Phonologically Conditioned Affix Order in Washo

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Outline: Paster (e.g. 2006, 2009) has claimed that phonologically conditioned affix order does not exist and that all putative cases reduce to segmental metathesis or some form of infixation. In this talk, I show that Washo (isolate, North America, Jacobsen 1964) is a counterexample to this generalization and that the Washo data cannot be captured in a phonological subcategorization framework as proposed by Paster. I argue that in Washo, unexpected affix orders arise due to a constraint against stressed stem-final syllables. I analyze the complex non-transitive pattern of affix orders in the language as the result of a conflict between morphological alignment constraints and phonological constraints on prosody such as NONFINALITY (making this a $P(honological) \gg M(orphological)$ analysis, cf. McCarthy & Prince 1993). I claim that Stratal OT can model the morphology-phonology interface in such a way that the controversial phenomenon is predicted and readily accounted for. **Data:** Affix order in the Washo verb was analyzed as phonologically conditioned as early as Jacobsen (1973), from where all of the following data were taken. Accented vowels (e.g. á) indicate inherent stress on the corresponding syllable.

(1) ge-yúli-é:s-ha
IMP-die-NEG-CAUS
"Don't kill it!"

The relative order of Negative *-é:s* and Causative *-ha* in the non-finite Imperative in (1) is unexpected for two reasons. Firstly, the Causative typically follows the verbal root directly in Washo (see discussion of finite verbs below for an argument of this type in more detail) . Secondly, (1) is semantically opaque and violates the Mirror Principle (Baker 1985), to get the reading "Don't kill it!" (as opposed to "Cause it not to die!"), we would expect the suffixes to appear in opposite order. We observe a similiar phenomenon in finite verbs, which include an additional class of suffixes to mark categories such as tense and mood.

(2) léme?šiyáša?i
le-íme?-ši-áša?-i
1SBJ-drink-DU.INCL-NEAR.FUT-IND
"We (both of us) are going to drink."

(3) léma?áša?é:si
le-íme?-áša?-é:s-i
1SBJ-drink-NEAR.FUT-NEG-IND
"I am not going to drink."

(2) shows the Dual Inclusive morpheme *-ši* preceding the Near Future marker *-áša?*. Near future *-áša?* in turn precedes the Negative *-é:s* in (3). From this, a researcher attempting to formulate a template for the Washo verb might infer this order: DU.INCL-NEAR.FUT-NEG. However, we find that the obvious prediction, that the Dual Inclusive *-ši* should precede the Negative *-é:s* when they co-occur, is not borne out, (5) is ungrammatical, instead, we find (4).

(4) léme?é:silegi
le-íme?-é:s-ši-leg-i
1SBJ-drink-NEG-DU.INCL-REC.PST-IND
"We (both of us) didn't drink."

(5) * léme?šiyé:slegi
le-íme?-ši-é:s-leg-i
1SBJ-drink-DU.INCL-NEG-REC.PST-IND
"We (both of us) didn't drink."

(4) and (5) illustrate the puzzle which is at the center of this talk. We observe that DU.INCL and NEG appear in unexpected order: DU.INCL-NEAR.FUT and NEAR.FUT-NEG but NEG-DU.INCL. Affix order in the Washo verb is *non-transitive* (terminology c.f. Ryan 2010). **Analysis:** I argue that in non-finite verbs such as (1), the expected *ge-yúli-ha-é:s is indeed the underlying order (in the sense that it is preferred by morphological alignment constraints). However, the suffixes change order to avoid a violation of the high-ranked phonological constraint NONFINALITY, which is violated by a stressed syllable in PrWd-final position. Interestingly, the data from finite verbs can be captured by the same mechanism under the assumption that the additional suffixes in finite verbs

are added on a seperate stratum. I propose an analysis of the data as phonologically conditioned affix order in the framework of Stratal Optimality Theory. Stratal OT introduces a way to model opacity in Optimality Theory by relating it to the size of the domain in which the relevant phonological process applies (see e.g. Kiparsky 2000). I argue that the observed change in affix order results from a constraint against stressed final syllables, a version of NONFINALITY, the effect of which is only visible at the stem level. I show that the addition of (unstressed) additional suffixes in the Washo finite verb counterbleeds that change. On the first stratum, stressed stem-final syllables are avoided. Because MAX-STRESS is ranked even higher than NONFINALITY, de-stressing the final syllable is not an option as a repair strategy. Instead, the language shifts around the suffixes in the manner described in the previous section. The "expected" transitive order of affixes is encoded by a series of affix-specific alignment constraints which align the right edge of a suffix with the right edge of the prosodic word (c.f. McCarthy & Prince 1993). In cases of multiple suffixation, the suffixes are unordered in the input, the order of suffixes is determined by the ranking of these alignment constraints, violated once for every morpheme intervening between the suffix and the right edge. Crucially, however, in this $P \gg M$ analysis, the phonological constraints NONFINALITY and MAX-STRESS outrank them. They thereby override the morphologically preferred pattern of alignment, producing the non-transitive pattern. In (3), the process is blocked by *CLASH, which is undominated in Washo. As an example, the stem-level evaluation of (4) is shown in (6).

(6)

/íməʔ/, /ši/, /éːs/	MAX-STRESS	NONFINALITY	É:S-R	ŠI-R
a. íməʔ-ši-éːs		∗!		∗
☞ b. íməʔ-éːs-ši			∗	
c. íməʔ-ši-es	∗!			∗

Only after this stem-level evaluation, where the optimal candidate may display a change in affix order due to the constraint NONFINALITY, is a second batch of affixes added to form finite verbs. These word level affixes are never stressed and therefore do not interact with the phonological constraints from before. The crucial difference between the two strata is not the ranking of the constraints, but the absence of certain affixes at the stem level. **Discussion:** I show that the relevant facts fall out in a fairly simple constraint system in Stratal OT. A phonological subcategarization approach where *-é:s* subcategorizes for a foot to its left (as proposed in Paster 2006) fails.

(7) léməʔášaʔéːshuyi
le-íməʔ-ášaʔ-éːs-hu-i
1SBJ-drink-NEAR.FUT-NEG-PL.INCL-IND
"We (incl.) aren't going to drink."

There are two affix orders predicted by the subcategorization approach. It either puts the "infixed" stressed affix (Negative *-é:s*) next to the root, followed by the previously root-adjacent Plural Inclusive *-hu*, followed by *-ašaʔ*, or, if *-ášaʔ* qualifies as a foot for which to subcategorize, it does not change the "expected" affix order at all. Neither of these options correspond to (7). The approach cannot explain the change from the expected respective order of *-hu* and *-ášaʔ* by infixing. The problem cannot be solved by giving the same subcategorizational requirement to *-ášaʔ,* compare (2). I conclude that Paster wrongly dismisses Washo as a counterexample to her generalization that truely phonologically conditioned affix order (in the sense that it cannot be reanalyzed as segmental metathesis or infixation) does not exist.

Selected References: Jacobsen, William H. (1964): A grammar of the Washo language. PhD thesis, University of California, Berkeley • Jacobsen, William H. (1973): A rhythmic principle in Washo morphotactics. Presentation at Symposium on California Indian Linguistics • Kiparsky, Paul (2000): 'Opacity and cyclicity', The Linguistic Review 17, 351–365 • McCarthy, John J. and Alan Prince (1993): Generalized Alignment. In: G. E. Booij and J. van Marle, eds, Yearbook of Morphology 1993. Kluwer, Dordrecht, p. 79–153 • Paster, Mary (2009): 'Explaining phonological conditions on affixation: Evidence from suppletive allomorphy and affix ordering', Word Structure 2, 18–47 • Ryan, Kevin M. (2010): 'Variable affix order: grammar and learning', Language 86, 758–791