**Morphological conspiracies in Georgian agreement**

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**Introduction** • Within the domain of phonology, a conspiracy is a collection of processes that are motivated by a single constraint on surface forms. A classic example comes from Yawelmani Yokuts, where vowel shortening (1a), epenthesis (b), and deletion (c) conspire to ensure that syllables are maximally bimoraic.

\[(1)\]
\[
\begin{align*}
(a) & \quad \text{V} \rightarrow \text{V/ \_C} \_ & /\text{a}:\text{p-hin/} & \rightarrow [\text{saphin}] \text{‘burn-NFUT} & \text{ (Adapted from Kisseberth 1971)} \\
(b) & \quad \emptyset \rightarrow \text{i} / \_C \_C \_ & /\text{pa}^\text{\_t-hin/} & \rightarrow [\text{pa}^\text{\_t\_h}] \text{‘fight-NFUT} \\
(c) & \quad \text{V} \rightarrow \emptyset / \text{V C} \_ & /\text{taxa-\_k-a/} & \rightarrow [\text{taxak}] \text{‘bring-IMPER}; \text{ cf.} /\text{xat-k-a/} & \rightarrow [\text{xatk\_a}] \text{‘eat-IMPER}
\end{align*}
\]

Conspiracies like these are a major argument for an OT grammar in phonology. The rules in (1) miss out on an important generalization; they don’t reference syllable size. But an OT analysis can refer to it directly with a high-ranked constraint like *σ_{syll}, thereby capturing the motivation behind the conspiring processes.

In this paper I identify a morphological conspiracy in Georgian, and use it to argue that the morphological grammar should also be optimizing. The language’s agreement system again and again conspires against Multiple Exponence (ME) — the presence of more than one morpheme in a word exponing a single feature. Abstractly, when probes X^0 and Y^0 both Agree with a single argument for feature [F], and morphemes α and β can spell out [F] on X^0 and Y^0 respectively, ME of [F] is avoided by blocking the insertion of α or β.

Within Distributed Morphology (DM; Halle & Marantz 1993), such blocking relationships can be derived through postsyntactic operations (e.g. impoverishment). But just like the rules in (1), such operations cannot capture the generalization that motivates them. Therefore, building on previous work in OT morphology (Trommer 2001, Wolf 2008, Caballero & Inkelas 2013), I propose that Vocabulary Insertion is mediated by ranked, violable constraints, thus making it possible to capture morphological conspiracies.

**A conspiracy against ME** • Georgian has an intricate agreement system (see Aronson 1995 for a detailed description), with three slots on the verb that reflect arguments’ φ-features (2): a prefixal slot for Subject/Object agreement, a slot for portmanteau suffixes combining TAM features and the SU’s φ-features, and a slot for a suffix (−t ‘PL’) that agrees omnivorously with a plural SU or Ob (Béjar 2003, Nevins 2011). I will call the terminals that these morphemes spell out π^0, T^0, and #^0, respectively.

\[(2)\]
\[
\begin{array}{cccc}
\text{prefix (π^0)} & \text{stem (V^0…)} & \text{TAM suffix (T^0)} & \text{PL suffix (#^0)}
\end{array}
\]

As alluded to above, blocking relationships between certain agreement morphemes prevent ME that would otherwise be expected. Take the following example. (For clarity, colors indicate correspondence between arguments and morphemes.) In (3a) the 2PL.Ob triggers affixes both at π^0 (g~ ‘2.Ob’) and #^0 (−t ‘PL’). In (3b), however, a prefix alone (gv~ ‘1PL.Ob’) suffices. Intuitively, the suffix −t ‘PL’ is blocked to avoid multiply exponenting the Ob’s [PL] feature; −t ‘PL’ would be redundant together with gv~ ‘1PL.Ob’.

\[(3)\]
\[
\begin{align*}
& \text{(a) man g-nax-a-t} & & \text{ikven} & & \text{3SG.ERG} & & 2.\text{OB-saw-3SG.SU-PL} & & 2\text{PL} & & \text{3SG.ERG} & & 1\text{PL.Ob-saw-3SG.SU(-^*PL)} & & 1\text{PL} \\
& \text{‘S/he saw you.PL’} & & \text{‘S/he saw us’}
\end{align*}
\]

The suffix −t ‘PL’ can also be blocked in SU agreement. (4a) shows that both T^0 (spelled out by −e ‘AOR:1/2.SU’) and #^0 (−t ‘PL’) can Agree with SUs. Yet, if the exponent of T^0 already expresses the SU’s [PL] feature, as −es ‘AOR:3PL.SU’ does in (4b), −t ‘PL’ is blocked, again avoiding ME.

\[(4)\]
\[
\begin{align*}
& \text{tkven nax-e-t} & & \text{is} & & \text{2PL} & & \text{saw-1/2.SU-PL} & & 3\text{SG.ABS} & & \text{3PL.ERG} & & \text{saw-3SG.SU(-^*PL)} & & 3\text{SG.ABS} \\
& \text{‘You.PL saw him/her’} & & \text{‘They saw him/her’}
\end{align*}
\]

Finally, (5a) and (b) show that the prefixes v~ ‘1.SU’ and g~ ‘2.Ob’ indicate that π^0 Agrees with 1ST SUs and 2ND Obs, respectively. So in 1.SU>2.Ob clauses, either prefix might be licensed in principle — yet only g~ ‘2.Ob’ surfaces (5c). I argue this too is a case of ME avoidance. Since T^0 independently Agrees with the SU (as the TAM suffix −e ‘AOR:1/2.SU’ indicates), the choice of Ob agreement over SU here avoids ME of the SU’s φ-features. The blocking relationships in (3)–(5) constitute a conspiracy against ME.
Optimal VI • To account for the morphological conspiracy illustrated above, I propose that Vocabulary Insertion (VI; the operation that links abstract syntactic terminals to phonologically contentful morphemes) is optimizing. VI is mediated not by the Subset Principle, as it is in DM, but rather by ranked, violable constraints which are sensitive to morphosyntactic features on terminals/morphemes, or correspondence relationships between them. These include faithfulness constraints like MAX[φ] (which assigns a violation for every φ-feature borne by an input X^0 not exponed by some output morpheme) and markedness constraints like *ME (which assigns a violation for every multiply exponed feature in a word).

To illustrate, consider a 3SG>1PL clause (3b). During the syntax, the terminals that will compose the verb collect arguments’ features via Agree, and form a complex head via head movement. This serves as the input to VI (6). Output candidates are generated by freely associating input terminals with morphemes in the language’s lexicon; two relevant candidates are *gv-nax-a-t (6a) and gv-nax-a (b). The first violates *ME once (since –t ‘PL’ and gv– ‘1PL.Ob’ together multiply expone the Ob’s [PL]), and MAX[φ] x times (where x is the total number of φ-features which are borne by n^0, T^0, and #^0 in the input, but not exponed by this candidate; the precise value of x is not crucial). The second candidate avoids a *ME violation at the cost of an extra MAX[φ] violation (so gv-nax-a receives x+1 violations since it fails to expone all the input φ-features that *gv-nax-a-t does, plus one more, as it lacks the –t ‘PL’ that would also expone #^0’s [PL]).

Thus ranking *ME over MAX[φ] means that that gv-nax-a (6b) is the most optimal way to spell out this verb. The same ranking also correctly predicts that –t ‘PL’ will not be inserted for verbs with 3PL.SUs (4b), and that g– ‘2.Ob’, rather than v– ‘1.Ob’ is appears in 1.SU>2.Ob contexts, thereby capturing the conspiracy against ME. Similar constraint interactions derive other peculiarities of the agreement system.

Conclusion • Contemporary linguistic theories typically propose a feature-driven derivational grammar for syntax (Chomsky 1993 et seq.) and a constraint-based optimizing grammar for phonology (Prince & Smolensky 1993/2004 et seq.). If syntax precedes phonology, there must be a handoff between these frameworks at some point in the derivation. In this paper, I propose that the handoff is earlier that typically assumed — namely, that optimization begins in the morphological component. A major theoretical advantage to this approach is the ability to elegantly capture morphological conspiracies, which DM-style postsyntactic operations lack.