

Velar movement in speech: Movie Demo

The main purpose of this demo is to illustrate the fact that in running speech the position of the velum is not simply restricted to raised (for oral sounds) or lowered (for nasal sounds). Rather, many intermediate positions may occur.

The film consists mainly of simple sound sequences at different speech rates, followed by a series of real German words.

The film was made by inserting a flexible endoscope into the nasal cavity, allowing the upper surface of the soft palate to be viewed. This is the bright moveable structure in the lower part of the picture. The reddish area straight ahead is the rear pharyngeal wall.

To assist orientation in the film a transliteration of the word lights up while it is being spoken. 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.

Click on the red title to start the film. Click here for an [xray film demo](#) with more examples of velar movement in speech

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List of the speech items, with comments

00 <swallow>

01 sustained i:

02 sustained a:

03 sustained sh

04 sustained sh, with
crescendo

In these sustained sounds, all of them clearly not nasalized, some differences in velar height can already be noted (sh>i>a). Differences of this kind will become even more apparent in some of the later sequences.

05 imi, ini, ingi (slow tempo)

06 ama, ana, anga (slow
tempo)

Note that in these sequences with nasals, the velum does not actually lower to its fully open position in the nasals. Again, velar height is lower for /a/ than for /i/, so there is less movement in the sequences with /a/.

A curiosity: In anga, at around 3s 900ms on the timer, the effect of the tongue hitting the underside of the velum when articulating the velar nasal can briefly be seen. (Why isn't this seen in ingi?).

07 imi, ini, ingi (fast tempo)

08 ama, ana, anga (fast tempo)

At the fast tempo, there is less movement than for the slow sequences (especially for /a/), with the velum staying in an intermediate position.

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|---------------------------|--|
| 09 mamamama (slow tempo) | The remarks already made apply to these sequences, too; i.e differences between /i/ and /a/, as well as between slow and fast speech rate (note that movement virtually disappears for mamama... at the fast rate). |
| 10 mimimimi (slow tempo) | |
| 11 mamamama (fast tempo) | |
| 12 mimimimi (fast tempo) | |
| 13 tanatanana (slow) | These sequences differ from the previous ones in including a voiceless plosive or fricative. More vigorous movement is now observed. Moreover, it does not reduce so much at the fast speech rate. Thus it seems to be much more crucial for “strong” consonants like /t/ or /sh/ to achieve a high velum position, than for a low vowel like /a/. |
| 14 tantantan (slow) | |
| 15 schmaschmaschma (slow) | |
| 16 tanatanana (fast) | |
| 17 tantantan (fast) | |
| 18 schmaschmaschma (fast) | |
| 19 Tinte | |
| 20 Tante | |
| 21 Onkel | In “Onkel” and “Hamburg” the velum raises only slightly before lowering for the nasal, and then raising strongly |
| 22 Hamburg | |

- 23 fremd for the plosive, whereas in “fremd” there is strong raising right at the beginning for /f/.
- 24 Mondnacht This word “sandwiches” the plosive /t/ between two /n/’s, showing how fast the velum can potentially move.
- 25 Eins Similar to 21 and 22: very little velar raising before the nasal
- 26 fuenf
27 Blinker
28 Lampe Velar raising for /l/ at start of “Lampe” is slightly less than for the initial /f/ in fuenf and /b/ in Blinker.
- 29 Hemd Similar pattern to “Onkel” and “Hamburg” (21/22)
- 30 singen Only very slight velar raising for the vowel between the two nasals.
- 31 schmusen
- 32 Ende cf. 21/22/25