

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

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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. Subjects' ratings of stimuli on a meaning scale from 'negative' to 'affirmative' yielded a clear functional classification. 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 generically 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

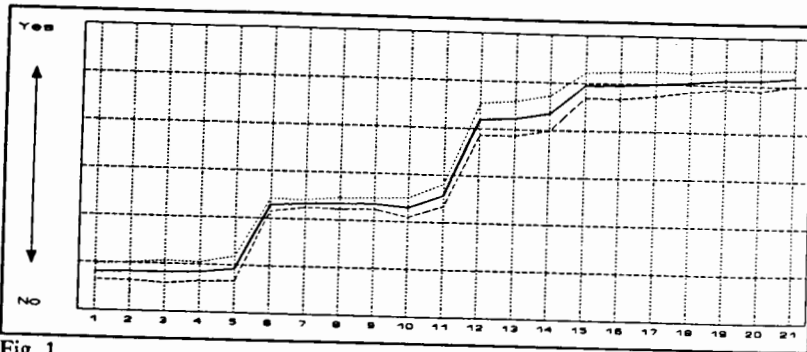


Fig. 1

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.

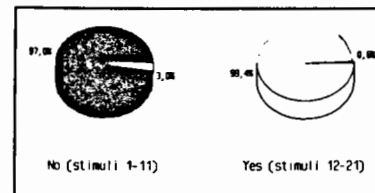


Fig. 2

The separation is, in fact, evident. The same point can be made by means of a cluster analysis: a Ward dendrogram exhibits an extreme increase in heterogeneity between the clusters of *hm* types 1 to 11 and 12 to 21. In addition, there were no missing observations, i.e. ambiguous

cases, at all.

On a less significant level, also the subdivisions suggested by figure 1 can be verified with different methods; cluster analysis supports the existence of four groups as well as figure 3 does.

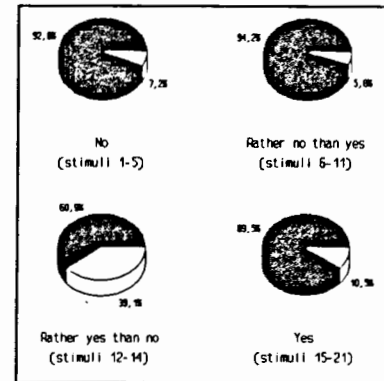


Fig. 3

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

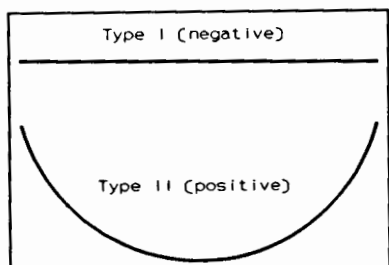


Fig. 4

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 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.

5. CONCLUSION

hm utterances in German can, at

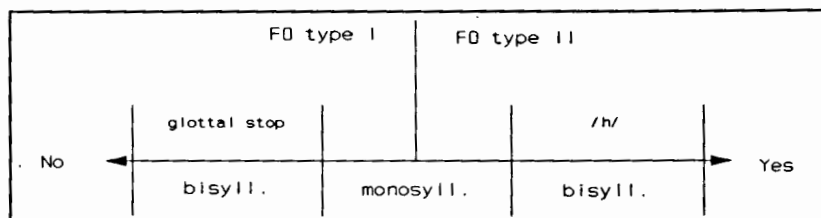


Fig. 5

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

- [1] EHLICH, K. (1986), "Interjektionen" Tübingen: Niemeyer
- [2] LUTHY, M. (1983), "Nonnative speakers' perceptions of English 'non-lexical' intonation signals", *Language Learning* 33(1)
- [3] WERNER, S., IKONEN, U., NIEMI, J. (1984), "Observations on Finnish discourse-interjections", in Ikonen, U., Tikka, T. (eds.), *Papers from the Twelfth Meeting of Finnish Phoneticians - Joensuu 1984*, Joensuu: University Press