure that is visilble to further syntactic processes.

Predicate cleft structures have been studied in a variety of languages and have presented very specific problems for syntactic theory. These problems are outlined very clearly in Koopman (1983). It appears to head-movement since only the verbal head is displaced, yet, unlike head-movement, the movement is long-distance. Further, a copy is left in the merged position of the predicate. Some examples from Vata are given below (adapted from Koopman 1983, some diacritics missing).

(16) a. ngOnO n ngOnO-O?
sleep you sleep-Q
'Are you SLEEPING?'

b. ngOnU n ka bI ngOnU a
sleep you FUT-A now sleep-Q
'Are you going to SLEEP now?'

c. mlI wa mlI
leave they leave
'They LEFT.'

Some surface characteristics of the fronted verb are (i) it is a copy of the segmental information but the tone is a default midtone and (ii) if the vowel of the predicate is lowered for the imperfective form, then the clefted predicate also has a low vowel. The syntactic characteristics are (i) it cannot co-occur with wh-movement, (ii) it can create long-distance dependencies (like wh-movement), (iii) it obeys the Complex NP constraint (like wh-movement), (iv) it obeys wh-island constraint (unlike wh-movement) and (iv) it cannot extract over a non-bridge verb (unlike wh-movement). In terms of Huang (1982) and Lasnik and Saito (1984), predicate clefting appears to behave like wh-movement of an adjunct. The questions that remain are: why is it only a head that moves, and why is there a copy left behind.

What I propose is that predicate clefting is a case of reduplication in the same form as iterative reduplication discussed above. A(n empty) reduplicative morpheme is merged just above the VP. It copies the head of this VP into its

specifier position.[8] It is this copy which will be moved into the Spec of FocusP (as in Rizzi 1997), to receive its interpretation.[9]

Data from Yiddish predicate clefting suggest that there is a phonological copying aspect to this construction. While there appears to be dialect variation, data from Waletsky (1969:19ff) below show to what extent the copying is blind to the morphological system of the language.

(17) a. ZINGEN veln mir nisht zingen. — ZINGEN/zingen (zingen)
ZING.inf will we not sing
'We will not sing.'

b. KUMEN kum ix fun nisht noent — KUMEN/kum (kumen)
KUM.inf come I from not nearby
'I come from not nearby.'

c. ZAYN bin ix a kirzhner — ZAYN/bin (zayn)
ZAY.inf am I a hatter
'I am a hatter.'

d. VEYSN veys ix — VEYSN/veys (visn)
VEYS.inf know I
'I know.'

e. IZN iz es reb yixezkl gombiners shtub — IZN/iz (zayn)
IZ.inf is it Mr. Yikhezkl's home
'It is Mr. Yikhezkl's home.'

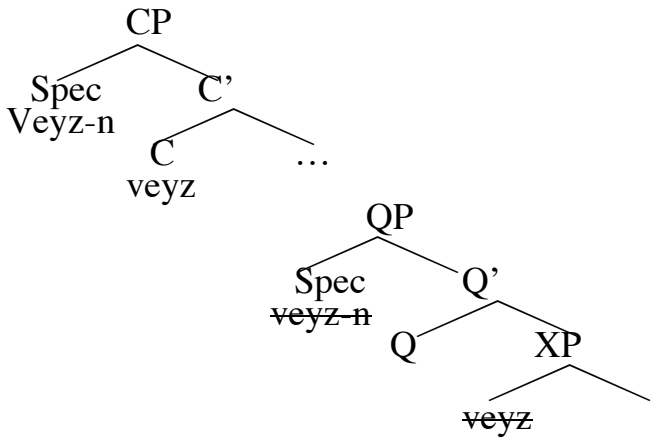
The examples above give a bit of the variation one can find. The forms to the right of the example sentences give first the copy (in small caps), then the target of the copy (underlined) and, in parentheses, the infinitival form of the verb. In (17a) the copy is identical to the target, which is the infinitival form. In (17b) and (17c), the copy is the infinitival form while the target is an inflected form. It seems, then, that the copy is always the infinitive, which some people have used to say that predicate clefts use the nominal form of the verb. (17d) and (17e), however, present a different picture. Here there seems to be some sort of contrived form of the infinitive, created from the inflected form of the verb. The infinitival ending (*n*) has been attached to an exact copy of the finite verb. An English equivalent for (17e) would be 'to is'.

[8] More accurately, this reduplicative head may merge above the Aspect head which introduces the imperfective morphology since this morphology (vowel change) is copied.

[9] Harbour (2002) has independently proposed a similar account to explain predicate clefting in Haitian Creole. In Haitian Creole it is even clearer since the copy can remain in position. See his paper for details. I thank Karlos Arregi bringing this work to my attention.

What have the Yiddish data shown us? Like predicate clefting in Vata, this appears to be a case of wh-type (A') movement. We have additional evidence from Yiddish that this is XP movement since it has triggered inversion common to V2 languages. The most trivial account of predicate clefting is that an element has moved into the Spec, CP position. Where this element comes from is the mystery. I suggest that the copy has been created by reduplication of the verb into a Spec position (an XP position) and that further movement targets this position. The tree in (18) below sketches the solution. The reduplicative morpheme Q has created the copy and added the infinitival morphology resulting in *veyzn*. This copy moves to Spec, CP via XP movement. The target of the copying, *veyz*, undergoes head-movement to C.

(18)




I leave open for now where the reduplicative morpheme merges into the tree. It may be that it varies depending on the dialect. For those speakers who can only have the true infinitive, it may be that the Q is merged lower than T while for those who produce data such as (17d) and (17e), Q is merged after T. The fixed element of the infinitival marker is like other cases of the more familiar phonological reduplication where a fixed element is included with the copy. An example from English would be *easy schmeasy*.

To summarize, by using a version of reduplication that occurs in syntax and that creates syntactic units, we create a grammar where reduplication can feed syntactic processes. It is no longer a mystery why an element that appears to be a head undergoes XP movement (i.e. moves to a Spec position) and it is no longer a mystery why a copy is left behind.

## 6. Reduplication as Copy and Delete sans Delete

A possible alternative analysis to the one provided above is an account in which the copy is created by movement. This is an obvious avenue to explore particularly in the context of the Minimalist Program where movement is a process of Copy and Delete.[10] One could argue, in fact, that there is redundancy in the

[10] Interestingly, Waletsky (1969), written during the original Copy and Delete era, also argues against using Copy and Delete version of movement to account for the Yiddish data.

system if we have two copy processes — one for movement (half of Copy and Delete) and one for the type of reduplication we have seen above.

However, there are reasons to believe that the type of copying we have seen in this paper is different from the type of copying one sees in the copying of Copy and Delete. First, movement Copy and Delete cannot be used for all cases of reduplication. For instance, it is not clear (to me) what sort of movement would create phonological reduplication. A head would have to move and adjoin to itself. It is difficult to argue that this never happens, but it is not clear what the effect of it would be.[11]

Further, though Ghomeshi et al. suggest such an account for contrastive reduplication, such an account predicts that the position of the copy is independently a possible landing site for movement, and that the material that has been copied is a possible target for movement. In other words, the prenominal A positon or the preverbal Adv position would have to be a possible landing sites for movement. Both of these movements, I believe, are unsupported. Also, the types of elements that are copied are not the types of elements that are typically moved. Recall example (8c) when the element copied is *like-him* (versus (8d) which shows that *like-Bill* cannot be copied). This is quite different from movement which normally would be either able to move in both cases as shown below, or in neither.

(19) I said that I would like Bill
  a. …. and like him I will.
  b. … and like Bill I will.

Finally, iterative reduplication also poses problems for the view of reduplication as the Copy (of movement Copy and Delete). Here we would have movement to a Spec position (in order to feed further movement to a Spec position). In some instances, however, what appears in the Spec position is just the head (leaving other elements contained within the XP behind). Attempts to explain this fact in terms of remnant movement will fail as the head can appear alone in the Spec position even with pseudo-partitives which do not allow extraposition of the PP as shown in example (15).

All types of reduplication that we have investigated here appear to need to use a form of copying that is distinct from the operation of Copy needed for movement. Another reason to believe that the copying of reduplication is different from the copying of movement comes from the forms created in the Vata and Yiddish predicate cleft data. Presumably the Copy of movement Copy and Delete creates exact copies, while the Vata and the Yiddish data exemplify forms that (a) are not exact copies and (b) are not forms that would be created by normal

[11] The problem with having a head move and adjoin to itself is not a violation of the Proper Binding Condition. The adjoined head would asymmetrically c-command the adjoined to head as shown by Kayne (1994) and the trace would be properly bound. The problem would lie in the trigger of movement. Within the Minimalist Program, the head would be moving to satisfy its own features and there are many reasons to want to rule this out.

morphological rules. The reduplication process is in some sense closer to the phonological component than is the Copy of movement Copy and Delete.

## 7. Conclusion

I have argued that not only are there cases where reduplication appears to occur in the syntax but that all reduplication is fed by syntax — it reflects different syntactic configurations and it feeds further rule of syntax. There is clearly a phonological component to it, but this phonological component must be itself sensitive to syntactic environments. Once reduplication is seen in this light, it can be used to uncover information about the details of syntactic structure and to explain constructions such as predicate clefts that otherwise remain syntactic puzzles.

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