Lingua 121 (2011) 1631–1648

Contents lists available at ScienceDirect

Lingua

journal homepage: www.elsevier.com/locate/lingua

Disambiguating Yorùbá tones: At the interface between syntax, morphology, phonology and phonetics

Ọládiípò Ajíbóyè [a], Rose-Marie Déchaine [b], Bryan Gick [b], Douglas Pulleyblank [b,*]

[a] University of Lagos, Nigeria
[b] University of British Columbia, Canada

ARTICLE INFO

Article history:
Received 9 March 2009
Received in revised form 26 May 2011
Accepted 28 May 2011

Keywords:
Tone
Interface
Morphosyntax
Mophophonology
Phonetics
Yoruba

ABSTRACT

This paper considers a particular type of tonal behavior in Yorùbá with the goal of testing whether syntactic and phonological domains converge or diverge. We consider two types of syntactically conditioned phonological rules: (i) the appearance of phonological elements not present lexically (epenthesis/insertion), (ii) the loss of phonological elements (deletion). These types of rules are often tightly interconnected as the (apparent) loss of one element may involve the appearance of some other element. The cases we consider here involve two Yorùbá tone rules whose surface effect is to change a lexically specified tone (or tone sequence). One of the rules is syntactically conditioned in that it applies across a phrasal boundary; the other rule is morphologically conditioned in that it applies within the word/X^0 domain. The two tone rules are conditioned by two distinct domains, namely syntax (the phrasal domain) versus morphology (the word-level domain). We will demonstrate that a consideration of two independent well-formedness conditions—syntactic inclusiveness and phonological structure preservation—leads us to entertain the possibility that the outputs of tone rules will be distinct from one another according to whether they apply across a phrasal domain (i.e. are syntactically conditioned) or whether they apply within a word (i.e. are morphologically conditioned).

1. Introduction: grammar at the interface

As a broad research goal, we seek to test the degree of separation and the range of interactions between the subsystems that constitute knowledge of language. A central question is whether, and to what extent, syntax, morphology, phonology and phonetics share the same theoretical vocabulary. Is it the case, for example, that the domains relevant to morphosyntactic constraints converge with the domains relevant to phonological constraints and phonetic outputs? Consider the category X^0, which is defined as the head of a phrasal constituent XP. Syntax, morphology and phonology all manipulate X^0 elements, defined as simplex words or morphemes. In syntax, it is argued that X^0s divide into two classes: lexical (open-class) versus functional (closed-class) items (Abney, 1987). In morphology, X^0 is commonly considered to be a domain functioning at the interface between the lexicon and the syntax. For example, morphosyntactic categories (root, stem, word) are in a correspondence relation to phonological and phonetic domains; similarly syntactic categories and phrases map onto larger prosodic units (Nespor and Vogel, 1986; Kaisse, 1985; Selkirk, 1986, 1995; Truckenbrodt, 2007). While labels such as 'word' are used both in morphosyntax and morphophonology, it is not a trivial matter to establish whether the constituents so named are formally the same objects. For example, while inflectional affixes are commonly

* Corresponding author at: Department of Linguistics, Totem Field Studios, 2613 West Mall, Vancouver, BC, Canada V6T 1Z4. Tel.: +1 604 822 2063; fax: +1 604 266 4072.
E-mail address: douglas.pulleyblank@ubc.ca (D. Pulleyblank).

0024-3841/$ – see front matter © 2011 Elsevier B.V. All rights reserved.
doi:10.1016/j.lingua.2011.05.008

considered syntactic functional X^0 categories (Pollock, 1989; Ouhalla, 1991), they are also considered to be sub-word categories with respect to their morphophonology (Kiparsky, 1982, 1985; Mohanan, 1986). Not only is X^0 a prosodically indeterminate category, but also for analyses that do not adopt an X-bar template (Muysken, 1982; Kayne, 1994; Chomsky, 1995b; Carnie, 2000) a monomorphemic element is structurally ambiguous between X^{MAX} and X^{MIN}, corresponding respectively to XP and X^0 in X-bar theory. If monomorphemic forms are structurally ambiguous in this way, then rules of prosodification should sometimes parse them as heads and other times as phrasal categories.

In this paper, we consider a particular type of tonal behavior in Yorùbá with the goal of testing whether syntactic and phonological domains converge or diverge in this case. We consider two types of syntactically conditioned phonological rules: (i) the appearance of phonological elements not present lexically (epenthesis/insertion), (ii) the loss of phonological elements (deletion). These types of rules are often tightly interconnected as the (apparent) loss of one element may involve the appearance of some other element. The cases we consider here involve two Yorùbá tone rules whose surface effect is to change a lexically specified tone (or tone sequence). One of the rules is syntactically conditioned in that it applies across a phrasal boundary: it changes a lexical Low tone to a surface Mid tone, henceforth *L-raising*. For example, the verb *rà* 'buy' surfaces with a Low tone in final position but raises to Mid before a complement, as in *ra bàtà* 'buy shoes'. The other rule is morphologically conditioned in that it applies within the word/X^0 domain: it changes a High–Low tone sequence to a surface Mid tone, henceforth *HL-simplification*. An example of this is *ẹ́wàkẹ̀wà* 'any kind of beans', derived from the reduplication of *ẹ́wà* 'beans' with the intervening morpheme *kí* (ẹ́wà + kí + ẹ́wà). In our view, these two tone rules—L-raising and HL-simplification—are conditioned by two distinct domains, namely syntax (the phrasal domain) versus morphology (the word-level domain). We recognize that the identification of these domains is, to some extent, a theory-internal decision. For example, in analytic models where all complex expressions are treated as syntactic objects, the distinction that we draw between syntax and morphology would have be to drawn between two types of syntactic objects. The findings reported here bear on both approaches.

In the Yorùbá literature (Ward, 1952; Bámgbóṣé, 1966a; Akinlabí, 1984; Pulleyblank, 1986), it is widely assumed that the M-tone surface outputs of both L-raising and HL-simplification are both phonetically and phonologically non-distinct, both from each other and from underlying M-tones. As we will demonstrate, however, a consideration of two independent well-formedness conditions—syntactic inclusiveness and phonological structure preservation—leads us to entertain the possibility that the outputs of tone rules will be distinct from one another according to whether they apply across a phrasal domain (i.e. are syntactically conditioned) or whether they apply within a word (i.e. are morphologically conditioned).

1.1. Inclusiveness: a syntactic well-formedness condition

Consider first the impact of the inclusiveness condition (Chomsky, 1995a:228), which requires that syntactic derivations be information-preserving:

> A "perfect language" should meet the condition of inclusiveness: any structure formed by the computation... is constituted of elements already present in the lexical items selected for [the] N[umeration]; no new objects are added in the course of computation apart from rearrangements of lexical properties.

On the one hand, no information may be deleted in the course of a derivation; on the other hand, no information may be added in the course of a derivation that was not already present in the initial numeration. On this view, we expect that syntactically conditioned phonological processes will be highly limited in the operations that they can perform. While they might locally reorder elements, they would be prohibited from inserting or deleting them. This predicts that a syntactically conditioned rule such as Yorùbá L-raising cannot be the effect of tone deletion, but can only result from "under-parsing": the lexical L-tone should be present (as required by the inclusiveness condition), but could result in a M-tone pronunciation for other reasons. On independent grounds, exactly this type of analysis has been proposed by Déchaine (2001). In general, inclusiveness predicts that post-lexical phonological rules (Kiparsky, 1982; Mohanan, 1986) should be information-preserving. Note that there is a phonetic caveat to this claim. Information preservation predicts the retention of tonal information; the surface effect of a tone that is retained depends on the rules of phonetic tone realization. Hence it would be possible for a tone to be retained but have no surface effect if no rules of phonetic implementation were sensitive to the presence of such a tone.

Note however that the inclusiveness condition makes no claim about the status of insertion or deletion word-internally: derived X^0s can be, but need not be, information-preserving. Similarly, inclusiveness makes no claim about "insertion" (i.e. epenthesis) that is fully phonological since such phonologically motivated changes have no reflex in either the syntactic or the semantic components of the grammar. It is therefore possible that word-level processes exist that both insert and delete elements. For Yorùbá, this would imply that word-level HL-simplification might arise via tone deletion. Indeed, a consideration of the phonological condition of structure preservation suggests that this is the more likely analysis.

1.2. Structure preservation: a phonological well-formedness condition

In its strongest form, structure preservation refers to the requirement that a class of phonological constraints governs the entire lexicon, that is, governs all X^0s, both underived and derived (Kiparsky, 1985). Irrespective of whether this condition always holds, we test here lexically conditioned versus syntactically conditioned processes to see whether they behave in the same way with respect to constraints that are independently seen to hold of the lexicon.