



Compounds, phrases and clitics in connected speech



Hilary S.Z. Wynne^{a,*}, Linda Wheeldon^b, Aditi Lahiri^a

^a Faculty of Linguistics, Philology & Phonetics, University of Oxford, Walton Street, Oxford OX1 2HG, UK

^b University of Agder, Norway

ARTICLE INFO

Article history:

Received 8 June 2016

Revision received 27 July 2017

Available online 25 September 2017

Keywords:

Language production

Prosodic structure

Phonological encoding

Compounds and adjective-noun phrases

Compounds and clitics

ABSTRACT

Four language production experiments examine how English speakers plan compound words during phonological encoding. The experiments tested production latencies in both delayed and online tasks for English noun-noun compounds (e.g., *daytime*), adjective-noun phrases (e.g., *dark time*), and monomorphemic words (e.g., *denim*). In delayed production, speech onset latencies reflect the total number of prosodic units in the target sentence. In online production, speech latencies reflect the size of the first prosodic unit. Compounds are metrically similar to adjective-noun phrases as they contain two lexical and two prosodic words. However, in Experiments 1 and 2, native English speakers treated the compounds as single prosodic units, indistinguishable from simple words, with RT data statistically different than that of the adjective-noun phrases. Experiments 3 and 4 demonstrate that compounds are also treated as single prosodic units in utterances containing clitics (e.g., *dishcloths are clean*) as they incorporate the verb into a single phonological word (i.e. *dishcloths-are*). Taken together, these results suggest that English compounds are planned as single recursive prosodic units. Our data require an adaptation of the classic model of phonological encoding to incorporate a distinction between lexical and postlexical prosodic processes, such that lexical boundaries have consequences for post-lexical phonological encoding.

© 2017 Elsevier Inc. All rights reserved.

Introduction

Psychological processes involved with speaking

Language production models agree that there are a series of cognitive stages involved in the production of speech. Each of these stages prepares corresponding representations, e.g. concepts at the semantic level, lemmas and syntactic structure during grammatical encoding, and phonological representations during phonological encoding (see Griffin & Ferreira, 2006 for a review). Numerous psycholinguistic studies have shown that the phonological encoding stage is responsible for infusing abstract lexical representations with phonological properties such as segmental ordering (e.g., Meyer, 1990, 1991; Wheeldon & Levelt, 1995; Wheeldon & Morgan, 2002), syllabification (e.g., Ferrand, Segui, & Grainger, 1996; Ferrand, Segui, & Humphreys, 1997; Morgan & Wheeldon, 2003; Schiller, Costa, & Colomé, 2002), and prosodification (e.g., Cholin, Schiller, & Levelt, 2004; Damian & Dumay, 2007; Ferreira, 1993; Jescheniak, Schriefers, & Hantsch, 2003; Roelofs & Meyer, 1998; Wheeldon & Lahiri, 1997, 2002).

In early models of language production (Dell, 1986; Harley, 1984) the output of the phonological encoding stage was typically treated as a lexical word. In order to prepare an utterance for articulation, the phonological encoding stage accessed the output of the lexicalization stage (lexical words) and systematically built metrical frames according to the specific phonological rules of the language. A lexical word is a well-formed semantic and syntactic unit that can stand on its own, be uttered in isolation, and even be considered a full utterance. For example, the lexical word *coffee*, if uttered with a question intonation, can be construed as someone asking the listener if they would like coffee. Lexical words can be morphologically complex; e.g. *use*, *uses*, *disuse*, *using*, *user* are all lexical words each with well-defined semantic and syntactic properties. But we know that speakers do not produce connected speech in isolated units.

Multiword utterances regularly exhibit word boundaries that are not necessarily sacrosanct, as illustrated by the famous English slogan *Drink a pint of milk a day*. The linguistic units in this structure correspond not to the syntactic representation of the utterance (*Drink a pint of milk a day*) but to how it sounds in regular, connected speech, i.e. its prosodic structure. The mismatch in prosodic and lexical structure points to a process in phonological encoding where features of connected speech must be prepared: that is,

* Corresponding author.

E-mail addresses: hilary.wynne@ling-phil.ox.ac.uk (H.S.Z. Wynne), linda.r.wheeldon@uia.no (L. Wheeldon), aditi.lahiri@ling-phil.ox.ac.uk (A. Lahiri).

where *drink a* becomes *drinka*. Accordingly, more recent psycholinguistic models of phonological encoding (Levelt, Roelofs, & Meyer, 1999; Roelofs, 1997) no longer treat the output of the phonological encoding process as a lexical unit, but as a prosodic one.

In this paper, our focus is on the prosodic structure of two types of multiword utterances in native English speakers: compounds and phrases. We investigate two main hypotheses related to the preparation of prosodic units in English: one regarding the similarities or differences in prosodic structure of compounds and phrases, and one related to the behaviour of clitics with these items in connected speech. The first hypothesis is concerned with the prosodic structure of multi-word structures in English. Although multi-word sequences may look similar on the surface, they can be quite different depending on their prosodic structure. Linguistic theories of phonological phrasing maintain that prosodic units are not necessarily isomorphic with syntactic units (Lahiri & Plank, 2010; Selkirk, 1980, 1986). These theories approach the issue of asymmetry by introducing a series of hierarchically-structured prosodic units such as phonological words and phrases.

Here, compounds prove to be rather remarkable. Both the compound *White House* (the residence of the American president) and the phrase *white house* (a house painted white) contain the same number of lexical units and the same number of prosodic units; however, when spoken in regular speech they differ in stress placement suggesting that compounds and phrases differ in structure at the prosodic level (where phonological features such as stress and intonation are assigned). Our questions are thus: are compounds and phrases processed differently during the phonological planning stage in English, and if so- to what extent does this processing reflect the difference in structure? If compounds and phrases are treated differently during the phonological planning stage, then this difference should be reflected in the time it takes the speaker to plan the utterance in which they are contained.

Our second hypothesis hinges upon the first. If English compounds and phrases are indeed treated as different prosodic structures by speakers, then this should also be observable in the behaviour of phonological clitics with these structures. Prosodic structure theory maintains that phonological clitics, such as the function word *a* in *drink a* in the English slogan above, reduce and attach to prosodic units: this process is known as cliticisation. If the structural differences in compounds and phrases are predicted by the surface metrical stress, then such differences would also be predicted due to cliticisation.

In what follows, we first turn to the literature regarding the unit of planning during phonological encoding involving single lexical words. We then move to a discussion of the psycholinguistic evidence regarding multi-word units such as compounds, and phrases. Then we will focus on our two hypotheses as related to the current approaches.

The unit of planning: lexical words and clitics

When a speaker is planning a sequence of two words, they plan the conceptual, syntactic and phonological structure of the utterance. Evidence has accumulated from both linguistic and psycholinguistic research that prosodic rather than lexical structure governs phonological encoding processes in language production (Hannahs, 1995; Vigario, 2010; Wheeldon & Lahiri, 1997, 2002). Following Levelt et al. (1999), we maintain that prosodic units known as “phonological words” are built during phonological encoding. Minimally composed of at least one stressed foot, a phonological word can contain a lexical word plus any number of unstressed items, which are most often function words such as auxiliaries (is, are, etc.), determiners (a, the, etc.), pronouns (it, he, etc.) and prepositions (to, in, etc.). Following this, the number

of lexical words is often different than the number of phonological words in a multi-word utterance:

(1) Examples of lexical and phonological (ω) word formation^a

- (a) lexical units: [Tim]_N [is]_V [sick]_{Adj}
 prosodic units: (Tim's) _{ω} (sick) _{ω}
 (b) lexical units: [Drink]_V [the]_{Art} [juice]_N
 prosodic units: (Drink the) _{ω} (juice) _{ω}
-

^a We use the ω symbol to notate prosodic unit (phonological word) boundaries and ϕ for phrase boundaries consistently throughout this work.

In the examples above (1a and 1b), we can observe how unstressed items can attach to lexical words in normal connected speech, forming a single phonological word. While the sentence *Tim is sick* (1a) is made up of three lexical words, it is only two phonological words when spoken in regular, connected speech; through reduction, *Tim is* becomes [tmz]. Similarly, in *drink the juice*, the unstressed unit *the* reduces and attaches to *drink*, forming a single phonological word: [drɪŋkðə]. These unstressed items are known as “phonological clitics” and the process that forms them is known as cliticisation. Further examples of this behaviour can be seen below, which reproduces the English slogan (repeated here with appropriate syntactic and prosodic bracketing):

(2) syntactic phrasing:

- (a) [DRINK] [a PINT] [of MILK] [a DAY]
 (b) [ALE] [and PIE]

(3) prosodic grouping:

- (a) (Drink a) _{ω} (pint of) _{ω} (milk a) _{ω} (day) _{ω}
 [drɪŋkə] _{ω} [pɪntə] _{ω} [mɪlkə] _{ω} [deɪ] _{ω}
 (b) (Ale and) _{ω} (pie) _{ω}
 [eɪlən] _{ω} [paɪ] _{ω}
-

As mentioned above, cliticisation often involves function words such as auxiliaries, prepositions, pronouns, conjunctions, and articles. Examples of encliticisation, where weak forms undergo phonological change (e.g. colloquial German *denn* > 'n), have regularly stood as evidence for default phonological phrasing which often violates the morphosyntactic structure of the utterance (cf. Saran, 1907; Sweet, 1886; Zwicky & Pullum, 1983). Note that the boundaries of the prosodic units (example 3) are different than those of the morphosyntactic units (example 2) and the function words *of*, *a*, and encliticise to the preceding word. Thus, *pint of* in the example above is encoded as [pɪnt.ə], a single prosodic unit in which the lexical and syllable boundaries do not coincide (cf. Lahiri & Plank, 2010; Nespor & Vogel, 2007; Peperkamp, 1997; Selkirk, 1980, 1996).

Further supportive evidence for this process comes from psycholinguistic tasks employing the prepared speech paradigm, (Sternberg, Monsell, Knoll, & Wright, 1978; Wheeldon & Lahiri, 1997, 2002). In a series of experiments using a delayed priming task, Wheeldon and Lahiri (1997) elicited reaction time data for utterances containing clitics in Dutch. In a series of prepared speech tasks, speakers were asked to respond to questions such as *Wat zoek je?* (“What do you seek?”). The authors found that the onset latencies for sentences containing clitics (e.g. *Ik zoek het water*, “I drink the water”) were no different than those that contained none (e.g. *Ik zoek water*, “I seek water”). This indicated that clitics were attaching to the neighbouring word and forming a single prosodic unit, and that the number of prosodic words in both clitic and non-clitic sentences were the same. In contrast, sentences containing stressed elements that cannot encliticise (e.g. *Ik*

Download English Version:

<https://daneshyari.com/en/article/5042483>

Download Persian Version:

<https://daneshyari.com/article/5042483>

[Daneshyari.com](https://daneshyari.com)