

Spanish secondary stress without gradient alignment

Recent theories of metrical structure differ starkly in whether feet can be aligned gradiently (McCarthy & Prince 1993, Gordon 2002, Hyde 2002) or only categorically (Kager 2001, 2005, McCarthy 2003, Buckley 2009). Particularly challenging for categorical theories are apparent cases of the initial-dactyl effect combined with End Rule Right. Here all feet align rightward except for the leftmost (1-3). In long words, medial feet have to be forced rightward, but they are not adjacent to an edge and categorical alignment cannot determine their placement. If the leftmost foot is the main stress (End Rule Left), then this fact can be used to force a lapse adjacent to that main foot, generating the effect without gradient directionality (Kager 2001). But certain languages show an initial-dactyl effect with a final main foot, in which case the positioning of the lapse cannot be controlled in this way.

A solution in some cases may be reference to cyclicity or underlying stresses in loanwords, as in Indonesian (*àme*)*ri(kàni)(sási)* ‘Americanization’; this initial-dactyl pattern has been reported only in Dutch borrowings. In a similar but productive Spanish pattern, the medial secondary stress in (1) can be described by a traditional cycle or by output-output faithfulness (Benua 1997), based on (*gràma*)*ti(cál)* ‘grammatical’. But Hyde & McCord (2012) show that forms like those in (2) cannot be handled by faithfulness to stress on a previous cycle (or to a morphologically contained surface form).

(1) (<i>gràma</i>) <i>ti(càli)(dád)</i>	‘grammaticality’
(2) (<i>màte</i>) <i>ma(tìci)(dád)</i>	‘mathematicity’
(<i>nàtu</i>) <i>ra(liza)(ción)</i>	‘naturalization’
(<i>Tlàtla</i>) <i>u(quíte)(péci)</i>	municipality in Puebla state, Mexico

The words in (2) lack the necessary internal constituents for a cyclic account; for example, the base form (*màte*)*(màti)co* ‘mathematical’ wrongly predicts *(*màte*)*(màti)ci(dád)*, and loanwords have no internal cycle. Hyde & McCord claim that these data show the need for gradient directional alignment. It turns out, however, that a more complete account of Spanish stress makes such gradience unnecessary.

Several descriptions of Spanish secondary stress (Harris 1983, Roca 1986) report two variants: one, more colloquial, that follows the initial-dactyl pattern (3), and another, more formal, in which feet are fully aligned to the right (4). Harris reports this as one of several “firmly established” generalizations regarding Spanish stress. (Hyde & McCord mention the second pattern, but do not analyze it.)

(3) (<i>gène</i>) <i>ra(tívo)</i>	(4) <i>ge(nèra)(tívo)</i>	‘generative’
(<i>gràma</i>) <i>ti(càli)(dád)</i>	<i>gra(màti)(càli)(dád)</i>	‘grammaticality’
(<i>Cònstan</i>) <i>ti(nópla)</i>	<i>Cons(tànti)(nópla)</i>	‘Constantinople’
(<i>cònstan</i>) <i>ti(nòpo)(liza)(ción)</i>	<i>cons(tànti)(nòpo)(liza)(ción)</i>	‘Constantinoplization’

In addition, secondary stress interacts with phrasal context in a way that requires a further dimension to the analysis. In (5) the initial dactyl is found across a phrase (Navarro Tomás 1977); and in (6), word-internal footing will pattern like (4) if a syllable is added to the left within the phrase (Roca 1986).

(5) (<i>sòbre</i>) <i>la (frénte)</i>	‘on the front’
(<i>pòr la</i>) <i>ma(ñána)</i>	‘in the morning’
(6) (<i>en Cons</i>) <i>(tànti)(nópla)</i>	‘in Constantinople’
(<i>là cons</i>) <i>(tànti)(nòpo)(liza)(ción)</i>	‘the Constantinoplization’

I show in this paper that a fuller analysis taking these facts into account is not only more empirically adequate, but also eliminates the argument for gradient directionality in (2).

The essential insight is that the formal pattern in (4), with right-alignment of all feet, characterizes the lexical derivation. At the phrasal level, a new trochaic foot is left-aligned with a prosodic phrase that has been constructed over an XP. In some cases, this new foot does not disrupt existing structure (5-6). But if the lexical word is initial in the prosodic word, as when a word occurs in isolation (3-4), there is variation in whether the lexical foot structure is fully retained. In colloquial style, the left-aligned foot overrides

faithfulness to the secondary stresses from lexical foot structure; but in formal style, faithfulness wins. Of course, higher faithfulness must hold for the main stress, since it is not shifted phrasally in short words.

Any serious theory of phonology requires some account of the difference between lexical and phrasal patterns. Within the general constraint-based approach that Hyde & McCord employ, this could involve two ordered Gen operations, in the style of Stratal OT (Kiparsky 2000, Bermúdez-Otero 2011); or it could be implemented as a single input-output derivation that includes reference to the stresses of words in other contexts (Benua 1997). This means that, while Hyde & McCord are correct that faithfulness to morphologically defined bases such as (*màte*)(*máti*)*co* will not generate the Spanish data with categorical alignment, the answer nonetheless lies in a faithfulness that they do not consider, that between the lexical and phrasal components, or between a word and its realization in a different output context.

The literature has often been vague or uncertain about the status of secondary stresses in Spanish. Although the pattern of variation described here is valid for at least some speakers, questions remain. For example, published descriptions are not clear on the status of a potential output such as *en* (*Cònstan*) *ti(nópla)*, but this variant form can easily be generated by a different prosodic word structure — *en* might be adjoined or incorporated — or by aligning the phrase-level foot with the inner prosodic word rather than the larger prosodic phrase. This choice would then be affected by pragmatic or stylistic conditions.

If there are particular dialects, or individual grammars, of Spanish in which the “formal” stress pattern is completely non-existent, this simply means that for such speakers phrasal left-alignment is obligatory (i.e., alignment dominates faithfulness without variation). In any theoretical model that includes both a lexical and a phrasal representation — or the correspondence equivalent — this derivation will be available to the learner. In a theory that also permits gradient directionality, a form such as (*màte*)*ma(tíci)(dád)* has two possible derivations, and the power of gradient alignment is redundant and excessive.

The existence of phrasal alignment does change the typological predictions of Kager (2001), who relies on a single step of metrical evaluation for his claims. But the complexities of the world’s stress systems suggest that these predictions are too restrictive and cannot be sustained (Buckley 2009). I propose that we exploit the already necessary power of the lexical / phrasal distinction, independently motivated by decades of research. Under this analysis, the metrical system itself remains more restricted, without resorting to the computational and formal complexity of gradient alignment.

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