

Phonological Deletion in Text Messages: A Cognitive View

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Abstract

The aim of the present study is to represent the evidence of various correspondences between phonology and cognitive linguistics and to show the advantages of cognitive grammar than generative grammar. The article evaluates the hypothesis holding that connectionist theories (e.g. cognitive grammar) don't have any directionality in their formulations due to their cross-dimensional correspondences and this can be their exclusive feature.

This research can be considered as a theoretical and descriptive study. The samples were chosen from among English abbreviations, specifically short messages.

In prominence view, arranging data is determinant in ordering things and events in the mind. This point of view is based on "figure and ground" that can be used in phonology as well. The rich- get richer and the poor- get poorer' is catchphrases frequently used in economy and I use them in my paper. We can use the proverbs as principles in phonological deletion. The results also refer to the principle, according to which vowels are expected to undergo reduction in unstressed positions. Corroborating the "bathtub effect"(a principle in psychology) in consonants deletions was another emerged result.

After assessing the samples, the hypothesis was approved and it was shown that having a cognitive approach to various linguistic modules causes some exclusive and attractive features which the generative grammar theories don't have them. Also, it was revealed that a cognitive principle affects the pattern of deletions in text messages.

Keywords: Cognitive phonology, Deletion, prominence view, Figure and ground

1. Introduction

Cognitive linguistics is an approach to the study of language that tries to explain facts about language in terms of known properties and mechanisms of the human mind. The important point behind this area of linguistics is that the human language ability is not separate from the rest of cognition and that use of language in understanding similar cognitive abilities to those used in other non-linguistic tasks.

As it has generally been conceived of since its inception, cognitive linguistics argues that language is embodied and situated in the sense that it is embedded in that experiences and environments of its users. Since cognitive linguistics was born in the mid-eighties by Lakoff (1987) and Langacker (1987), most studies in this school of linguistics have focused on semantics and grammar; albeit the work of Lakoff and Langacker contains references to phonology. However, phonological work in cognitive linguistics with exceptions such as the work of Nathan (1986,1994,1996,1999), Taylor (1989,1990,2002) or Bybee (2001) has been sparse in comparison with the attention paid to other area of study like semantics or grammar.

Cognitive phonology is the study of the sound made in verbal language. It is an attempt to classify various correspondences between morpheme and phonetic sequences and is a part of cognitive grammar. This approach is explicitly designed to model phonology as a cognitive activity and so to demonstrate the kind of psycholinguistic approach. Cognitive phonology claim that experiences affects representation, in that high frequency forms and phrases have stronger representation in memory and so they are resistant to analogic change. Low frequency forms are more difficult to access and may be subject to change or less. Schemas (Note 1) that apply to more items are also stronger and more productive.

Cognitive phonology has many attractive features; one of them is that other aspects of grammar are directly accessible due to its subordinate relationship with phonology and various aspects of syntax, semantics and pragmatics feasible.

2. Cognitive Phonology VS. Generative Models

The need for derivations and rule ordering in phonology is an artifact of the classical theory of generative grammar, which has assumed that grammars are symbol manipulation devices. Such devices have to start somewhere and then proceed in a step-by-step fashion. They cannot “look ahead.” Cognitive grammars, by contrast, are not of this form. They contain constructions, not generative rules. Constructions state constraints on cross-dimensional correspondences. Such constraints are simultaneously satisfied in any sentence.

Cognitive approach claims that mental representations of linguistic objects have the same properties as mental representations of other objects. The result of this claim is that mental representation of linguistic objects do not have predictable properties abstracted away, but are based on categorization of actual token. Such a claim is completely opposed to the accepted wisdom of generative models, where predictable properties of units are posited and are abstracted away via the process of derivation. As mentioned before under specification

approaches are claimed to have psycholinguistic validity through the minimization of storage space: cognitive phonology opposes this view (Ball 2003). Derivation and under specification are viewed as simply attempts to achieve descriptive elegance; cognitive phonology does not object to redundant storage: indeed, it claims that this is in fact what happens. Generalizations over forms are not separate from the stored representations of forms, according to the cognitive approach, but emerge directly from them. Generalizations are expressed as relations among forms based on phonetic/semantic similarities. So multi morphemic words are stored whole in lexicon (non- derivationally).

Cognitive phonology also states that categorization is based on identity or similarity. Categorization organizes the storage of phonological percepts. Cognitive processes are the behavior of nonlinear dynamical systems and can best be studied using dynamical modeling and dynamical systems theory. Other units such as morpheme, syllable, phoneme/segment are not basic units of the theory, but are emergent: they arise from the relations of identity and similarity that organize stored units. In other words, as links between similar items in storage become stronger, these items - which may be phoneme-sized, morpheme-sized, etc.- become stronger and emerge as units of storage. Storage in cognitive phonology is highly redundant (as opposed to the attempts at descriptive elegance of other approaches), so schemas may describe the same pattern at different degrees of generality.

3. The Research Method

This research can be considered as a theoretical study regarding its aim, and as a descriptive (non-experimental) and casual-comparative study regarding data collection. The samples of the study were randomly chosen from among English short messages which are written by native speakers. The original corpus included 60 text messages where the length of individual text messages ranged from a few words to a few sentences. For the purpose of the study a sample of 15 messages was selected, total number of word tokens in these fifteen selected text messages being 98, out of which 50 words tokens underwent reduction. (Note 2) Consequently, the study analyzes letter deletions in the 50 word tokens. In the light of the modest data sample, the study remains only a quantitative case study as the quantitative information in the paper is reduced to size.

Words such as *you* which were represented as *U* or *for* as *4* or *at* as *@* were excluded from the study as they employ the cognitive phenomenon of graphemic-phonemic manipulation (undoubtedly phonologically grounded) as well as they require an awareness of homonymy. Most of the text messages analyzed in the study came from the website www.transl8it.com, while other examples came from online or press articles. Thus frequency and availability justify the selection of particular corpus.

4. The Results

In order to determine the extent of the phonological information in the orthographic form, the full, reconstructed representation was compared with to the text message version. There were two angles from which text messages were studied, namely the deleted and retained elements.

For this purpose, the word tokens were analyzed in the form of tables, like in the following example: *Talking* VS. *Tlkin*.

The point is that silent letters, or letters representing vowels in speech, such as /l/ in the above example, were treated as consonants for the sake of the study due to the fact that the visual properties of orthography cannot be neglected in the written forms. Moreover, if the silent /l/ were removed, the word might be misinterpreted as *taking*. Accordingly, /g/ was treated not as a part of the digraph but as a separate consonants due to the fact that one of the digraph elements is more likely to carry the phonological information about the sound it denotes (here /n/ seems to be superior in conveying the nasal gesture).

The results are not presented against a fixed number such as the total number of word token in the corpus as the study employs more than one parameter. Rather, the absolute numbers are calculated against the total number of deleted consonants. The size of the corpus justifies the use of absolute numbers as the use of percentages would deceptively suggest general results.

Table 1 shows that as many as 58 vowels were deleted where as only 19 consonants were subject to deletion. The data shown in the table also illustrate the fact that vowels are more likely to be deleted: more than twice as many vowels have been deleted in comparison to consonants.

Table1. Proportion of deleted vowels to consonants

Deleted vowels	10
Deleted consonants	3

In polysyllabic words, phonotactics (Note 3) was employed and consequently, the vowels are numbered as: Vowel 1 if it was the vowel of first syllable, Vowel 2 if it was the vowel of the second syllable and Vowel 3 if it was the vowel of the third syllable. The numbers are calculated against the total number of the deleted vowels in the corpus. One can see that deleted vowels in monosyllabic words constitute as much as 37 of the deleted vowels (*lv*, *hrt*, *frm*). The vowels deleted in stressed positions account for 9 and 4 in stressed V1 and V2 position accordingly, whereas no single third vowel is dropped. Thus, Table 2 provides powerful evidence that in text messages vowel deletion is the domain of vowels in monosyllabic words.

Table 2. The distribution of stress in the deleted vowels

Deleted vowels in monosyllabic	37
Deleted vowels in polysyllabic words	
Deleted stressed vowel 1	9
Deleted stressed vowel 2	4
Deleted stressed vowel 3	0
Deleted unstressed vowel 1	2
Deleted unstressed vowel 2	3
Deleted unstressed vowel 3	3

The results also shows that retained consonants is polysyllabic words and specifies if they were initial, medial or final with reference to the local parameter of the position of the consonant in the word. The numbers are calculated against the total number of the retained consonants in the corpus. All consonants, regardless of the position on a word, were retained at an equal level (e.g. *tlkn,yaslf*). If the retained consonants in monosyllabic words were initial or final with reference to the local parameter of the position of the consonant in the word.

The data presented above are now investigated from the ‘*prominence*’ point of view of cognitive linguistics and an economic principle called ‘*The rich- get richer and the poor- get poorer*’. This helps to systematize the results for vowels and consonants.

Cognitive Linguistics is not a totally homogeneous framework. Ungerer and Schmid (1996) distinguish three main approaches: *Experimental view*, the *Prominence view* and the *Attentional view* of language. The ‘Prominence view’ is based on concepts of *profiling* and *figure and ground* segregation, a phenomenon first introduced by the Danish Gestalt psychologist Rubin. The prominence principle explains why, when we look at an object in our environment, we single it out as a perceptually prominent figure standing out from the ground. This principle can also be applied to the study of language; especially, to the study of local relations (Brugman 1981, 1988; Casad 1982, 1993; Lindner 1982; Herskovits 1986; Vandeloise 1991; among others). It is also used in Langacker’s (1987, 1991) grammar, where profiling is used to explain grammatical constructs and, figure and ground for the explanation of grammatical relations.

The Gestalt psychology states that human can have complete perception of the incomplete pictures. In picture 1, we can percept a triangle despite of incompleteness of the picture which is only 3 incomplete circles.

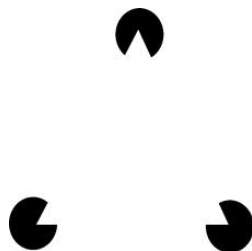


Figure 1. A Gestalt picture

These results refer to the figure and ground principle, according to which consonants are likely to be retained and vowels are likely to be deleted. As mentioned before, consonants are deleted to a very small extent (19 consonants), whereas vowels are dropped twice that often (58 vowels). The cognitive principle, which expects consonants to be the retained figures and vowels to be the deleted grounds, is verified. Moreover, not only are the initial and final consonants retained, but also are middle consonants.

‘The rich- get richer and the poor- get poorer’ is a principle frequently used (with variations in wording) in discussing economic inequality. The results also refer to the principle, according to which vowels are expected to undergo reduction to schwa (ə) in unstressed positions. The inspection of results also show that in text messages consonants are likely to be deleted in weak positions and in strong ones are likely to be preserved.

In analyzed instances of text messages, neither the initial and final consonants were deleted. The consonantal frame of words is retained fully, which agree with the psycholinguistic research on the lexicon. The lexical search and processing theories stipulate the importance of ‘frames’ which are the beginning and the end of a word. If the frames exist, processing is possible even if the middle part is incomplete or misplace. The existence of frames for a word is known as the ‘bathtub effect’ in psycholinguistics (Aitchinson 1987) (Note 4).

5. Conclusions

Cognitive phonology is a part of cognitive grammar. Phonological constructions state constraints across, as well as within, levels of the phonology. The levels are minimal: morphemic, phonemic, and phonetic levels. Any adequate theory phonology will need such levels. Because environments in constructions can be stated at any level, there is no need for rule ordering or cycles. One of the attractions of cognitive phonology is that, since it is part of cognitive grammar, other aspects of the grammar are directly accessible. Since cognitive grammars characterize correlations across various dimensions of structure, correlations between the phonology and various aspects of syntax, semantics and pragmatics are directly statable. Cognitive phonology has an another attractive feature, connectionist foundations allow for a theory of defaults and default overrides in terms of levels of connection strengths.

The study aimed at analysis of cognitive linguistic properties in phonology. The results show that a cognitive principle affects the pattern of deletions in text messages. The ‘figure and ground’ principle is in force since consonants are likely to be preserved and vowels are likely

to be deleted, whereas final consonants in unstressed position are likely to be preserved. Also, it was revealed that ‘The rich- get richer and the poor- get poorer’ principle affects the deletion on vowels as well. In addition, the pattern for consonants seems to corroborate the ‘bathtub effect’ principle (Note 5).

One thing is certain, cognitive phonology is different. It drastically changes what can and cannot be done in phonology. Its possibilities have only just begun to be investigated. But changes along these lines are necessary if we are to make phonology cognitively plausible. Morris Halle, the first linguistic teacher of Lakoff, used to say that if you want to criticize a theory, you should come up a new one that does as well or better. With respect to the classic examples that have been used to motivate generative phonology—to motivate deduction-like derivations and rule ordering—we now have an alternative theory that can do better.

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Notes

Note 1. An "image schema" is a recurring structure within our cognitive processes which establishes patterns of understanding and reasoning. Image schemas are formed from our bodily interactions, from linguistic experience, and from historical context.

Note 2. In the study, words were used in sense of tokens, not types.

Note 3. Phonotactics is the arrangements of the distinctive sound units (phonemes) in language. For example, in English, the consonant groups (consonant clusters) /spr/ and /str/ can occur at the beginning of a word, as in sprout, strain, but they cannot occur at the end of a

word. A description of the phonotactics of English consonant clusters would include this information (Richards, platt 1992: 275).

Note 4. The idea is that the particular position of a body in a bathtub makes head and feet the most prominent and head even more than feet. This applies to memory for words. “People remember the beginnings and ends of words better than the middles, as if the word were a person lying in a bathtub, with their head out of the water one end and their feet out the other. And, just as in a bathtub the head is further out of the water and more prominent than the feet, so the beginnings of the words are on average better remembered than the ends [...] people tend to recall the beginnings and ends of words they cannot otherwise remember ” (Aitchinson,1987: 119).

Note 5. There was no such hypothesis, this emerged in the course of investigation.