

Laryngeal gestures in speech: Movie Demo

(click here to start film)

The film consists of German words (some slightly unusual) spoken in a carrier phrase “ich lese ____ für Sie”. Most of the words have two syllables with schwa in the second syllable. The material is designed to illustrate laryngeal abduction and adduction for various consonants and consonant clusters (this pattern of laryngeal movement is sometimes known as the devoicing gesture).

To assist orientation in the film a transliteration of the target word lights up while the phrase in which it is contained is being spoken. In addition, the time interval corresponding to the “target” consonants at the beginning of the first and second syllables is marked by an appropriate label.

Some versions of the QuickTime player have a “Find” function allowing you to jump straight to these labels in the text track.

In addition there is a counter showing the running number of the speech item on the left (these numbers are used in the list below), and a second/millisecond counter on the right that runs (roughly) while the item is being spoken.

Items 48 to 51 from the list below are also contained in a separate film ([click here](#)) which has twice the time resolution of the longer film (i.e 50 frames per second instead of 25;

corresponding to 20 ms vs. 40 ms increments on the timer), but runs at half speed, making it easier to follow details of the movement patterns (the audio channel has been stretched to match, but also manipulated to keep the original pitch). In this more detailed film some of the consonants from the carrier phrase have also been labelled, namely /c/ from “ich”, /z/ from “lese”, /f/ from “für” and /z/ from “Sie”. These labels are placed in parentheses to distinguish them from the sounds in the target word.

Credits: Endoscopy performed by Dr. Heidi Schröter-Morasch, Neuropsychologische Abteilung, Krankenhaus München-Bogenhausen.

List of the speech items, with comments

- 33 wüsste Voiced fricatives, such as the initial /v/, may have slight glottal abduction, presumably to allow sufficient airflow for the fricative
- 34 fiepe Most of the target words have an unstressed second syllable, and /p/ is the first of many examples showing that the glottal abduction for the voiceless plosive at the beginning of an unstressed syllable may be much smaller than that found for the same sound at the beginning of a stressed syllable (see e.g item 48 below).
- 35 Sitte Again, small amounts of abduction for the voiced fricative /z/ and the unstressed voiceless plosive /t/
- 36 Flöße This is the first of several examples showing, like the plosives, that a voiceless fricative in the unstressed syllable has less abduction than in the stressed syllable, but nevertheless does not show as much reduction in the unstressed syllable as the plosive does.
- 37 Pfiffe
- 38 büßte
- 39 liest For this monosyllabic word the final consonants /st/ are labelled together with the /f/ of the following “für”, i.e there is a long period of

glottal abduction extending over 3 voiceless segments.

40 Scheffel

Between items 40 and 41 a nice example of a cough:
Strong laryngeal closure, including false vocal folds and epiglottis, so true vocal folds are not visible

<husten>

41 Scheffel

42 sieze

43 Lethe

44 tiefe

45 Hüte

Clear abduction for /h/, but not as much as for voiceless plosives or “strong” fricatives like /sch/ or /f/

46 fette

47 Fis

Again, a long period of abduction for final /s/, plus /f/ of following “für”

48 piepe

Together with the following item good examples of differering amounts of reduction for plosives and fricatives in the unstressed syllable. See the slow-motion film for a detailed view of items 48 to 51.

49 Schiffe

- 50 List cf. items 39 and 4
- 51 Städte
- 52 Hütte
- 53 bete
- 54 schiefe
- 55 böte
- 56 Lippe
- 57 <Versprecher> followed by “sitze” (no timer)
- 58 bette
- 59 Wüste
- 60 Väter
- 61 Stätte
- 62 Flöße
- 63 flösse
- 64 Hefe

65 Titel

66 Lette

67 Wüste

68 Büste

69 bitte

70 fies

71 biete