Morphology before phonology: A case study of Turoyo (Neo-Aramaic) *Laura Kalin*

1. Introduction: There are a number of competing approaches to the interface between morphology and phonology. Some models, like many instantiations of Optimality Theory, take morphology and phonology to be computed in the same component of the grammar, simultaneously (e.g., McCarthy & Prince 1993). Other models, like those under the umbrella of Distributed Morphology (Halle & Marantz 1993, 1994), separate morphology from phonology, with all operations that involve morphology preceding those that involve only phonology.

In this paper, I undertake a careful study of the order of operations needed to understand the form of finite verbs in the Neo-Aramaic language Turoyo. Turoyo furnishes several arguments in favor of a DM-like separation of morphology from phonology: (i) suppletive allomorphy that feeds and bleeds phonological operations, taken up in **§3** below; (ii) phonological infixation that counterbleeds morphological operations but feeds/bleeds phonological operations, **§4**; and (iii) phonologically-conditioned allomorphy that is anti-optimizing, **§5**.

2. Background: Turoyo is a Neo-Aramaic language originally spoken in southeast Turkey. Turoyo has rich verbal morphology, especially in terms of agreement. Illustrative examples are given in (1). The bold italic letter in the agreement glosses indicates different paradigms/patterns of agreement: (i) the **"base" set** (B), closest to the verb base, encodes (maximally) the # and GENDER of an argument; (ii) the **"simple" set** (S) encodes (maximally) the π and # of the same argument indexed by B; and (iii) the **"*l*-initial" set** (L) encodes (maximally) the π, #, and GENDER of a different argument than B/S. ***Pronunciations are in bold italics.*** *(All data presented come from Jastrow's (1993) grammar.)*

(1) a. zəbṭ   -o   -t   -l-e (=***zəbṭatle***) b. gaḥik   -o   -no (=***gaḥikono***)
          catch.PRS -**B**F.SG -**S**2SG -**L**-3M.SG   laugh.PFV -**B**F.SG -**S**1SG
          'you (fem. sg.) catch him' (p. 135)   'I (fem.) laughed' (p. 129)

In (1): B/S index the subject (red); L indexes the object (blue); and we can observe the phonological alternation in (2) by comparing the surface form of BF.SG -*o* in (1a) vs. (1b).

(2)   LOWERING: o → a / __C]$_\sigma$ (= *o* becomes *a* in closed syllables)

Two cases of allomorphy (involving the -*l* of the L set and the PL B morpheme), in conjunction with several phonological alternations, enable us to explore the timing of the verbal derivation.

3. Morphology feeds and bleeds phonology: Each member of the L set of suffixes consists of an *l*- morpheme (a locative/dative P) plus a so-called "personal suffix" (which also distributes independently). The L morpheme has three allomorphs, given in (3).

(3) L → -*n* / PL__C   (= -*n* when following a plural feature and preceding a consonant)
              -*C* / __C   (= empty C slot when preceding a consonant)
              -*l* /   (= -*l* elsewhere)

The choice of allomorph from (3) may feed or bleed the following phonological processes:

(4) a.   ASSIMILATION: Empty C slots realize the features of an immediately preceding cons.
    b.   SHORTENING: Long consonants shorten when immediately adjacent to another cons.

We see the default form of L, -*l*, in (1a). (5a-b) both show one conditioned form, -*C*, which assimilates to the preceding consonant (undergoes (4a)), and then shortens (undergoes (4b)). (Note that the 3PL personal suffix can be independently established to be -*Ce*.)

(5) a. zəbṭ   -∅   -ət   -C-Ce(=**zəbṭətte**)   b. nšəq   -∅   -∅   -C-xu (=**nšəqxu**)
   catch.IMPF -*B*M.SG -*S*2SG -*L*-3PL   kiss.PFV -*B*M.SG -*S*3 -*L*-2PL
   'you (masc. sg.) catch them' (p. 135)   'you (pl) kissed him' (p. 130)

The choice of the -*C* allomorph, (5), feeds both phonological processes in (4). On the other hand, the choice of the -*n* allomorph bleeds the assimilation of the *L* morpheme to the preceding consonant, (6a-b). Note that (6b) shows us also that (5) cannot be accounted for simply via deletion of any medial consonant in a CCC sequence; rather, ə-epenthesis breaks up non-homorganic CCC clusters. (Vowel deletion to resolve hiatus is also seen in (6).)

(6) a. zəbṭ   -i   -ut   -n-Ce(=**zəbṭutne**)   b. zəbṭ   -i   -ut   -n-xu(=**zəbṭutənxu**)
   catch.IMPF -*B*PL -*S*2PL -*L*-3PL   catch.IMPF -*B*PL -*S*2PL -*L*-2PL
   'you (pl) catch them' (p. 135)   'you (pl) catch yourselves' (p. 135)

4. Phonological infixation counterbleeds morphology: Past tense in Turoyo is marked with a suffix, -*wa*, whose position is variable. -*Wa* seems to morphologically "start" between the verb stem and the *B* suffix, but then linearizes as an in(ter)fix, floating to its right to appear before (simplifying somewhat) the closest syllable boundary. Given -*wa*'s surface position, we might expect it to interfere in (bleed) the conditioned allomorph choice in (3), in particular by blocking the plural environment of -*n*; surprisingly, however, this is not what we see: -*n* still surfaces, (7); -*wa* <u>counterbleeds</u> allomorph choice (and bleeds shortening).

(7) a. zəbṭ   -wa -i   -ut   -n-Ce   (=**zəbṭutwanne**)
   catch.IMPF -PST -*B*PL -*S*2PL -*L*-3PL
   'you (pl) used to catch them' (p. 135)

Whereas -*wa* does not look like it is in its surface position with respect to allomorph choice (it is ignored), it <u>does</u> look like it is in its surface position w.r.t. phonological rules, (8)-(9).

(8)   nəšq   -wa -o   -∅   -C-Ce   (=**nəšqowalle**)
   kiss.IMPF -PST -*B*F.SG -*S*3 -*L*-3PL   (cf. **nəšqalle** 'she kisses them')
   'she used to kiss them' (p. 133)

(9)   nšəq   -wa -∅   -∅   -C-Ce   (=**nšəqwalle/**
   kiss.PFV -PST -*B*M.SG -*S*3 -*L*-3PL   ***nšəqwaqqe**)
   'they had kissed him' (p. 155)   (cf. **nšəqqe** 'they kiss him')

(8)/(9) show that -*wa*'s placement bleeds lowering, assimilation, and shortening. (Note that it is also now necessary to posit that an empty C that survives to the end surfaces as -*l*.)

5. Anti-optimizing suppletive allomorphy: When the *B* agreement morpheme indexes a plural argument, it shows up as the allomorph -*i* elsewhere (as seen above in (6)/(7) and in (10a)), but as the suppletive allomorph -*ən* in closed syllables; notably, the choice of -*ən* actually <u>creates</u> a phonotactic violation, CCC, which must be repaired by shortening, (10b).

(10) a. gaḥik   -i   -∅ (=**gaḥiki**)   b. nəšq   -ən   -∅   -n-xu (=**nəšqənxu**)
   laugh.PFV -*B*PL -*S*3   kiss.IMPF -*B*PL -*S*3 -*L*-2PL
   'they laughed' (p. 129)   'they kiss you (pl)' (p. 127)

A prediction is made here that -*wa* should not block even this phonologically-conditioned allomorphy, and this is borne out: **nəšqənwanxu** ('they used to kiss you (pl)'; p. 134).

6. Implications: Crucially, to understand the data above, we need to recognize the following order of operations: 1. allomorph choice, 2. phonological infixation, 3. phonological rules.