

As proud the head with heavy feet: Restrictions on structure are in Gen

Curt Rice
University of Tromsø

The coincidence of the rise of Optimality Theory with the decline of the study of phonological structure is largely due to the Gen-defining principle of *freedom of analysis*, a dictum asserting that ‘any amount of structure may be posited’ (McCarthy and Prince 1993: 21). This proposition leads to claims à la ‘[t]he Gen function for syllable structure should admit every conceivable structure, with every conceivable array of affiliations and empty and filled nodes’ (Prince and Smolensky 1993: 26).

Researchers seldom—perhaps never—impose the burden of such freedom upon their analyses, instead implicitly assuming nontrivial restrictions on Gen, i.e. some theory of phonological structure. These assumptions often remain not only undeclared but even denied, awarding instead to Con and Eval comprehensive responsibility for the characterization of phonological generalizations. Insofar as the discovery of specific constraints is guided by the structural properties of the candidate set, the disregard shown for Gen as the repository of restrictions on structure cripples the OT research program.

Rice (2006) elaborates on these issues via a discussion of ternary rhythm, arguing that an *emergent* analysis using binary feet—drawing only on independently motivated constraints—is essentially impossible, contra Elenbaas and Kager (1999) (who offer an OT implementation of Hayes’ 1995 *weak local parsing*). Rice demonstrates that ternary feet must either be ruled out in Gen or else that there must be a constraint specifically devoted to their elimination. (See Rice’s §5 for arguments that FOOTBINARITY is not adequate for this task.) With neither of these options employed, ternary feet will often be optimal.

While Rice weighs the relative merits of anchoring analyses in Gen or Con, he stops short of advocating a particular analysis of ternary stress. This presentation builds on the general perspective in that paper, but moves beyond it to make a precise proposal about the necessary properties of Gen, and an argument for a specific analysis of ternary systems.

Our proposal is that metrical feet are restricted in Gen to having one head and one non-head, such that feet are maximally binary (Dresher and van der Hulst 1998). The desideratum that amphibrachs (Levin 1985; Halle and Vergnaud 1987) be ruled out is thereby achieved in Gen; they have two non-heads and therefore never appear as candidates to be evaluated. Ternary rhythm nonetheless can emerge as a consequence of two potential properties of feet. First, one type of foot—the so-called *obligatory branching foot* (Hayes 1980; Hammond 1986)—requires that heads are heavy. Secondly, feet can be built on morae. A foot with both these properties is structurally binary, with a head spanning either one heavy or two light syllables, along with a light non-head. The iteration of such feet yields candidates showing ternary rhythm (Dresher and Lahiri 1991; Rice 1992; Rifkin 2003). These candidates are shown to be optimal under certain rankings of independently motivated constraints. Their non-optimality in many languages is argued to follow from a straightforward extension of syllable integrity (Blevins and Harrison 1999; Everett 1999) requiring that both morae of a head be in the same syllable. This approach achieves the significant typological result of predicting that iterative ternary rhythm maximally spans three morae, not three syllables, a generalization which holds of all known cases of ternary rhythm.

The analysis is illustrated both with classic cases of ternary rhythm—Cayuvava (Key 1961, 1967) and Chugach (Leer 1985)—as well as newer cases, including Tripura Bangla (Das 2001; Houghton 2006).

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