

The Zurich Corpus of Vowel and Voice Quality

Version 2

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HOW TO SEARCH

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1. Basic search tools

Go to **Search sounds** in the **Menu** and fill in the search form. Then scroll to the bottom of the form and click on one of the following search options.

- **New search:** perform a new search (independently of the current selection)
- **Reset:** reset the actual field values indicated in the search form
- **Restrict:** restrict the current selection with the new search parameters (A AND B, A INTERSECT B)
- **Extend:** extend the current selection with the entries that match the new search parameters (A OR B, A UNION B)
- **Except:** remove the entries matching the search parameters from the current selection (A AND NOT B, A EXCEPT B)
- **Reverse except:** removes the current selection from the entries matching the search parameters (NOT A AND B, B EXCEPT A)

Use "*" (asterisk) for "field not empty", use "-" (minus) for "field is empty".

Use space " " or plus sign "+" in between entries to search for multiple values.

Further information on search entry fields, search options, and definition of individual search parameters are given in short below.

2. Searching for production parameters and sound recording

Field: Sound number(s)

If you want to search for a sound number (database record number), type it into the field. To search for multiple sounds simultaneously, type the identification numbers with a space " " or a plus sign "+" in between numbers.

Example for multiple sounds: 123344 234445 178686 or 123344+234445+178686.

Fields: Sound number range

If you want to search for a range of sound numbers, type the corresponding lowest and highest sound numbers into the fields.

Fields: f_0 intended (Hz)

If you want to search for a specific f_0 intended or a range of f_0 intended, type the lowest and highest f_0 level (in Hz) into the fields. Note, that f_0 intended refers to the pitch level the speaker/singer was asked to produce according to the C major scale. Actual f_0 calculations may deviate from the intended f_0 level (see below).

For a list of all levels of f_0 intended, see the Appendix of this document.

Example for the search of one level of f_0 intended: first field = 220, second field = 220.

Example for the search of a range of f_0 intended: first field = 220, second field = 440.

Field: Productions style

If you want to search for a specific production style, type the corresponding abbreviation into the field. For the styles documented and their abbreviations, see the Abbreviations item in the menu.

Field: Phonation type

If you want to search for a specific type of phonation, type the corresponding abbreviation into the field. For the types documented and their abbreviations, see the Abbreviations item in the menu.

Field: Production context

If you want to search for a specific context in which a phoneme was produced, type the corresponding abbreviation into the field. For the production contexts documented and their abbreviations, see the Abbreviations item in the menu.

Field: Production mode(s)

If you want to search for a specific production mode in which an utterance was produced, type the corresponding abbreviation into the field. To search for multiple modes simultaneously, type the abbreviations with a space “ ” or a plus sign “+” in between them.

For the production modes documented and their abbreviations, see the Abbreviations item in the menu.

Field: Vocal effort

If you want to search for a specific vocal effort, with which an utterance was produced, type the corresponding abbreviation into the field. For the vocal efforts documented and their abbreviations, see the Abbreviations item in the menu.

Fields: Duration(s)

If you want to search for a specific range of duration (in sec) of documented sound files, type the corresponding lower and higher value into the fields. Note that the duration relates to the entire sound file and not to the actual sound signal, this means that pauses before and after on- and offsets are included. – Use equal first and second values to search for a very precise single duration.

Example for the search of one duration 1.5 sec: first field = 1.5, second field = 1.5.

Example for the search of a time range of duration 0.5–2 sec: first field = 0.5, second field = 2.

3. Searching for speech/phoneme intention and recognition

Field: Speech intended

If you want to search for a specific type of utterance, type the corresponding notation into the field “Speech intended”. For the types of utterances documented and their abbreviations, see the Abbreviations item in the menu.

Field: Phoneme(s) intended

If you want to search for a specific phoneme as intended by the speaker(s), type the corresponding notation into the field. Use spaces between single characters to search for multiple phonemes simultaneously. Note that the phonemes were produced in either V (isolated vowel) or sVsV (s-vowel-s-vowel) context.

Phonemes (vowel qualities) are notated according to the German alphabet. The correspondence between the alphabet and IPA notation is as follows (all vowels are long vowels):

i = /i/

ü = /y/

e = /e/

ö = /ø/

ä = /ɛ/

a = range /a–ɑ/

o = /o/

u = /u/

Example for the search of a single phoneme: o.

Example for the search of multiple phonemes: i ü u

Field: Phoneme(s) perceived (majority)

If you want to search for vowel recognition results in terms of sounds identified as one single vowel quality or a region in between two vowel qualities (the majority of the listening test involved five phonetic expert listeners), type the corresponding vowel or vowel pair into the field. If you want to search for majorities of several categories, use spaces or “+” between multiple categories.

For further details on the listening test, see the Handbook.

Note, that (i) listeners were allowed to assign either one of the following nine vowels or any combination of two of them if they perceived the sound as lying in between two categories; (ii) if two vowel qualities are assigned then, in most cases, the sound was perceived as lying in between two neighbouring vowels; however, there are also cases of uncertain classification concerning vowel combinations that are more distant, e.g., in between o and a, and rare cases of uncertain back-front classification also occur, e.g., for sounds of closed vowels in between u and i; (iii) the vowel /ɔ/ was included in the listening test because the perceptual distance /a–o/ is very large, not representing adjacent vowel qualities.

In addition to the above vowel categories, listeners also assigned the following values:

o1 = /ɔ/

any combination of the nine vowel categories above:

i.e., **uo** = sounds perceived in between the vowel u and o

i.e., **ei** = sounds perceived in between e and i

Note that, as is shown in the examples, the vowel order accords to back front direction:

u o o1 a ä ö e ü i

Example for the search of sounds recognised as /o:/= o.

Example for the search of sounds recognised as in between /o:/ and /ɔ:/ = oo1.

Example for the search of sounds that are all recognised as corresponding to different qualities of single vowels or vowel boundaries = u oo1 a

Field: Phoneme(s) perceived (range)

If you want to search for the results of vowel recognition in terms of a range of assigned vowel qualities (result of the listening test), type the corresponding range into the field by means of two vowels separated with “..”. If you want to search for sounds recognised by all listeners as a given vowel, then type only that vowel into the field.

As mentioned, the vowel order accords to back front direction (see previous field indications).

Example for the search of sounds recognised as /o/ = o.

Example for the search of sounds recognised as /o/ and /ɔ/ or in between these two vowels = oo1.

Example for the search of sounds recognised as /o/ or /ɔ/ or /a/ = o..a.

Fields: Majority percentage

If you want to search for the results of vowel recognition in terms of the majority percent values, type the lower and higher value (&) into the corresponding fields. Use equal values for a single majority.

Majority indications are as follows:

100 (%) = 5/5 listeners have assigned the same vowel quality (phoneme)

80 (%) = 4/5 listeners have assigned the same vowel quality (phoneme)

60 (%) = 3/5 listeners have assigned the same vowel quality (phoneme)

0 (%) = less than 3/5 listeners have assigned the same vowel quality (phoneme) (no majority)

For search examples, see next field.

Field: Phoneme perceived = intended

If you want to restrict your search to vowel sounds for which speaker intention during recording and recognition by listeners in subsequent listening test correspond, indicate the restriction “yes” in the corresponding field.

If you want to restrict your search to sounds with no correspondence of speaker intention during recording and listener recognition, indicate the restriction “no” in the corresponding field.

Example for the search of sounds with corresponding intention and recognition, and with overall agreement of the listeners = 100 to 100 (%), yes

Example for the search of sounds with corresponding intention and recognition, but with varying majorities = 60 to 100 (%), yes

Example for the search of sounds with no correspondence of intention and recognition, but with overall agreement of the listeners = 100 to 100 (%), no

Example for the search of sounds with overall agreement of the listeners, but no indication concerning the correspondence of intention and recognition = 100 to 100 (%), empty

Field: Ranking

If you want to restrict your search to sounds of a specific ranking, type the corresponding single ranking or series of ranking indications into the field. To search for multiple ranking levels simultaneously, type the levels with a space “ ” or a plus sign “+” in between them.

Ranking values are r0, r1, r5 and r6 (for details, see the Handbook).

Examples for a restriction to sounds ranked as r1 = r1

Examples for a restriction to sounds ranked as r1 or r5 = r1 r5 or r1+r5

4. Searching for fundamental frequency and pitch

Fields: f_0 final (Hz)

If you want to search for a specific f_0 or a range of f_0 in terms of calculated values – or, in cases of calculation errors, of estimated values – then type the lowest and highest f_0 level (in Hz) into the fields.

Example for the search of one level of f_0 : first field = 220, second field = 220.

Example for the search of a range of f_0 : first field = 220, second field = 440.

Fields: f_0 deviation (Hz)

If you want to search for calculated (or estimated) f_0 deviations in Hz between intended f_0 level (by speaker) and actually calculated f_0 level of recorded sound, then type the lowest and highest f_0 level (in Hz) into the fields.

Example for the search of a deviation range of f_0 : first field = 10 (Hz), second field = 20 (Hz)

Fields: f_0 deviation (% absolute)

If you want to search for a calculated (or estimated) percentage (%) level of f_0 deviations between intended f_0 level (by speaker) and actually calculated f_0 level of recorded sound, then type the lowest and highest percentage (%) level into the fields.

Example for the search of a percentage range of f_0 deviation: first field = 10 (%), second field = 20 (%)

Fields: F1 (Hz)

If you want to search for sounds for which the first fundamental frequency F1 value lies within a given frequency range, then type the lowest and highest F1 level (in Hz) into the fields.

Note that the search concerns values of LPC analysis with age/size and gender specific parameters for the maximum formant number (for details, see the Handbook):

Men = maximum formant number 6 for 0–5.5 kHz

Women = maximum formant number 5 for 0–5.5 kHz

Children = maximum formant number 4 for 0–5.5 kHz

Example for the search of a range of F1 values: first field = 300 (Hz), second field = 400 (Hz)

Fields: F2 (Hz) to F5 (Hz)

For a search of F2 to F5 values, repeat the steps indicated in the previous field “F1 (Hz)” (F_5 for sounds of the children is not given; see above.)

5. Speakers, age, gender and language

Field: Speaker(s) (numbers)

If you want to search for sounds of a single speaker or of multiple speakers, then type the speaker IDs into the field. Use spaces “ ” or plus signs “+” between multiple IDs.

Example for sounds of several speakers: 1046 1048 1052 1053 or 1046+1048+1052+1053.

Fields: Age

If you want to search for sounds of speakers of a specific age range, then type the lowest and highest age into the fields.

Example for the search of sounds produced by children of a certain age range: first field = 6 (years), second field = 10 (years)

Field: Gender

If you want to search for gender-specific sounds, then select the respective category from the dropdown menu.

m (male)

w (female)

Fields: Age group

If you want to search for sounds of speakers of a specific age group, then select the respective category from the dropdown menu.

A (adult)

C (child)

Field: Speaker subgroup(s)

If you want to search for sounds of a specific speaker subgroup, then type the corresponding abbreviation into the field. To search for multiple subgroups simultaneously, type the abbreviations with a space “ ” or a plus sign “+” in between them. For the subgroups documented and their abbreviations, see the Abbreviations item in the menu.

Field: First language

If you want to search for sounds of speakers with a specific first language, then type the corresponding abbreviation into the field. The following languages and abbreviations are documented:

de = German (including Germany, Austria and the Northern part of Switzerland)

sv = Swedish

es = Spanish

fr = French

kr = Korean

Example for sounds of speakers with German as first language = de

6. Sort order, layout and more

Field: Sort order

If you want to predefine the sort order for the search results, then indicate it in the field.

Field: Layout

If you want to predefine the layout for the search results to be displayed, then select the desired value from the dropdown menu.

Search options, see top of document

Parameters for the current sound selection

If you have already previously performed a search and you wish to further restrict the actual sample, the sample description (previous search parameters) are displayed below the search buttons.

Upload sound series file

If you have previously exported record numbers of a sound sample as a text file, you can upload it again here. You can also select records, export the selection using the Lightbox and later upload it, and you can create manually a list of record numbers (one number per line; list saved it in TXT format) and upload it.

APPENDIX

Levels of f_0 intended (Hz)

Hz	notation	Hz	notation	Hz	notation	Hz	notation	Hz	notation
065	C ₂	131	C ₃	262	C ₄	523	C ₅	1047	C ₆
073	D ₂	147	D ₃	294	D ₄	587	D ₅		
082	E ₂	165	E ₃	330	E ₄	659	E ₅		
087	F ₂	175	F ₃	349	F ₄	698	F ₅		
098	G ₂	196	G ₃	392	G ₄	784	G ₅		
110	A ₂	220	A ₃	440	A ₄	880	A ₅		
123	H ₂	247	H ₃	494	H ₄	988	H ₅		