

French phrasal phonology in a derivational model of PF

Within the widely accepted framework of prosodic phonology (Nespor and Vogel 1986, Selkirk 1986, Inkelas 1989, *inter alia*), it is assumed that phonological rule domains belong to a strictly layered hierarchy of derived prosodic constituents. A number of case studies have demonstrated that languages vary considerably with respect to how this structure is derived, particularly at the Phonological Phrase (ϕ) level: not only is the ϕ associated with different syntax-to-phonology mapping algorithms across languages (Inkelas and Zec 1995), but some languages have ‘flexible’ ϕ -level rules whose domains fluctuate in size depending on *nonsyntactic* factors, such as tempo and prosodic weight (Beckman and Pierrehumbert 1986; Jun 1996, 1998). While prosodic hierarchy theory can technically accommodate such interlanguage variation (e.g., within an OT model (Selkirk 2000; Truckenbrodt 1995, 1999; *inter alia*)), it maintains that ϕ -level rules should *not* vary in this way within a single language. Instead, rule domains should be parsed in accordance with what we call the **containment prediction**: if a language has two phrasal rules applying to different domains, then one domain should consistently and exhaustively contain the other (Figure 1). The containment prediction follows automatically from the fundamental claim that utterances are parsed into a hierarchically arranged set of domains (cf. the ‘inviolability’ of the Layeredness and Headedness tenets of the Strict Layer Hypothesis (Selkirk 1995)). This paper presents new data showing that the containment prediction fails to be borne out in French, thus forcing a reevaluation of some of the core aspects of prosodic hierarchy theory.

In addition to the well-known segmental rule of liaison, French has tonal processes that group words together—specifically, final prominence (increase in pitch and duration) is regularly assigned to the final non-schwa syllable of a *phrase* (Di Cristo 1998; Féry 2003; Gussenhoven 2004; Jun and Fougeron 2000, 2002). Interestingly, it has been suggested that while tonal phrasing is sensitive to tempo and prosodic weight (with larger domains formed in faster speech) (Fougeron and Jun 1998), liaison domains do not vary under these conditions (Selkirk 1986). To test whether the containment prediction is upheld with respect to these two domains, we had native Parisian French speakers read a series of constructed news reports containing 44 potential liaison environments at self-defined normal, slow, and fast rates. Our study confirmed that liaison and tonal domains vary under distinct conditions—tonal domains consistently increased in size with speech rate while liaison domains did not. Moreover, since we examined the two rules in tandem, we were able to establish an important further finding: namely, **the containment prediction was not borne out**. Instead, tonal domains were sometimes larger and sometimes smaller than liaison domains. A slow-speed rendition of *jolis anciens appartements* contained a single liaison domain and multiple tonal domains, for example, while a fast-speed rendition of *corpuscules bleus irritants* comprised a single tonal domain and multiple liaison domains (Figure 2).

These facts necessitate a revised theory of PF, one which allows different rule domains to be determined independently of each other. This move is motivated by similar phenomena in other languages: attested cases of ‘misaligned’ domain boundaries in Xiamen (Chen 1987), Luganda and Yoruba (Seidl 2001), for example, provide further evidence that rule domains are not all parsed under the same conditions. We argue that these situations arise because there are **different stages of phonological domain formation** in an articulated model of PF. This hypothesis is based on the idea that syntactic structures are converted into phonetic strings by a series of ordered operations (linearization, rebracketing, concatenation, etc.; see e.g. Embick and Noyer 2004). A central claim of such models is that different kinds of information are available at different stages in PF. Under our hypothesis, domains for ‘stable’ rules like liaison are formed *early* in the derivation, based on information available in the morphosyntax, while domains for ‘flexible’ rules are formed *late*, influenced by the metrical properties of linearly adjacent items. Since the two types of domains are formed at different stages, they are not necessarily predicted to be in a strict hierarchical relationship. This model provides a natural account of attested hierarchy violations in French, Xiamen, and Bantu. In a more global sense, our treatment provides some explanation for the fact that different kinds of phrasal rules are conditioned by different sets of factors—a situation that is neither predicted nor explained within prosodic hierarchy theory.

