PF evidence for Distributed Morphology

Bresnan's (1972) observation that the Nuclear Stress Rule (NSR) applies cyclically is reinterpreted by Legate (to appear) within a phase model of syntax. Legate shows that assuming that the NSR applies at the phase level explains why primary stress in English sometimes moves along with a moved constituent, as in (1), and sometimes does not, as in (2b).

The fact that phases have phonological reflexes with regard to stress makes interesting predictions in a distributed morphology (DM) approach to syntax (Halle and Marantz 1993, 1994; Julien 2002). In that approach, a word may be distributed among several syntactic heads in syntax, appearing at PF as a phonological word only due to adjacency. Given this, we expect phonological reflexes of the phase model to be apparent whenever the morphology of a phonological word is distributed across a phase boundary. In this talk, I examine this prediction with regard to Swahili.

Typical verb forms in Swahili have the morpheme order (Neg)-Agr_s-T-V-Mood. Given a DM-style approach, this order implies a structure like that in (3). Evidence that NegP dominates TP comes from relative clauses. One form of the relative clause results in tense preceding the relative marker as in (4), an instance of T-to-C movement (Harford & Demuth 1999). However, this relative clause form cannot be negated (see (5)), suggesting that Neg blocks T-to-C movement and therefore resides between T and C. Note these facts are also an argument for Kayne's (1994) LCA - adjunction can only be leftward. Were rightward head adjunction possible, Neg would not be a barrier to T-to-C movement as T could right-adjoin to Neg followed by Neg-T left adjoining to C, yielding the correct morpheme order. I therefore adopt the LCA.

Note that in (3) the phase boundary (as defined in Chomsky (2001)) divides the verb form into two domains. Negation, subject agreement, tense, and relative markers in one domain and the verb root and its suffixes (derivational suffixes and mood) in the other. We therefore expect there to be phonological processes that target these domains. I show this is the case with stress assignment and *ku*-epenthesis.

Primary word-level stress in Swahili always falls on the penultimate syllable of a word as can be seen in (6). In most verb forms secondary stress is also clearly detectable, though not as clearly predictable. In (7a) secondary stress falls on an agreement morpheme. In (7b) on a tense morpheme and in (7c) on negation. Note also that secondary stress assignment does not depend on primary stress (compare (7a) and (7c)) or on word boundaries (compare (7a) and (7b)).

Secondary stress assignment can be explained uniformly with primary stress assignment, however, if we assume the framework outlined above. Specifically, while primary stress is assigned to the penultimate syllable of the verb morphemes that reside in the lower (vP) phase, secondary stress is assigned to the penultimate syllable of the morphemes residing in the upper phase. This can be seen in (8).

Another phonological process (*ku* epenthesis) also provides an argument for the approach adopted here. A strong preference for primary stress assignment requires that an epenthetic *ku* be inserted before monosyllabic verbs to receive primary stress. This is seen clearly in imperatives which consist of the verb root only as in (9a). Monosyllabic roots trigger *ku* epenthesis as in (9b).

Given that *ku* epenthesis supports primary stress assignment, my analysis predicts it should take place within complex verb forms whose root is monosyllabic and whose prefixes are in the upper phase. This is born out. In (10a) *ku* epenthesis is needed. This need disappears in (10b) where more phonological weight (an object marker) has been added to the lower phase.

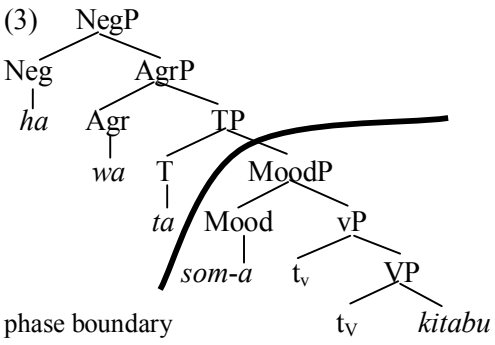
Demonstrating the inadequacy of a non-DM syntax to account for this data, I conclude that these facts constitute a strong argument for a DM view of syntax. I also demonstrate that while phase-internal XP movement has phonological reflexes with regards to the NSR, no such effects are observed in word-level stress assignment. This may suggest that word stress is not assigned at Spell-out, but at a later staged within the PF component, predicting that the notion of phase should be relevant for other phonological processes as well.

(1) Mary liked the **proposal**$_i$ that George left t_i. (Bresnan 1972: 75)

(2a) Please put away **the dishes**.

(2b) Please put the dishes **away**.

(3)



Ha –wa –ta -som-a kitabu
Neg-3pl-fut-read-indic. book
"They will not read the book."

(4) kitabu a -li -cho –soma
book 3s-past-rel-read.indic
"The book that she read."

(5) *kitabu h(a) –a - ku - cho -soma.
book neg -3s-neg.past-rel-read.indic

(6a) A – li- sóma nini?
3s-past-study what
"What did she study?"

(6b) kitabu a-taka-cho-sóma
book 3s-fut-rel-read
"the book that she will read."

(7a) À – li –som - ésha nini?
3s-past-study-caus. what
"What did she teach?"

(7b) kitabu ki-takà-cho-fáa
book agr-fut -rel- be.suitable
"The book which will be suitable."

(7c) Hà - ja - mw-óna leo
neg.3s-perf$_{neg}$-3s$_o$-see today
"She has not seen him today."

(8a) [$_{CP}$À – li][$_{vP}$–som – ésha] nini?
3s-past - study-caus. what
"What did she teach?"

(8b) kitabu [$_{CP}$ki-takà-cho][$_{vP}$ -fáa]
book agr-fut - rel- be.suitable
"The book which will be suitable."

(8c) [$_{CP}$Hà - ja][$_{vP}$ - mw-óna] leo
neg.3s-perf$_{neg}$ - 3s$_o$ -see today
"She has not seen him today."

(9a) Kimbía!
run
Run!

(9b) **Kú**-la!
ku-eat
Eat!

(10a) Ni-ta -**kú**-la nyama.
1s-fut-ku-eat meat
"I will eat the meat."

(10b) Ni-ta – kí -la leo.
1s-fut- obj-eat today
"I will eat it today."