Phonetic Feature Errors are Predominantly Anticipatory

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Feature Errors

While segments are the smallest perceivable unit of speech, they consist of smaller units called features. In speech production, feature errors can be difficult to distinguish from segment errors. In the production 'she sells **sh**eashells…' it is difficult to tell if the erroneous 'sh' is a slip of the feature for place (alveolar 's' becoming postalveolar 'sh'), or a slip of the entire segment 'sh'. Possibly due to this difficulty in interpretation, feature errors are thought to be rare and not a significant unit in speech planning. Guest (2002) found that feature errors can be induced and that they behave similarly to segment errors. The following reports on an experiment that replicates Guest's results and extends his findings to include evidence that feature errors are predominantly anticipatory assimilations, as is claimed for segment errors (Dell, Burger & Svec, 1997).

Tongue Twister Experiment

Tongue twister stimuli consisted of four nonsense words that differed only by one feature, e.g. *tivv tiff tiff tivv*. These stimuli were reproduced from Goldrick and Blumstein (2006).

The tongue twisters were produced by thirty native speakers of English who reported no history of speech or hearing problems. All were students at Carleton University and received course credit for their participation. 64 randomly presented tongue twisters were produced three times each at a quick rate of speech set by a metronome.

Results

Recordings were analyzed and 296 stop voice errors were found. Errors were categorized according to the surrounding voiced consonants in order to determine possible voicing assimilation influences. These categories include; a) anticipatory errors, e.g. *di<u>vv</u>* (target tivv) or, b) perseveratory errors, e.g. *ti<u>vv</u> diff* (target tivv tiff). The number of errors in both categories is presented in Table 1. Errors that occurred between two voiced consonants (49 total) and errors that are not immediately flanked by a voiced consonant (93 total) are excluded from analysis as they provide no information about the direction of assimilation.

Table 1: Relationship to voiced consonants.

Direction of Assimilation	Number	Percent
Anticipation (tivv tiff tiff **d**i<u>vv</u>)	126	82%
Perseveration (ti<u>vv</u> **d**iff tiff tivv)	28	18%

82% of the stop voice feature errors occur before the nearest voicing influence while 18% occur after. These results indicate that feature errors are most often anticipatory, replicating findings from studies of segment-level speech errors (Dell et al., 1997).

Conclusion

Data collected using the tongue twister paradigm confirm that feature errors can be induced as was first reported by Guest (2002). This design allows us to ask if, like segment errors, feature errors are predominantly anticipatory. Results indicate that anticipatory errors are more numerous than perseveratory errors. This finding suggests that the feature shares the same status as the segment in speech planning.

Acknowledgments

References

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