The defining hallmark of the process of reduplication is that the Base and the reduplicated portion (RED) of the word should have identical pronunciations (Wilbur 1973). As argued in work like Alderete et al (1999) and Niepokuj (1991), deviations from perfect identity typically involve phonological reduction (in the size or featural markedness) of the RED compared to the Base. In one current model of phonological theory, Optimality Theory (OT), these reductions are explained in terms of two morphologically-based asymmetries (McCarthy & Prince 1999, etc.). First, the Base and RED have an asymmetrical relation to the input. The Base – arguably the head of the reduplicative construction – has a direct relation (through I-O correspondence) while the RED has an indirect relationship, via the Base (B-R correspondence). As Alderete et al. (1999) argue, this asymmetrical relationship predicts that the RED can have less marked phonological structure than the Base but not the reverse. (This is what they term the emergence of the unmarked – TETU – effect.) A second source of reduplicative reduction is the morphological category assigned to RED. As argued by Niepokuj (1991), if RED is a major morphological category like Word or Stem, forming a compound with the Base, it is predicted to meet the bisyllabic minimality requirement on these categories. However, if RED is a bound category like Root or Affix, it can be subminimal. Further, as Urbanczyk (1996, 2000) argues, Affixes should be smaller than Roots, containing less marked prosodic and featural structure than Words, Stems or Roots. (This is consistent with other work on Root-Affix markedness asymmetries like Beckman (1998).)

Recent work on tone in reduplication proposes that these two asymmetries also account well for many tonal mismatches between the RED and Base. The RED typically has the unmarked tone (Akinlabi 1997; Alderete et al. 1999), while the Base has the marked tone. And it falls out that the RED has the unmarked tone, if it has the morphological status of Affix, rather than Word, Stem or Root (Myers & Carleton 1996; Hyman & Mtenje 1999). These points are illustrated in the Nupe data in (1), where the reduplicated form is a deverbal noun. As we can see, the RED is always a single CV syllable (no matter how long the Base is) with a fixed high vowel (no matter what height the corresponding Base vowel is) and a Mid tone (no matter the tone of the corresponding Base vowel is):

(1) Nupe verbal reduplication (Akinlabi 1997; Smith 1969); Nupe is a Benue-Congo language spoken in Nigeria
(a) Monosyllabic verbs
   gi ‘eat’        gi-gi ‘eating’
   bé ‘come’       bi-bé ‘coming’
   kpà ‘drizzle’   kpi-kpà ‘drizzling’
   do ‘praise’     du-do/di-do ‘praising’
   tswá ‘take care’ tsu-tswá ‘care’
(b) Polysyllabic verbs
   jákpe ‘stoop’    ji-jákpe ‘stooping’
   gãya ‘be too long’ gi-gãya ‘being too long’
   gòba ‘surround’  gu-gòba ‘surrounding’
   kúta ‘overlap’   ku-kúta ‘overlapping’
As Akinlabi (1997) argues, the fixed [+high] vowel and Mid tone of the RED are predicted TETU effects, as [+high] and Mid tone are the unmarked values for these features. This phonological reduction is expected since RED is clearly an affix, not one half of a compound verb, as it has the function of changing the lexical category of the Base from a verb to a noun.

However, I will show in this talk that these two morphologically-based explanations for tonal mismatches are based on the incorrect assumption that RED can only get marked tonal features by copying them from the corresponding vowel of the Base (or the Input of the Base). In fact, a brief survey of tone and reduplication in some African languages shows that there are two other important sources of RED tone.

First, the reduplicative construction can contribute contrastive tone just like other affixes do. An example of this is provided by the well-known case of Yoruba deverbal noun reduplication (Alderete et al. 1999, Akinlabi 2000, Pulleyblank 1988, etc.). As in Nupe, deverbal nouns are formed by prefixing a CV reduplicant with a fixed [+high] vowel. However, in Yoruba, the prefix has a fixed High tone, no matter what the tone of the Base is:

(2) Yoruba deverbal nouns (Akinlabi 2000, Pulleyblank 1988); Yoruba is a Benue-Congo language spoken in Nigeria
(a) gbóná ‘be warm’ gbí-gbóná ‘warmth; heat’
(b) mu ‘drink’ mi-mu ‘drinking’
(c) dù ‘scramble’ dí-dù/dú-dù ‘scrambling’
(d) là ‘split’ lí-là ‘splitting’
(e) jε ‘eat’ jí-jε ‘act of eating’

As Akinlabi (2000) argues, since Mid tone is the unmarked tone of Yoruba, the High tone on the RED cannot be a TETU effect. Instead, the High tone must be contributed by the input of the reduplicative construction. Strikingly, the Yoruba data show that this can result in RED having the marked feature for tone even when the segmental features for the RED vowel are unmarked (though see Akinlabi 2000 for another view). Further, as examples like (2b, e) show, the RED can have the marked High tone even when the Base has the unmarked Mid tone.

Further, the reduplicative complex, like other morphologically complex constructions, can form a single domain for tone association with the Base, realizing a marked tone contributed by the Base. This is illustrated by verbal reduplication in KiNande, a Bantu language spoken in the DRC. Mutaka & Hyman (1990) show that up to two High tones can be contributed by a verb stem: the lexical stem tone and a grammatical tone found in verb forms like the perfective. The data in (3) shows the four possible combinations of these two tones in unreduplicated and reduplicated verbs. When there is neither a lexical nor a grammatical High tone, as in (3a), there are, unsurprisingly, no High tones in either form.

When there is a lexical High tone, as in (3b), it is realized on the pre-stem vowel in both forms (assuming the RED prefix counts as the left edge of the stem). When there is only a grammatical High tone, as in (3c), there is a High tone on the pre-stem vowel and the stem-initial vowel in both forms. When there is both a lexical and a grammatical High tone, as in (3d), there is a High tone on the pre-stem, antepenult and penult vowels in both forms.
(3) KiNande verbal reduplication (Mutaka & Hyman 1990, p. 102); Stem H + grammatical H; reduplicated form means action is done quickly or here and there.)

(a) ø + ø no H tones on stem
    eri=hum-a ‘to beat’   eri=[huma-huma

(b) H + ø H tone on pre-stem vowel only
    eri=tum-a ‘to send’   eri=[tuma-tuma

(c) ø + H H tone on stem-initial vowel and pre-stem vowel
    mó-tw-a-mú=húm-iré ‘we beat him’ mó-tw-a-mú=[huma-humiré

(d) H + H H tone on pre-stem vowel, penultimate and antepenultimate vowels
    mó-tw-a-mú=túm-íré ‘we sent him’ mó-tw-a-mú=[tuma-túmíré

As Downing (2002a,b) shows, the best explanation for why reduplicated and unreduplicated stems have the same tone pattern is that the RED is the first half of a compound verb stem in KiNande. Compounds often form a single domain for realization of prosody, so it is unsurprising for the grammatical tone pattern of the Base to be realized over the entire compound stem. In stems like (3c), where the stem-initial vowel is a target for High tone association, the RED is assigned the (marked) High tone as it is in initial position in the compound stem. The corresponding Base vowel has an (unmarked) Low tone as it is not in a position which is a target for High tone assignment.

As this brief survey shows, in mismatches between the tone of the Base and the RED it is often the RED which has the marked tone and the Base which has the unmarked tone. Further, REDs which are arguably affixes (2) are just as likely to have the marked tone as REDs which are arguably stems (3). While it might seem very surprising that tone should behave so differently from other features in reduplicative constructions, I argue that two special properties of tone actually predict this. First, tone is an autosegmental feature, and can act as a morpheme independent of segments. As a result, it is expected that even a morpheme without input segmental content like RED can contribute a marked tone melody independent of the Base tone properties. Further, tone is a prosodic feature, regularly associating over a morphologically complex domain, rather than within the morpheme that contributes it. As a result, it is expected that RED can have a marked tone if it is within the association domain of that tone and the Base is not. For these reasons, we do not find the same correlation between reduction in morphological category and reduction in phonological markedness in the tonal properties of REDs that has been found for other phonological properties.

**Selected References**


