The Syntax of Reduplication[*]
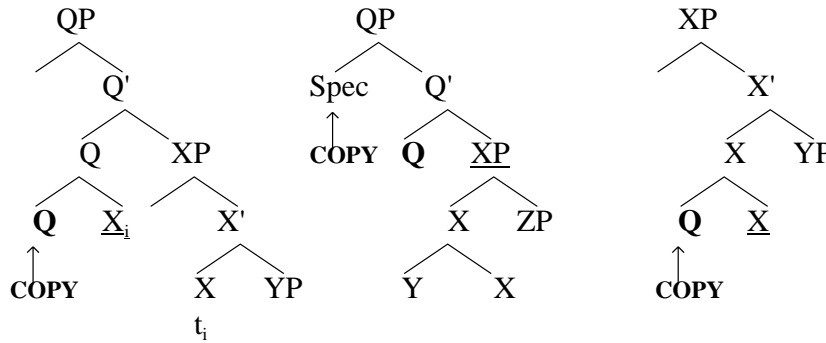
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1   Introduction

Since Marantz (1982) argued that reduplicative affixes behave morphologically like other affixes, the process of reduplication has been considered the domain of phonologists (see e.g. McCarthy and Prince 1986). In fact we can say that reduplication is central to phonology since it can be used as a probe into the nature of prosodic units and into specific theoretical processes. In this paper I want to take a very different view of reduplication. I will start by arguing that some cases of reduplication must be handled in the syntax but I will conclude that all cases of reduplication are created by syntactic structures. What will remain the same is that reduplication can be used as a probe into the nature of structure as well as the nature of grammatical computation, but this structure will be both syntactic and phonological in nature.

I will mainly be arguing that there are three types of reduplication, though at the end of the paper I will suggest that there is a fourth type to be investigated. The three types that I will be discussing are created by the three different types of syntactic environments given in (1) below.

(1)   a. phonological   b. syntactic   c. contrastive reduplication

```
        QP                          QP                        XP
        /\                          /\                        /\
          Q'                    Spec    Q'                      X'
          /\                     ↑      /\                      /\
         Q    XP             COPY  Q    XP                   X    YP
        /\    /\                       /\                   /\
       Q   X_i   X'                   X    ZP             Q    X
       ↑        /\                   /\                   ↑
    COPY      X   YP                Y    X            COPY
              t_i
```
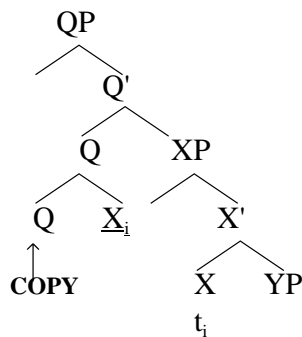
I will argue that the first two of these three syntactic representations represent feature checking — by head-movement (1a) and by substitution in a Spec position (1b). The third structure is a modification structure as proposed for prenominal adjectives and preverbal adverbs in Travis (1988). All three structures, independently observed in syntax, also create reduplicating environments. In each of the cases, reduplication is represented by a (quantity[1]) feature on a head. If the head projects as in (1a) and (1b), then the feature will be checked. Now we will turn to each of these types of constructions and look at them in more detail.

2   Phonological Reduplication

The type of reduplication pictured in (1a) above is the most common and the most studied form of reduplication. I call it phonological reduplication since it is sensitive to phonological domains, however I believe that it represents the syntactic structure that is created by head movement and the fact that it is phonological can be predicted by the syntactic structure in which it appears (repeated below in (2)).

(2)

```
        QP
        /\
          Q'
          /\
         Q    XP
        /\    /\
       Q   X_i   X'
       ↑        /\
    COPY      X   YP
              t_i
```
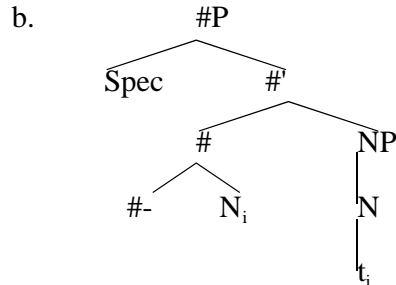
Given this structure, it is not surprising that this most common type of reduplication acts like other types of affixation. Assuming some version of Distributed Morphology (Halle and Marantz 1993), affixation is represented by this sort of head movement construction.

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[1] I believe that in many cases reduplication represents a quantity of some sort but this is not the focus of this paper.

A typical case of phonological reduplication is given in (3) below where the plural of *bana* 'coyote' in Papago is formed by having an affix of a particular prosodic shape borrowing its segmental information from its sister. If we assume that the (quantity) feature of the reduplicative affix is in the head of Number Phrase (Ritter 1991), we could posit a tree such as that given in (3b).

(3)   Papago (from Moravcsik (1978))

      a.   bana   'coyote'   baabana   'coyotes'

      b.

```
                 #P
               /    \
           Spec      #'
                   /    \
                  #      NP
                /  \     |
             #-    N_i   N
                         |
                         t_i
```

The head of the NP moves to adjoin to the # head which will be realized as an affix. In other words, I assume that phonological reduplication occurs when the sister of the reduplicative head adjoins to it. A subpart of the sister of the reduplicative morpheme will be copied and will appear in the affix position itself. Given that a sub-domain of an X^o is being copied, the nature of the copy will often be less than a word. Further, since the copy will be placed in an affixal position, it will be restricted by prosodic structure.

3   Syntactic reduplication

Syntactic reduplication is clearly much less common than phonological reduplication, but the point of this paper is to argue that reduplication also occurs in syntax and when it does, it will be subject to syntactic constraints. I will focus on data such as those presented in Pi (1995) given in (4) below.

(4)   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.

Pi argues that certain prepositions in English like *after*, *upon*, and *by* appear in constituents where the material that appears before the prepositon is a copy of (part of) the material in the complement of the preposition. He assumes that the pre-prepositional material in fact is a linearization of a stack that is generated in the complement position. In this paper, however, I would like to say that these are constructed by a form of syntactic reduplication and that these structures and the phonological reduplication structures that we have seen above should be seen as two examples of the same process. I

will begin by looking at what phonological and syntactic reduplication have in common in order to support the claim that they are two facets of the same language phenomenon. I will then outline the differences between them that have to be explained and try to argue that these differences fall out from the differences between the syntactic structures in which they appear.

3.1   Form similarities

There are clear similarities in form between phonological reduplication and syntactic reduplication. In each case, different size domains can be reduplicated. As discussed at length in McCarthy and Prince (1986) phonological reduplication can target different prosodic domains from as small as a core syllable to as large as a minimal word. As the data below show (taken from Pi 1995), syntactic reduplication of the sort we have discussed also shows variation in the size of the domain be copied.

(5)   a.   <u>cup</u> after <u>cup</u> of coffee
        b.   <u>cup of coffee</u> after <u>cup of coffee</u>
        c.   <u>cup</u> after steaming <u>cup</u> of coffee
        d.   <u>steaming cup</u> after <u>steaming cup</u> of coffee
        e.   <u>steaming cup of coffee</u> after <u>steaming cup of coffee</u>

Further, in both types of reduplication, information must be copied from the target.[2] This is shown by Pi for syntactic reduplication in (6) below where information has been added to the copy creating an ungrammatical string.

(6)   * steaming cup after cup of coffee

Further, as in phonological reduplication, syntactic reduplication is sensitive to constituency.[3] Pi (1995) argues that the structure for *steaming cup of coffee* must be as in (7a). The string in (7b) would be ungrammatical as a non-constituent would have been copied in this case.

(7)   a.   [[steaming cup] of coffee]
        b.   * cup of coffee after steaming cup of coffee

In terms of form, then, syntactic reduplication looks similar to phonological reduplication.

3.2   Function similarities

Another compelling reason to believe that syntactic reduplication is part of the same phenomenon as phonological reduplication is due to similarities in function. It is clear that the uses of phonological reduplication cross-linguistically often have a common

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[2] In phonological reduplication, the copy may contain some fixed element. We will see a case of this when we look at conjunction reduplication at the end of this paper.

[3] It seems that syntactic reduplication is sensitive to the constituency of the host while phonological reduplication indicates more the constituency of the reduplicative morpheme.

denominator. As pointed out in Moravcsik (1978), reduplicative affixes often express similar meanings in a variety of unrelated languages.[4] For example, in many languages, phonological reduplication is used to designate repeated events (some relevant languages are given in (8)) and an example sentence which will be of use to us later is given from Madurese in (9).

(8)   from Moravcsik (1978)
        <u>repeated events</u>: Tzeltal, Thai, Twi, Ewe, Sudanese, Rotuman, …

(9)   Madurese (Davies 2000)[5]
        Hasan <u>kol</u>mo<u>kol</u>(-an)   Ali.   kol-m- pokol(-an)
        H   RED.AV.hit-AN   A
        'Hasan hit Ali several times.'

Plurals are also often expressed with a reduplicative affix as we have seen in (3a) above. Again a list of relevant languages is given in (10).

(10)   from Moravcsik (1978)
        <u>plurals</u>: Samoan, Papago, Amharic, Tigrina, Tigre, …

        Similar to the examples of phonological reduplication, syntactic reduplication can either be seen as designating plural nouns or plural events. Pi (1995) notes the use of these constructions to indicate plurality on the noun, but it is interesting to point out that in each of the cases below, there also has to be an iteration of events so for example the students in (11a) couldn't have visited the professor as a group (probably coming from the meaning added by the preposition *after*).[6]

(11)   from Pi (1995)
        a.   Student after student visited the professor on Monday.
        b.   Gertrude watched program after program all afternoon.

        As a last example and one where we can see a different case of syntactic reduplication from a language other than English[7], indefinite pronouns can be represented by phonological reduplication as in (12) or by syntactic reduplication in Malagasy as in (13).

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[4] Moravcsik, while showing many cases where reduplication has similar meanings crosslinguistically, also shows many cases where no common denominator in meaning can be found and concludes that "no explanatory or predictive generalization about the meanings of reduplicative constructions can be proposed" Moravcsik (1982:325). I will be assuming, however, that many (though certainly not all) cases of reduplication are, in fact, a representation of a quantitative feature.

[5] Abbreviations in this examples are: AN (Actor Voice); RED (reduplicative affix).

[6] Thanks to an audience member at SUNY-Potsdam for pointing this out to me.

[7] Pulleyblank (1988) and Culy (1985) also argue for an interaction of syntax and reduplication with interesting data.

(12)   from Moravcsik (1978)
        a. Sundanese   saha   'who'   sahasaha   'whoever'
        b.   mana   'where'   manamana   'wherever'

(13)   Malagasy: Keenan and Razafimamonjy (1995:18)[8]
        a.   iza   'who'
        b.   na iza na iza   'anyone' 'whoever'
        c.   zanak'iza   'whose child'
        d.   na zanak'iza na zanak'iza   'anyone's child' 'whoever's child'

My assumption is that both (12) and (13) are cases of reduplication deriving from the same feature in the same head.[9] The only difference is that the copy in (12) is placed in the head itself and that the copy in (13) is placed in the Spec position of the head as repeated in the structure in (14) below.[10]

(14)   Syntactic (Spec-filling) reduplication
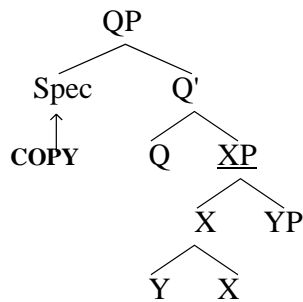
        While both phonological and syntactic reduplication can be seen as the outcome of a need to check a formal feature of a head, there are some intricacies that need to be

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[8] This construction in Malagasy also deserves much more investigation. It is not clear to me, for instance, the position of *na*. *Na ... na...* constructions do not have to show reduplication as (i) shows (Jeannot-Fils Ranaivoson, p.c.).

(i)   Tsy   nahita   (na) iBakoly   na iSaholy aho.
        NEG   PRES.AV.see na Bakoly   na Saholy   1sg
        'I saw either Bakoly or Saholy.'

There seem to be differences, however, in the optionality of the first *na* in the two constructions. What is clear is that the reduplicated element in the indefinite pronoun use of this construction can be quite long.

(ii)   Na zanaik'iza   ato   am-pianarana na zanaik'iza   ato am-pianarana
        na child'whose   here   in-class   na child'whose   here   in-class
        'whoever's child that is here in class'

[9] I do not believe that the similarity in uses for reduplication whether it is syntactic or phonological is due to iconity and I have argued against this explicitly in Travis (1999).

[10] The X and Y in (14) are meant to represent the structure for 'steaming cup' in 'steaming cup of coffee'. This sort of modification structure will be important in looking at contrastive reduplication later in the paper.

pointed out here. First, it appears that head movement occurs before the copying process of reduplication occurs. Head movement precedes phonological reduplication, setting up the appropriate environment for the reduplication as shown in (2). This is different from syntactic reduplication. In this case the feature checking does not force movement to the Spec position. Rather, the head first creates a copy, the copy appears in the Spec position and it is this copy which will check the feature as shown in (14). So in syntactic reduplication the copying occurs before the checking occurs.   In phonological reduplication head movement to check a feature occurs before copying occurs. This is an area that needs further work but one that may potentially provide some insight into the computational system.

Secondly, we should note that the copying found in reduplication is very different from the copying mechanism used for movement (as in Copy and Delete). In syntactic reduplication, subdomains of the complement XP are being copied that would not be able to independently move. The result appears to be, then, that the copying of reduplication cannot be collapsed with the copying of movement.

Leaving these two issues aside for future work, I now turn to a direct comparison of phonological and syntactic reduplication with the aim of showing that any differences that they might have will fall out from the nature of the configurations in which they appear.

4   Characteristics

Above we have seen that some of the superficial characteristics of phonological reduplication and syntactic reduplication appear to be similar in important ways. In this section I will propose some common mechanisms for a general phenomenon of reduplication, and then look at how some differences may be accounted for.   This comparison will be quite impressionistic as phonological reduplication has a vast amount of literature devoted to it while syntactic reduplication is relatively unstudied.

4.1   Common characteristics

I suggest that in each case of reduplication that we have seen, a subpart of the reduplicative head will be copied. Further, I suggest that where the copy appears will be restricted by some notion of structure preservation. In order to look at how exactly this works, we need to look at differences in the two types of reduplication.

4.2   Distinguishing characteristics

The most obvious difference between phonological reduplication and syntactic reduplication is the type of domain that is copied — a prosodically circumscribed domain in phonological reduplication and a syntactically circumscribed domain in syntactic reduplication. These differences, however, may be derived from the different types of syntactic configurations. In the case of phonological reduplication, head movement has already occurred and the sister of the reduplicative head is an X^o. My assumption is that a sub-domain of an X^o will necessarily be sub-syntactic and will pick out material that is not visible in syntax. In the case of syntactic reduplication, head movement has not

occurred so the sister of the reduplicative head is an XP. Now a subdomain of an XP must be defined by syntactic units.[11]

The second problem is that the size of phonological reduplication is fixed while the size of syntactic reduplication, at least in the English example that we have looked at, is variable as shown in (5) above. We can say, however, that affixes have to have an inherent shape (determined prosodically), while Specs do not have to have an inherent shape. Since the syntactic structure of phonological reduplication is basically the structure for affixation, it is then not surprising that the size of the copy is fixed as affix shapes are fixed.

A third problem is that phonological appear to have left/right mapping while syntactic reduplication seems to be bottom up, i.e. it must contain the head of the complement independent of whether it is left-most or right-most in the structure. Further, while just a head can be copied in syntax, it is never the case that just a vowel (as the head of a syllable) is copied in phonology. Very speculatively I would say that this is due to differences in what is default in each component of the grammar. A head could be seen as a minimal default form for a projection in syntax but CV is a minimal default in phonology.

Finally, phonological reduplication only copies once where, at least in the English form of syntactic reduplication above, more than one copy can appear (as in 'She drank cup after cup after cup of coffee'). I believe this is because syntactic structures in general can iterate for emphasis such as 'She drank many many many cups of coffee' 'They are very very very tired'.

4.3   Multifunctionality in syntactic and phonological reduplication

Both syntactic and phonological reduplication work similarly in another way — they both show signs of being multifunctional, i.e. they can appear in different heads with similar or identical meanings. While a deeper discussion of this would go beyond the space limitations of this paper, I give a brief description of some relevant data below.

Davies (2000) gives a detailed discussion of the use of reduplication in Madurese to encode iterative events. The example sentence we have already seen is repeated in (15) below.

(15)   Madurese (Davies 2000: 125)
        Hasan <u>kolmokol</u>(-an)   Ali.   kol-m- pokol(-an)
        H   RED.AV.hit-AN   A
        'Hasan hit Ali several times.'

What is important to note here is that the copy appears outside of the Actor Voice morpheme. In (16) below we again find reduplication in Madurese, but this time it

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[11] Again, it should be noted that syntactic reduplication seems sensitive to the structure of its target while phonological reduplication seems indifferent to the structure of its target and simply borrows segmental material to fill the specific structure of the reduplicative affix.

appears without the Actor Voice morpheme. Davies argues that in this form, the meaning is still one of iterative event, but it has the additional meaning of a reciprocal.[12]

(16)   Madurese (Davies 2000: 123)
        Ali biq Hasan <u>kolpokol</u>-an.   kol- pokol-an
        AandH.   RED.hit-AN
         'Hasan and Ali hit Ali each other.'

 I would argue that in the pure iterative event reading, the reduplicative affix appears in the head position just above the head which contains the the Actor Voice affix.[13] In the case of the reciprocal/iterative event, the reduplicative affix appears in the head position which in other constructions contains the Actor Voice affix (and thereby somehow receives the extra interpretation of reciprocity).
        We can find a similar phenomenon with syntactic reduplication. As pointed out by Pi, the preposition *upon* allows plural NPs in the construction. An example is given in (17) below.

(17)   Bags upon bags of marshmallows were stolen this week.

The preposition *after*, very similar in behaviour to *upon* in other respects, does not allow plural NPs as the examples below show.
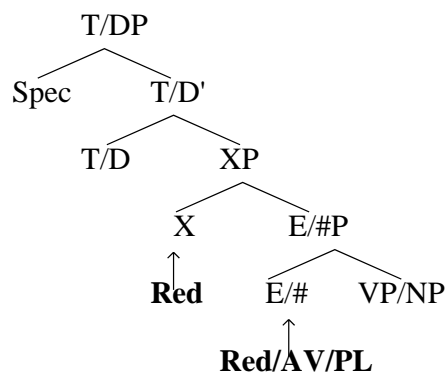
(18)   a.   Student after student visited the professor on Monday.
        b. * Students after students visited the professor on Monday.

Like the Madurese example above, I would argue that the reduplicative morpheme is variable in nature and able to appear in different heads. In its incarnation as *upon* it can appear in a head above Number thereby allowing plurals, but in its incarnation as *after*, it must appear in Number head and therefore cannot co-occur with the plural. The tree structure given in (19) below shows a possible way to collapse the two cases making a generalization over the nominal and the verbal system (and event iteration and plurals).

(19)   Template of iteration (see Murai (in preparation) for analysis of Madurese):

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[12] More work needs to be done here to determine the role of the suffix *-an* and why it is opitonal in one case and obligatory in the other.
        [13] Why it is the second syllable of the stem that is reduplicated still needs to be explained.

```
              T/DP
             /    \
          Spec    T/D'
                 /    \
               T/D     XP
                      /   \
                     X    E/#P
                     ↑    /    \
                   Red  E/#   VP/NP
                         ↑
                    Red/AV/PL
```

In each case there is a functional category just above the N/V lexical category. For the nominal extended projection I have # (Number) and for the verbal extended projection I have borrowed E(vent) from other work of mine (e.g. Travis 1994). Above this projection is an unnamed functional category which can also house the reduplicative morpheme in which case is can co-occur with Actor Voice morphology in the verbal system and plural in the nominal system.[14]

So far I have argued that reduplication occurs in syntax and phonology, but in both cases the copying has been set up and constrained through the syntactic configuration. Now I will turn to another case of reduplication which is more difficult to characterize but which I feel shows that reduplication is primarily a syntactic phenomenon in that it appears in a range of possible syntactic structures.

5 Contrastive reduplication

In recent presentations, Ghomeshi, Jackendoff, Rosen and Russell (henceforth Ghomeshi et al.) (2000) discuss an English phenomenon which they call contrastive reduplication (CR). Some typical examples of this are given in (20) below (most of the examples in the section are developed from examples given in Ghomeshi et al. (2000).

(20)   a. Noun: I want a SALAD salad not a tuna salad.
       b. Verb: I don't LIKE HIM-like him.
       c. Adjective: He is FRENCH-French
       d. Particle/Preposition/Adverb: Is he HERE-here? No, I didn't get UP-up.

It is clear that this type of reduplication is neither phonological nor syntactic reduplication in that it does not fill either an affix role nor a Spec role. The examples in (21) show that it is not a case of phonological reduplication since the possible shape of the copy depends on the constituency of the target.

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[14] Note that the Determiner in the nominal system treats these constructions like bare plurals since we do not find Determiners here.

(i) I drank (*a/*some) cup after (*a/*some) cup of coffee.

(21)   a.* She's not my GIRL-girlfriend.
        b.   She's a GIRL-girl.

It is different from the type of syntactic reduplication that we have seen above in that the difference between a proper name and a pronoun is important to the copying mechanism.

(22)   a.   Do you LIKE HIM-like him?
        b.* Do you LIKE BILL-like Bill?

Ghomeshi et. al's insight which basically forms the foundation of this paper is that "CR fills a slot that is syntactically available for other material". In the case of contrastive reduplication, this syntactic slot is the slot available for pre-head modification. Their examples given in (23) below give an idea of what might have filled this slot had the head (and sometimes other material) not been reduplicated.

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

I have argued elsewhere (Travis 1988) that this pre-head modifier slot in English is structurally represented by a modifier head (A or Adv) that does not project and that adjoins to the head being modified as shown in (24) below.

(24)   a.   Prenominal adjectives (non-projecting A°)
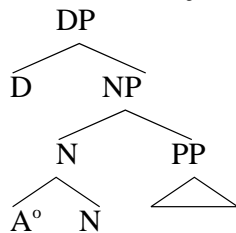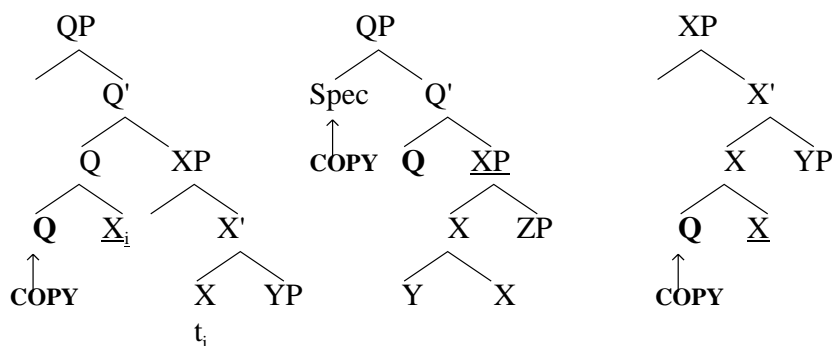

        b.   Pre-head Adverbs (non-projecting Adv°)
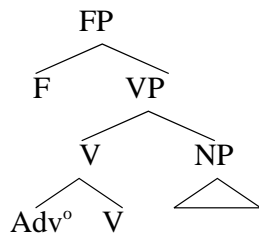
As we can see in these trees, the copy is being placed in a position that is already syntactically available. In fact, that is the main point of this paper — all cases of reduplication are filling (by creating copies) positions that are independently available in the syntax. The three types that we have seen are repeated below.

(25)   a. head-movement   b. Spec-filling   c. basegenerated head adjunction
           (phonological)   (syntactic)   (contrastive)

```
              QP                          QP                         XP
             /  \                        /  \                       /  \
              Q'                    Spec     Q'                       X'
             /  \                    ↑      /  \                     /  \
            Q    XP              COPY   Q    XP                   X     YP
           / \       \                 / \   \                   / \
          Q   X_i     X'              X   ZP                     Q    X
          ↑          / \             / \                         ↑
        COPY        X   YP          Y   X                      COPY
                    t_i
```

There are some things we can point out here as well as questions that we can raise. One important thing to point out is that the 'reduplicative morpheme', while always a head, is not always the final position for the copy. When this morpheme has as its sister a head as in (25a) and (25c), then the material that is copied may appear in the position of the morpheme itself. When the sister of the head is a phrase, however, as in (25b), the material being copied is presumably structurally too complex to appear in the position of the morpheme itself and will appear in the Spec position of the projection. More concretely, I am assuming that *after* and *upon* in the cases of syntactic reduplication that we have been discussing are reduplicative morphemes in that they create a copy of a subdomain of their syntactic sister. They are very different from other reduplicative morphemes, however, in that are not themselves the copy.

Since syntactic reduplication and contrastive reduplication are much less studied than phonological reduplication, many empirical questions remain. For both types of non-phonological reduplication, it is yet to be determined what exactly restricts the domain of what can be copied. For example, syntactic reduplication of the sort described by Pi (1995) seems to be sensitive to syntactic constituency as shown in (7) but the facts are, in fact, much more complicated.[15] While judgments seem to vary, it is much easier to copy something larger than just the head N when that N acts like a measure phrase of a certain type.

(26)   a.   I met with student after student.
       b. * I met with student of linguistics after student of linguistics.
       c.   I ate bunch after bunch of bananas.
       d.   I ate bunch of bananas after bunch of bananas.

While *cup of coffee* can be copied as we have seen *student of linguistics* can't be. Further, in (26c and d), *bunch of bananas* loses one of its two meanings. *Bunch* cannot just mean *a lot* it has to mean a certain formation of bananas.[16] As detailed in Ghomeshi et al., contrastive reduplication also raises questions concerning what the exact restrictions are on what can be copied. While it is clear that contrastive reduplication is

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[15] Thanks to Susi Wurmbrand for pointing out some of these complications.
[16] Thanks to a group of linguists gathered by Alan Prince at the NELS party for a discussion of some of these facts.

different from either phonological and syntactic reduplication falling somewhere in between, it is not clear (to me at least[17]) how its restrictions can be formalized.

   While these problems remain, I still feel that it is clear that in each case of non-phonological reduplication we have looked at, the copy appears in an independently available syntactic position. In fact, in the three types of reduplication we have seen so far, we have seen three of the basic syntactic configurations — Spec-head, head-head, and modifier-head. We might even say that we have covered all of the main syntactic configurations and that by noting that reduplication appears in all of these, we have shown that reduplication is truly a pervasive (though perhaps not common) syntactic phenomenon. However, there is another type of syntactic configuration, that of conjunction, which we haven't yet seen. In the section below I will argue, using work by Lidz (1999), that even this type of syntactic configuration can trigger reduplication.

6   Conjunction reduplication

Lidz (1999), in his study of echo reduplication in Kannada, shows that reduplication can target different syntactic levels. In (27a) below reduplication occurs outside of the accusative case marker, perhaps indicating that an NP (or KP) has been reduplicated. In (26b), with the same meaning, reduplication has occurred inside of the case marking, showing at the very least that a different constituent has been targetted, perhaps this time just an N.

(27)   a.   N(P)
            <u>baagil-annu</u>-giigilanna   much-id-e
            door-ACC-RED   close-PST-1S
            I closed the door and related things.'

       b.   N
            <u>baagil</u>-giigil-annu much-id-e
            door-ACC-RED   close-PST-1S
            'I closed the door and related things.'

       c.   VP
            nannu <u>baagil-annu   much-id-e</u>   giigilannu muchide anta heeLa-beeDa
            I-NOM door-ACC   close-PST-1S RED   that say-PROH
            'Don't say that I closed the door or did related activities.'

       d.   V
            baagil-annu <u>much</u>-gich-ide   ant   heeLa-beeDa
            door-ACC   close-RED-PST-1S that say-PROH
            'Don't say that I closed the door or did related activities.'

   In (27c) it is clear that it is a syntactic constituent that has been reduplicated, at the very least a VP[18] which contains a case-marked NP and a V, again with the same type of

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[17] I am working from two handouts and attended one of the talks. It may be that the eventual paper by Ghomeshi et al. gives a more explicit characterization of the restrictions.

meaning. In this respect, this form of reduplication looks very similar to the syntax of conjunction which can apply to heads or maximal projections and I would assume that whatever the appropriate account for conjunction is, it should carry over to these facts. Once again, then, reduplication seems to have stepped clearly out of the domain of phonology and into the domain of syntax suggesting that it at least has to be given an account in both components. Better still, I would suggest, is that reduplication is always in triggered in syntax, but sometimes must use the vocabularly of phonology when it, by the nature of the syntactic configuration in which it appears, must look into subsyntactic material.

7   Conclusions and speculations

While I have outlined the main points of the paper, I conclude by giving a view of what future work in this area might pursue. Just as the phenomenon of reduplication has been fruitful for phonological research in determining not only possible units of phonology, but the nature of phonological mechanisms, I believe that syntactic reduplication could be put to the same use in the area of syntax.

Syntactic reduplication of the type described by Pi (1995) it interesting in that not all complements of heads can be reduplicated. It could be that the ungrammaticality of (26b) vs. the grammaticality of (5b) is giving us clues as to the internal structure of the NPs in both cases. Further, the types of elements that can be copied in the contrastive reduplication structures might shed light on the nature of modification structures as well as the structure of the modified phrase.

If what has been proposed in this paper is on the right track, we might also learn more about the specifics of the computational system. For example, here we have a type of copying that appears to be different than the copying mechanism used in movement. Further, it appears that we need to make some distinction between checking features via head-movement and checking features via placing something in the Spec position. Head movement was needed to set up (and therefore precede) copying while checking via a Spec-head relationship had to follow copying.

As a final note, by allowing subdomains of syntactic elements to be copied into Spec positions, we might be given the needed flexibility to account for otherwise puzzling facts such as predicate clefting.[19] Predicate clefts in certain African languages can sometimes front just a V and sometimes a VP. Whether predicate clefting is X movement or XP movement has been the topic of debate (see e.g. Koopman 1983 and Ndayirajige 1993). And if predicate clefting of a V is X movement, the question of why it appears in many ways to be like XP movement remains a puzzle. If some form of syntactic reduplication of the sort we saw for English can precede subsequent movement of the copy, then it seems that a plausible account can be fashioned. A reduplicative morpheme would first copy a specified syntactic subdomain of its sister into its Spec. This might be

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[18] Reduplication here appears outside of Tense marking which could either mean that TP has been reduplicated perhaps after the subject has moved out to a higher position, or Tense morphology is present on the verb in its base-generated position. There are many details to be worked out in all of these accounts, clearly.

[19] Thanks to Mark Baker for pointing this out to me and for an interesting discussion concerning the data.

just the V in some languages (parallel to (5a) above) or a VP in other languages (parallel to (5b) above). Movement of this material in Spec could then proceed to the Spec position responsible for clefts.

Whether or not this is the right direction for an account of predicate clefts, a reduplication mechanism of copying that can be employed by the computational component of syntax creates a new tool for syntacticians and uses of such a tool awaits future work.

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