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# Morphological Influences on Phonetic Categorization

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Listeners' phonetic decisions about ambiguous sounds are influenced by lexical information as well as syntactic and semantic information from sentences. A series of experiments was constructed to test whether preceding sentential context can modulate the perception of inflectional morphemes. The morpheme under investigation was the verbal 3rd person singular marker *-t* in Dutch. Listeners were presented with two different types of sentences: (A) *Vraag jij of Jan morgen gaat?* 'Are you asking whether Jan leaves tomorrow?' (B) *Zie jij nog wel eens een plaat?* 'Do you see a record now and then?' The final words were chosen so that they were semantically not highly predictable from the context. But they were syntactically predictable: the first sentence had to end with a verb while the second had to end with a noun. The final consonant in each sentence was a stop that varied along a place of articulation continuum from [t] to [k]. The [k]-endpoints always formed nonwords. Sentences like (A) and (B) were compared with matched control sentences ending with [t]- and [k]-final nonwords (e.g., *snaat / snaak*).

Listeners were required to categorize the final consonants, which were clear instances of [t] and [k] at the respective endpoints and ambiguous between the two in six intermediate steps. The main question was whether the shift in the categorization function towards the [t] would be any different for the verbal context (A) as compared to the nominal context (B). Would people benefit from the fact that the phoneme [t] is more or less predictable on the basis of the verbal context because of its morphological status? If yes, this might indicate the operation of a morphological decomposition process.

As shown in Figure 1 the bias towards [t] was indeed greater in the verbal context than in the nominal context. Separate analyses within RT ranges (fast, medium and slow) also showed different patterns over time for verbal and nominal contexts. While the shift in the identification

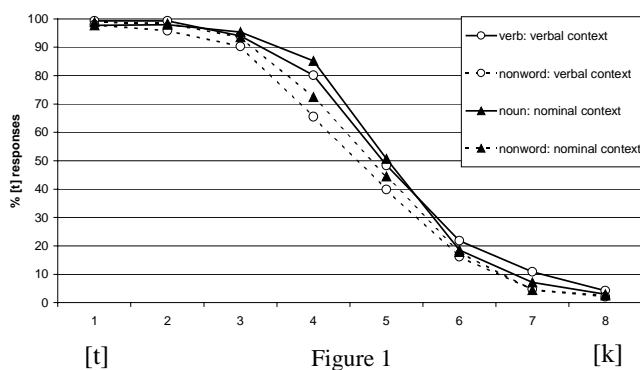


Figure 1

function towards [t] in the verbal context was largest in the fastest reactions it was not reliable in this RT range in the nominal context. In the medium RT range the shift weakened in the verbal condition but built up in the nominal condition. No significant shifts were observed in the slowest responses.

But how far can this result be attributed to the listeners' processing of the context? Would a similar difference between the functions for verbs and nouns show up when these words are presented in isolation? The results (as shown in Figure 2) of a follow-up experiment where the final words and nonwords of the previous experiment were presented in isolation showed that this was not the case.

In an overall analysis listeners did not give significantly more [t]-responses in word contexts than in nonword contexts. This result with high quality materials is congruent with previous findings by McQueen (1991) who found a significant lexicality effect for word final phonemes only when the material was degraded. In the fast RT range of the present data, however, there was a lexicality effect, which was larger for nouns than for verbs.

These results suggest that people do benefit from the morphological status of the last phoneme in a word when not only the word but also its inflection is predictable from the context. As the largest shift in the identification function in the verbal context appears in the fastest RTs this morphological decomposition process is a very rapid one. Without preceding context, however, an inflectional morpheme is not treated differently from phonemes that are part of the word's stem.

## References

McQueen, J. (1991). The influence of the lexicon on phonetic categorization: Stimulus quality in word-final ambiguity. *Journal of Experimental Psychology: Human Perception and Performance*, 17, 433-443.

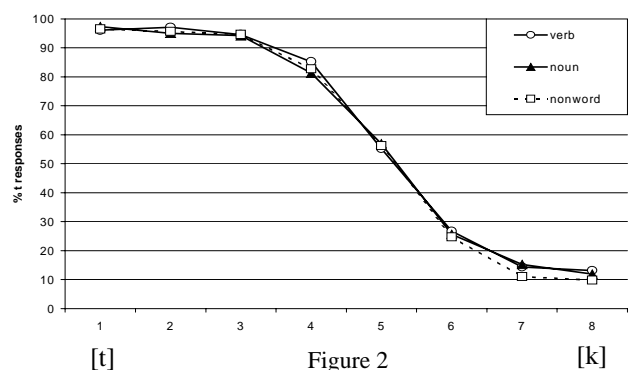


Figure 2