UNDERSTANDING "HM", "MHM", "MMH"

Stefan Werner
University of Joensuu, Finland

ABSTRACT
Various kinds of hm-like utterances occur frequently in everyday discourse. This paper presents an examination of forms and functions in a subset of German hms: hm uttered as reply or reaction to a question. Subsequent phonetic analysis revealed strong correlations with syllable structure and fundamental frequency variation.

1. INTRODUCTION
Sounds transcribable as "hm", "mhm", "uhuh" and so on - henceforth generally called hm - can be - among other possibilities - a sign of listening, understanding, agreement or disagreement, hesitation, a request to repeat a phrase, an announcement of another speech act, an answer to a question. But in spite of the obvious importance of hm, it has not yet received too much attention among phoneticians or even linguists (one noticeable exception for German is Ehlich's discourse-analytically motivated phonetic classification in [1]). My study introduces a first set of acoustic features in German hm that apparently not only modify or differentiate meaning, but suffice to produce it, at least in the semantically limited context used for the experiment.

2. TEST DESIGN
23 test subjects, all of them native speakers of German were asked to rate the meanings of different realizations of hm, presented in random order as the answers to simple yes/no questions, on a scale from 1, 'clearly negative'; to 4, 'clearly affirmative' (with the possibility to omit the answer in case of ambiguity). 21 hm stimuli out of 70 recordings had been selected by a jury of two native speakers as a sufficiently large and representative collection. Three different questions were each used twice with every stimulus.

3. TEST RESULTS
Since each subject rated all 21 hm types six times, the ideal ordinate scale for these settings comprises not just four, but $21 \cdot 6 = 126$ ranks. Figure 1 shows the sorted mean ranks of all hm types and their standard deviations (the use of these ratio scale statistics for this diagram being justified by the fact, that mode and median in all cases are extremely close to the arithmetic mean and stray values are rare.)

The division into four groups seems obvious, but let us first of all strengthen the case for a clear distinction between hm as a negative and hm as an affirmative answer: figure 2 presents the respective shares of ratings falling below and above the theoretical division line between ranks 63 and 64.

4. PHONETIC ANALYSIS
In order to find acoustic predictors for the negative versus affirmative meaning of a hm utterance (or even for its membership in one of the subclasses), each stimulus' duration, intensity, F0 and spectre were examined. The main results are:
- the clue to the functional dichotomy is provided by two clearly distinct types of fundamental frequency contours
- the subdivision is related to the existence of one versus two intensity peaks (monosyllabic vs. bisyllabic hm)
- among bisyllabic hms, there is a second criterion for differentiation: the second syllable of a negative hm starts with a glottal stop, an affirmative one has in the same place a /h/.

Figure 4 shows two prototypical F0 contours. This opposition of curvy and flat can be found not only in German, but presumably in a large
least in certain contexts, convey meaning the same way 'normal' words do: by utilizing phonetic features alone.

A link between experimentally established meaning classes and phonetic characteristics was presented. Future research should take into account a wider range of hm types and contexts from various languages.

5. CONCLUSION

hm utterances in German can, at least in certain contexts, convey meaning the same way 'normal' words do: by utilizing phonetic features alone.

A link between experimentally established meaning classes and phonetic characteristics was presented. Future research should take into account a wider range of hm types and contexts from various languages.

6. REFERENCES


---

variety of languages (e.g., s. [3] for Finnish). The same holds for the opposition of glottal stop and /h/ (e.g., s. [2] for English). Figure 3 gives a general outline of the correlations between phonetic characteristics and linguistic function. It seems that in bisyllabic hm the stop vs. /h/ criterion takes precedence over the F0 criterion, but research on this issue is still under way.

Figure 4 gives a general outline of the correlations between phonetic characteristics and linguistic function. It seems that in bisyllabic hm the stop vs. /h/ criterion takes precedence over the F0 criterion, but research on this issue is still under way.

Figure 5 gives a general outline of the correlations between phonetic characteristics and linguistic function. It seems that in bisyllabic hm the stop vs. /h/ criterion takes precedence over the F0 criterion, but research on this issue is still under way.