WHAT IS EMPHASIS?
Making utterance sections salient for functions of communicative highlighting

- salience
  - primarily phonetic, especially prosodic
  - but also lexical and syntactic, e.g. by syntactic fronting
  - she's a good cook, an excellent cook is Alice!
  - further supported by facial expression and gesture

- communicative highlighting
  (1) information selection – propositional highlighting of certain words (narrow focus)
    ° factual singling out – pitch accent on salient word, deaccentuation around it
    ° Peter invited a few of his friends to a party in his flat.
    ° ANNA came with MANNY.
  (2) contrast to one’s expectation – degree of effective evaluation – medial to late F0 peak synchronization
    ° Manny was there too. He came with ANNA.
    ° interesting (reinforcement, correction) – initial consonant strengthening + pitch features
    ° no, MARY came with Manny; ‘accent d’insistance’ in French
  (3) expressive intensification – special prominence for amplification of verbal meaning
    ° positive, expression of pleasure – strengthening sonorous features of accented syllable?
      – It STINKS!
      – positive (14) intensification
    ° negative, expression of dislike – weakening sonorous features of accented syllable?
      – she’s a good cook. an excellent cook is Alice!
      – negative (15) intensification

INVESTIGATING EXPRESSIVE INTENSIFICATION IN GERMAN

Data acquisition
- written texts
  ° in situational and linguistic contexts
  ° with target words chosen according to semantic, pragmatic and phonetic criteria
- elicitation through reading the texts
  ° in monologues for positive (14) or negative (15) intensification with support of photos of the corresponding facial expressions
- in 8 dialogues for weighting and intensification
- speakers
  ° pairs of extrovert speakers knowing each other well, one male, one female
  ° sitting face to face at a table
  ° to read their parts of the dialogues
  ° for one speaker to read the monologues while the other listened
- recording
  ° the session of a speaker pair contained the sequence
  ° reading of the 8 dialogues from prepared sheets
  ° each speaker reading the two sets of monologues
  ° reading of the 8 dialogues again with reversed roles
  ° instruction to read each dialogue as often as necessary until they both judged it natural
  ° monologue productions also judged and repeated until satisfactory version was reached
  ° the complete practice and test sessions were recorded
  ° stereo recording with direction microphones, one for each speaker, placed in front of them
  ° 4 pairs of speakers from North Germany (3 in their 30s, 1 in their 60s)

Data labelling and data analysis
- prosodic labelling
  ° with xasp and KIM-based PROLAB
  ° guided by function, not by phonetic properties
  ° edition of the prosodic labels P and N for positive and negative intensification
- search operations in the prosodically labelled database
  ° for the labels P and N, all associated with peak contours
  ° for peak synchronization markers early E, medial M, late medial LM, and late L
- physical measurements
  ° time-span of acoustic energy reaching maximum after accented/vowel onset in corresponding P vs. N words
  ° durations of C and V, as well as the ratio C/V, in the syllable structures
  ° [C + V(long, diphthong)] + any coda of P and N words
  ° formants F1, F2, and ratio of the first two harmonics H1/H2 in P, N words containing la/ or la/

Results
- overall frequencies: 159 cases of P, 128 cases of N
- distributions of the 4 synchronization categories: Figure 2
  ° peaks are synchronized non-early for P, non-late for N: highly significant (chi2)
  ° P marked by rising pitch into the accented vowel to a high F0 level, N by falling pitch to a low F0 level
- timing of the acoustic energy maximum: Figure 3
  ° later after accented vowel onset in P than in N: highly significant (t test for independent samples)
  ° acoustic energy is intensified in accented syllable nucleus for P, in onset for N
- duration ratio C/V and durations of C and V: Figure 4
  ° duration ratio smaller for P than for N
  ° C shorter for P than for N
  ° V longer for P than for N
  ° all three measures significant (t tests for independent samples)
- onset consonant and vowel nucleus affected bidirectionally: negative emphasis lengthens the initial consonant and shortens sonorous nucleus, positive emphasis has opposite effect
- formants F1 and F2 and H1/H2 ratio: Figure 5
  ° formants do not differ between the two sets
  ° ratio larger for P, pointing to steeper spectral tilt and breathier voice: significant (t test for i. s.)

DISCUSSION
- Acquisition procedure generated natural, albeit acted, expressive speech by non-actors. It may be adopted as an efficient way of eliciting different types of emphasis systematically.
  ° in some cases, pre-defined positive/negative intensification implemented by other functions
  ° rarely negative intensification used in the positive contextualization or vice versa
  ° inadequate rendering in the specific context
  ° irony, with verbal and prosodic meanings clashing and prosodic meaning winning.
- Investigation allowed to pinpoint a set of differentiating features for P and N emphasis
  ° pitch, energy, and duration patterns converge in intensifying
  ° the nucleus of the accented syllable by lengthening, and by rising, high pitch for P emphasis
  ° the beginning of the accented syllable by lengthening the consonantal onset at the expense of the nucleus, followed by falling, low pitch in the nucleus for N emphasis
  ° validation by formal perception experiments in which ordinary listeners allocate systematically manipulated stimuli to the set of emphasis category labels.
- P strengthens, N weakens sonorous features
- P tends to have soft breathy voice as against tight voice phonation in N
- The paradigm should be applied to other languages, on the hypotheses
  ° that the characterization of P and N emphasis occurs frequently, certainly in English
  ° that it may be a language universal.