Scopal Effects of Reduplication

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ABSTRACT
This paper is based on the observation that while reduplication of inflected morphemes in South Asian Languages (henceforth SALs), usually copies the base only, certain contexts, both in verbal and nominal morphemes cause obligatory copying of the inflection. In the light of relevant literature, the paper explores the semantic and phonological structure of these constructions, and the manner in which these differ from other reduplicated structures in SALs.

1 Introduction

Reduplication, a common cross-linguistic phenomena[1], once analyzed as a straightforward case of morphological affixation by Broselow (1983), Marantz (1982), McCarthy (1981) and so on, became a primarily phonological enterprise of identifying cross-linguistic variation in reduplicative templates. However, not all reduplicative templates are prosodically determined. For example, note the difference between the two cases of Hindi verb reduplication in (1).

(1) a. machine **cal=te   cal=te** ruk gayi   *machine **cal cal=te** ruk gayi
        machine run=Inf run=Inf stop go.perf
      'The machine stopped while working.'

    b. sal-on   **cal cal=ke**   machine ghis gayi   *salon **cal-ke cal-ke** machine ghis gayi
       year-pl run run=prt. machine wear go.perf
      'By years of work, the machine got worn'.

In (1a) the inflection is obligatorily copied in the RED[2], while in (1b) the RED obligatorily lacks inflection. In SALs, there are a variety of syntactic-semantic configurations that surface as reduplication and they vary with respect to (a) contexts where the inflection is obligatorily reduplicated and (b) those where the inflection cannot be reduplicated[3].

Abbi (1992) categorized reduplication in SALs into two categories: morphological and lexical to distinguish between the sub-lexical morphemes of onomatopoeic expressives as morphological reduplicants like (2) from the structures formed with the reduplication of already existing lexical items for which she uses the term lexical reduplication (3)[4].

(2) a. **phiš-phiš** kɔra   b. **tiŋ-tiŋ** coŋ-ŋi
        phiš-phiš do.inf   tiŋ-tiŋ jump.prog
        'make phiš-phiš sound' (whisper)   'jump in tiŋ-tiŋ manner' (spring/bounce)
                            Bangla-IA   Meiteilon-TB

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[1] Of the 368 languages listed on WALS online only 55 fail to employ this grammatical device productively. Among the rest, an overwhelming majority of 278 use both full and partial reduplication, while the residual 35 restrict themselves to productive full reduplication.

[2] Reduplicant morpheme.

[3] Note that contexts with optional reduplication of inflection could not be found.

[4] Each one of these sentences can be spoken with prosodic elongation of the reduplicated morphemes. In that case it additionally adds the intensified meaning of very big/very long.

(3) a. am-ra   **lɔmba lɔmba** gach ã:k-te   cay-i   Bangla-IA
        1p-pl.Nom long   long   tree draw-prt want-1p
        'We want to draw long long trees.'
        Each/most tree/s we want to draw is/are long

     b. əy   lɑyrik **əčəw əčəw=bə** pɑ-y   Meiteilon-TB
        1p.Nom   book   big big=Nzr   read-Ind
        'I read big big books'
        Each one of the books I read was big.

     c. nyan   **vəliyə vəliyə** syntax pustakaŋgaḷ vayikkumayirunnu   Malayalam-DR
        1p-Nom big   big   syntax book-pl   read-hab-past
        'I used to read big big syntax books.'
        Each/most of the syntax books I used to read was/were big.

Similar to the example of numeral reduplication discussed in Balusu (2006) and Balusu and Jayaseelan (2013), the events containing the reduplicated adnominal object modifiers in (3) are associated with both distributivity as well as plurality. Since Bangla and Meiteilon do not have morphological plural marking on the noun, without reduplication, sentences (3a) and (3b) would be interpreted as singular. Unlike them, Malayalam, marks plurality morphologically on the noun. However, similar to the reduplicated Telugu numeral adnominal modifiers of Balusu (2006), this plurality is also obligatory in reduplicated structures like (3c) in Malayalam.

   Further, unlike the morphological reduplicants, the lexical reduplication strategies fluidly carry over into Indian English sentences like (4) as well. However, the range of meanings associated with them differs depending upon the first language of the speaker[5].

(4) Syntax papers have **big big** trees.   Indian English

In fact not all Indians can process all cases of reduplication in Indian English. Such data will be interspersed in the paper along with sentences from Hindi, Bangla, Meiteilon, Malayalam and Telugu. The paper consists of two initial sections that discuss how the dissimilar morpho-syntactic contexts of event modifier and adnominal reflexive show very similar constraints on copying the inflectional markers along with the base, followed by an analysis of these contexts, which forms the final section.

2 Reduplication of verb roots

Verbs roots in SALs are often bound morphemes combining with inflections including non-finite conjunctive particles to create adverbial event modifiers. When such complexes are reduplicated the inflection is either obligatorily reduplicated or obligatorily not reduplicated along with the base.

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[5] In some SALs like Bangla, reduplication also has a scalar function such that the meaning ranges between 'most of the X' and 'each of the X'. The range of meaning for "Syntax papers have big big trees.", in Bangla-English differs slightly from Meiteilon-English.

	at least one (very) big tree	more than one (very) big trees.
Each Syntax paper has	True-BE, False-ME	True-BE, True-ME
Most syntax papers have	True-BE, False-ME	True-BE, False-ME

2.1 Event co-occurrence

When two events α and β are such that β begins/happens while α is still happening, then some SALs mark the fact that the initial point of β is temporally located within the span of α by reduplicating the verb root of α.

(5)   a. mɑ   **čət=nə čət=nə** nok-khi   Meiteilon-TB
          3p   go=Adv go=Adv smile-Past
          'S/he smiled while (s/he was) walking.'

    b. o **hãɫ=te hãɫ=te**   hãš-chi-lo   Bangla-IA
       3p walk=prt walk=prt smile-Prog-Past   (Also Hindi 1a)
       'S/he was smiling while (s/he was) walking.'

     c. She was **walking walking** smiling.   Indian English

The Dravidian language Malayalam, cannot reduplicate verbs in similar situations and instead use an associative marker that literally depicts event co-occurrence (6)[6].

(6) awan naḍannu=**konḍu** ciriccu   Malayalam-DR
    3p   walk-past=Asso laugh-past
    He walked while laughing.

Unlike Bangla, Hindi and Meiteilon, where the reduplicated verb also indicates the event that continued as the second one took place, in Malayalam, the sentence does not give information about the temporal distribution of the events with respect to one another. The reduplicated verb root in (5) that marks the temporal distributivity obligatorily carries along with it the inflectional particle.

2.2 Process duration in event structure

When two lexical verbs α and β are such that α denotes the process or path through which the result, β, obtains, then some SALs mark the unbounded nature of the process, in a temporally bound event by the reduplication of α.

(7)   a. mɑ **čət čət=lə=gə**   lɑk-i   Meiteilon-TB
        3p   walk walk=perf=conj come-Ind
        'S/he came walking.'/ 'S/he walked and came.'

    b. woh **cal cal=ke**   aya   Hindi-IA
       3p   walk walk=prt come-past   (Also 1b)
       'He came walking.'/ 'He walked and came.'

    c. o **hẽɫ=e   hẽɫ=e**   e-lo   Bangla-IA
       3p walk=perf walk=perf come-Past
       'S/he came walking.'/ 'S/he walked and came'

    d. She came **by walk**/ she came **walking walking**   Indian English

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[6] Consequently the Indian English sentence, kosher in many discourse contexts in India, *'walking walking she was singing'* is very difficult to process for a Malayalam speaker.

Unlike (5), both in case of the TB language Meiteilon as well is IA language Hindi, the inflection on the verb cannot be reduplicated in (8a) and (8b). The Bangla case in (7c) where the inflection is not syntactically but morpho-phonologically motivated.

   In order to keep the lexical paradigm uniform languages show a strong dis-preference to alter the phonological form of the lexical roots. Nevertheless, there are some cases where it is unavoidable. On account of the perfective morpheme being homophonous with the third person agreement morpheme, Bangla has the obligatory root allomorphy in verbs. So, the Bangla verb root *hãt-*, 'walk', becomes *hẽt-e* on addition of the perfective marker [-e]. Thus, for reduplication this complex is being treated similar to a suppletive morpheme rather than a combination of root and inflection.

3 Reduplication in Anaphors

Unlike IA languages that have lexical reflexives (8a and 8b), DR and TB languages build the reflexive by copying the pronominal (8c and 8d). Abbi (1990) as well as Subbarao (2012) noted this similarity between TB and DR, with the former referring to them as discontinuous Lexical reduplication (DLR), since the reduplicated morphemes have intervening phonological material.

(8)   a. radha **nije=ke**   bhalobaš-e   Bangla-IA
          radha self=Acc love-3p
          'Radha loves herself'.

       b. radha **ap-ne-aap=se**   pyaar kar-ti hei   Hindi-IA
          radha self-Gen-self=towards love   do-F be
          'Radha loves herself'.

       c. mə **mə-sɑ=nə**   **mə-sɑ=bu**   nuŋsi-jə-y   Meiteilon-TB
          3p 3p-self=Subj 3p-self=Obj love-VR-Ind
          S/he loves her/him self.'

       d. radha **tana=ni tanu**   pogudu-kon-di   Telugu-DR
          radha self=Acc self=Nom   praise-VR-agr
          'Radha praised herself'   (51:Subbarao 2012)

However, we find that the DLR structure of reflexives is mostly restricted to the object of transitive verbs like 'love' and 'praise'. As adnominal possessor reflexives they lose this complexity of reduplicated structure. Further, when such reflexives are put in the scope of a distributive operator, we observe that with the genitive inflection gets reduplicated along with the base in case of lexical anaphors, while it fails to reduplicate in case of DLR anaphors.

3.1 Reduplication of lexical reflexives

Lexical anaphors are the cases where the language has special reflexives. Haspelmath (2005) observes that any language using a special reflexive with the adnominal possessor also uses it for the reflexive pronoun in the object, but the vise versa is not true. This means it is possible for a language to have a special reflexive lexical item, but use the regular pronoun in the adnominal possessor. For example, English.

(9) English reflexive
      a. She$_1$ killed herself$_1$.   (She$_1$ killed her$_2$)

b. She$_1$ killed her$_{1/2}$ lover.   (*She killed herself's lover.)

<div align="right">(11: Haspelmath 2005)</div>

Indo-Aryan languages Bangla and Hindi have special reflexive pronouns in the object position. When they are reduplicated under the scope of a distributive operator in the adnominal possessor position the possessive inflection is also reduplicated along with the reflexive morpheme.

(10)   a. bacce **ap=ne   ap=ne**   ghar ga-ye   Hindi-IA
          child-Pl self=Gen self=Gen house go-past
          'The children went to their respective homes'

        b. bacca-ra **nij=er   nij=er**   baɖi(-te) gɛ-lo   Bangla-IA
          child-Pl self=Gen self=Gen house-(Loc) go-past
          'The children went to their respective homes'

Note that the phonological form of the special reflexive in Bangla, *nij-* is identical in the object and adnominal possessor object position, but in case of Hindi, it is *ap-ne-aap-* in the former, and just *ap-* in the latter case.

3.2 Reduplication of non-lexical reflexives

The DLR anaphor in object position is composed of copies of subject and object marked respectively. In consonance with the cross-linguistic observation of Haspelmath (2005), we found the adnominal possessor reflexives in these languages to be morphologically less complex than the respective object reflexive morphemes as well.

 (11)   a. aŋaŋ-siŋ-du   **mə-khoy=gi** mə-yum-da   cət-khi   Meiteilon-TB
          child-Pl-Dem 3P-Cl-Gen   3P-house-Loc go-past
          The children$_i$ went to their$_{i/j}$ home.

        b. kuTTikaL **awar=uTe** wiiTT-il-eek'k'A pooyi   Malayalam-DR
          children   they-Gen   house-Loc-Dat   went
          The children$_i$ went to their$_{i/j}$ home.

        c. bacca-ra **ta=der**   baɖi(-te) gɛ-lo   Bangla-IA
          child-Pl dis Pr=Gen house-(Loc) go-past
          'The children$_i$ went to their$_{i/j}$ home.

In (11a) and (11b) the reflexives of Meiteilon and Malayalam no longer show the DLR structure described in Abbi (1990). These structures are similar to the English pronoun and get their reflexive meaning by co-indexation with the subject. Bangla, in spite of having a special reflexive morpheme, (8a) and (10b), can also use the discourse pronominal *ta-* in this construction as well, (11c).
    When such adnominal possessor reflexives are reduplicated under the scope of a distributivity operator, unlike (10), the genitive inflection systematically fails to be reduplicated along with the base.

(12)   a. aŋaŋ-siŋ-du   **mə-khoy mə-khoy=gi** mə-yum-da   cət-khi   Meiteilon-TB
          child-Pl-Dem 3p-pl   3p-pl=Gen 3p-house-Loc go-past
          'The children went to their respective homes

b. kuTTikaL **awar-awar=uTe** wiiTT-il-eek'k'A pooyi   Malayalam-DR
   children   they-they=Gen   house-Loc-Dat   went
   'The children went to their respective homes'
                                               (81: Balusu and Jayaseelan, 2013)

c. bacca-ra **je-ja=r**   baɖi(-te) gɛ-lo   Bangla-IA
   child-Pl   dis.pr dis.pr=Gen house-(Loc) go-past
   'The children went to their respective homes'

4 Analysis

In our examples with the verbal reduplication, the use of the process verb 'walk' is deliberate, since it can be easily used in both kinds of reduplicative structure. The two structures from (5) and (7) are repeated in (13) with respect to Indian English.

(13)   a. She was walking walking smiling.
        b. She came by walk. / Walking walking she came.

(13a) refers to an event *e, she walking,* which has at least one subpart *e'* of *e*, that temporally corresponds to the independent event *E*, of *she smiling*. There is a semantic operator R that links these two events temporally. This operator selects the event *e* as its complement and temporally partitions it with respect to another event *E*. We propose that it is the scope of this operator that triggers reduplication in the predicate of the event *e*. In support of this analysis we present three additional observations about these constructions that follow from it.
   i. These reduplication constructions are not limited to process verbs but extend to achievement verbs like 'find' and 'arrive' as well. For example, consider the Bangla sentence in (14) which uses the reduplicated achievement verb.

(14)   reference-ṭa khũj-e   **pe-te   pe-te**   paper-ta-r deadline peɖi-ye   ja-be
        reference-cl search-perf get-prt get-prt paper-cl-Gen deadline cross-perf go-fut
        By the time the reference is found, the paper deadline would have crossed.

   However with these, the meaning changes from *'while e, E'* to *'by the time e, E'*. This is because unlike process verbs, achievement verbs do not have the temporal duration necessary for the operator R to temporally partition *e* in the progressive aspect.
   ii. Since the partitioning of the temporal duration of *e* by R results in reduplication, it is predicted that these constructions will be completely ungrammatical without reduplication, and such is the case.

(15)   *radha **cal-te** hãs paɖi   Hindi-IA
           radha walk-prt laugh fall-Fem

   iii. Both subparts of event *e*, the one that temporally coincides with *E* and the one that does not coincide with *E*, are in the same aspectual relation with respect to the knowledge of the speaker. Consequently we expect both copies to be inflected identically, and such is the case. We have not come across any SAL across literature, with this construction where the verb is reduplicated with out the inflection.

(16)   mina-ya   methai **khon-ɯi khon-ɯi** thabai-duŋ   Bodo-TB
        mina-Nom song   sing-Adv sing-Adv walk-prog
        Mina is walking by singing a song.   (54: Brahma 2016)

Unlike (13a), (13b) refers to an event *e*, where a process event like *'walk'* culminates in a transition event like *'arrive'* or *'reach'*. Following the analytical pattern of Pustejovsky (1991), the transition from the process of *'walking'* to the state of *'not walking'* corresponds to the transition from the process of *'not arrived'* to the state of *'arrived'*.

In contrast to the English *'walk'* that can be used in sentences like *'Mary walked/ran to the store'* (45: Pustejovsky 1991), in these SALs process events like *'walk'* can transition to the state of not walking only if another achievement verb is added. The reduplication of the process verb draws focus to the fact that the event *e* of walking was constitutive of a number of temporally distributed sub-events e_1 to e_n, during all of which *'she walked'* and consequently lends discourse salience to the duration of the process. This analysis predicts that:

   i. Since the reduplication is denoting that the process *e* is constitutive of sub-events e_1 to e_n, this construction should be non-felicitous with non-process verbs like 'reach' or 'win', and such is the case.

(17)   *mina   **põũch-e põũch-e** dãḍi-ye chi-lo   Bangla-IA
           mina-Nom reach-prt reach-prt stand-prt be-past

   ii. Since the reduplication is triggered by a distributivity operator D that breaks the event *e* into its sub-components, and that operator has no scope over the transition from process to the state in the sentence meaning, unlike (5) the sentences in (7) should be felicitous without the reduplication of the process verb as well, and such is the case.

(18)   mɑ **čət=lə=gə**   lɑk-i   Meiteilon-TB
          3p walk=perf=conj come-Ind
          'S/he walked and came.'

   iii. The perfective inflection, or a particle, converts the unbounded process of *'walk'* with a telic change to a state of *'not walk'*. Therefore, semantically the inflection marking this should not be reduplicated. However, whenever the vocabulary item is a non-regular suppletive morpheme, like the verb in perfective aspect in Bangla, the entire special form gets reduplicated rather than just the non-inflected root.

Similar to the verb reduplication in (7), in the suppletive/special forms of the adnominal reflexives get reduplicated together with their inflections while the inflection does not get reduplicated in the case of regular morphology. This lends further morphological support for the standard view in generative theory on reflexives following Reinhart & Reuland (1993) who analyzed the morphologically constructed nature of the reflexive.

5 Conclusion

Jelinek and Demers (1997) noted that cross-linguistically reduplication is used as morphological strategy to express quantification over individuals, events, states, processes and qualities. While each one of these is true for most of the languages discussed in this paper, we find that the reduplicative template is determined by the nature of the quantification by the semantic operator on its complement. Further, these operators play a crucial role in varieties of Indian English, and since some of these event compositional strategies might not be present in other languages, produce hilarious English discourse contexts.

For example, Bangla speakers quite commonly use an English phrase with reduplicated pronouns 'his his whose whose'. Quite meaningless to non-Bangla-speakers, this phrase means 'to each...their own', something similar to the English expression 'each man on his own'. The reduplicated structure derives from the Bangla expression in (19).

(19)   je-   ja=r   še-   ta-r   Bangla-IA
        dis.pr-Nom dis.pr=Gen 3p-Nom   3p=Gen
        Each person by them(selves) / going dutch

Notice that the reflexives *je ja=r* and *še ta=r* of (19) are morphologically very similar to the DLR object reflexives from (8) like the Meiteilon, *mə-sa=nə mə-sa=bu.* Perhaps there are non-trivial reasons for such similarities. This paper is a preliminary work exploring such vignettes from the scopal effects of reduplication in some of the South Asian Languages.
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Acknowledgements

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[7] **Abbreviations:** Nom-Nominative; Acc-Accusative; Gen-Genitive; Loc-Locative; Prog-Progressive; Perf-Perfective; Asso-Associative; Ind-Indicative; Adv-Adverbial particle; Agr-Agreement; dis.pr-discourse pronominal; prt-particle; cl-classifier; Pl-Plural; Dem-Demonstrative; Nzr-Nominalizer; p-Person; Subj-Subject Marker; Obj- Object Marker; VR-Verbal Reflexive