Linear format - lingual node framework of complex consonants

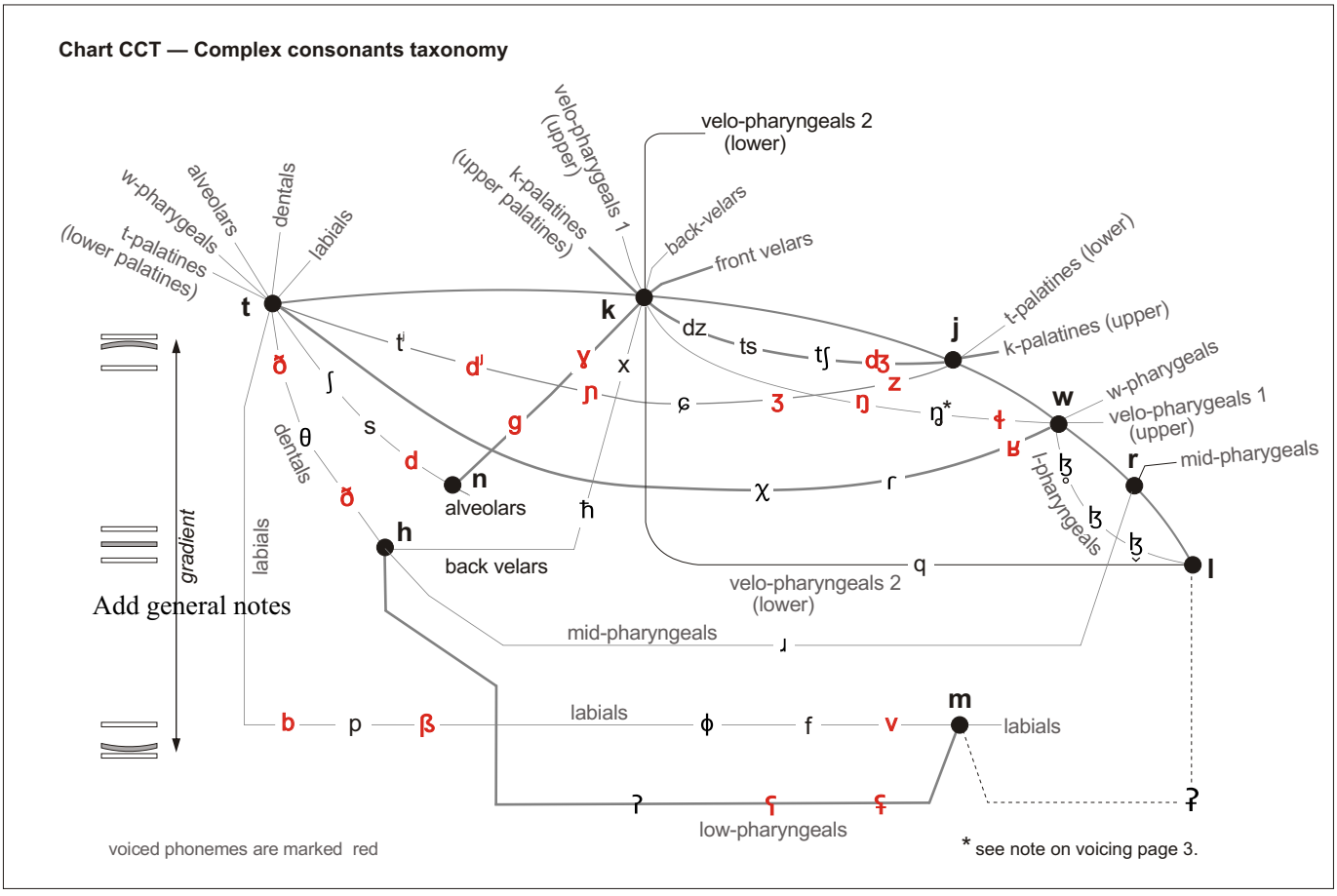
The chart **Complex consonant taxonomy** (CCT) shown below, is the map of the nodal framework of the tongue that generates complex consonants. It is a conglomeration of the various phoneme producing mergers in linear format. The mapping depicts the physical **distribution** of phonemic **nodes** within the tongue before full articulation takes place, that is, when the articulation frame stands isolated, before any measure of **phonation** is emerges. If this condition is observed the nodes, connecting routes and products are observable. It should be noted that even voiceless consonants have some degree of phonation as otherwise there is air column vibration. It is notable that this system can be perceived either with **isolated** nodes or with **fully articulated** phonemes.

All the simple consonant nodes, designated in bold type, lie on the uppermost curved line, except for ɲ , ɳ and ɣ , which when combined produce non-speech sounds. The action of linear mergers was covered above. **Voiced** consonants are in red.

This chart in general typically represents Indo-European and Oriental languages, especially regarding the alveolars and palatals, and does not indicate variants of phonemes in these two regions that occur in language groups including Arabic and Indian languages. These are discussed on p. 7 under *Palatalization*.

The chart demonstrates the organic relationships between consonants. Members in nodal families are classified according to source parent pairs. A physical unity among class members is also revealed in that transfer between them can be achieved through a glide, rather than an intermediary glottal closure which occurs when transfer of nodes is activated across lines.

Some other characteristics visible in the CCT: among primal phoneme nodes h ties to 4 lines, n to 2 lines, and m to 3 lines.The n node merges only with t and k, creating frontal, or dental, alveolar and mid-palatal consonants. Central, or palato-velar ones are k-generated. the h node joins front, mid and back nodes: t, k, and r. The w node connects the pharyngeal region to frontal t and k. The p and esophageal stop are the front and back actuators of gates leading into and out of the oro-pharyngeal tract.



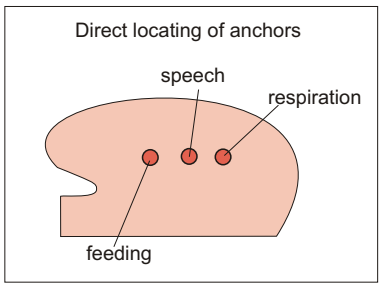
continued

It can be experimentally observed that when gliding between any pair of primary parent consonants (bold type) that are connected by lines the intermediary child (complex) consonants can be readily articulated. Between nodes without connections, like /k/ and /h/, or /m/ and /j/ no phonemes can be generated. For voiced phonemes a merger with /n/ occurs, which is not illustrated in the chart. This mapping of positions and lines thus shows the fundamental organic relationships among consonants. The particular consonantal distribution field of any language can be drawn on this map, which also offers various clues in teaching pronunciations, e. g., English "th" is precisely produced not so much as a dental fricative, but rather, as the merger of /t/ and /h/; similarly French /r/ is the child of an /l/+/h/ parent merger.

Note:

1. /h/, /n/, and /m/ are the primary phonemes (explained elsewhere), having both consonantal and vocalic qulatities.
2. /t/, /k/, /j/, /w/, /r/ and /l/ are the primary consonant phonemes (explained elsewhere)
3. The rest are the complex consonant phonemes (explained elsewhere)

DIRECT LOCATING OF THE SPEECH ANCHOR



When one is familiar with the lingual anchors, or centers of respiration and mastication, it is not difficult to locate the speech anchor. It lies between those two. The three anchor points can be perceived as being quite close to each other, and this appears to explain why switching between the three functions can be quick and relatively effortless.

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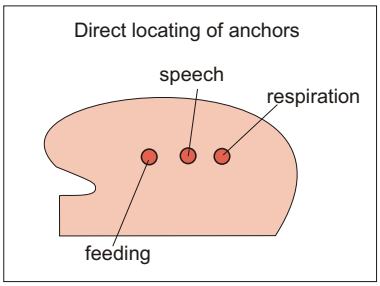

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Parents

t – j t-pal
t – w w-ph
t – n alve
t – h dent
t – m labia

k – j k-pa
k – w velo
k – n front
k – h back
k – l velo

h – r midp
h – m low
m – l epig

w – l l-pha

These are palatalization paths built into phonemic mechanics: in t-n as well as in t and k mergers with j and w , gliding between phoneme pairs is enhanced. This is partly the basis for the palatalizing tendency in certain language groups.

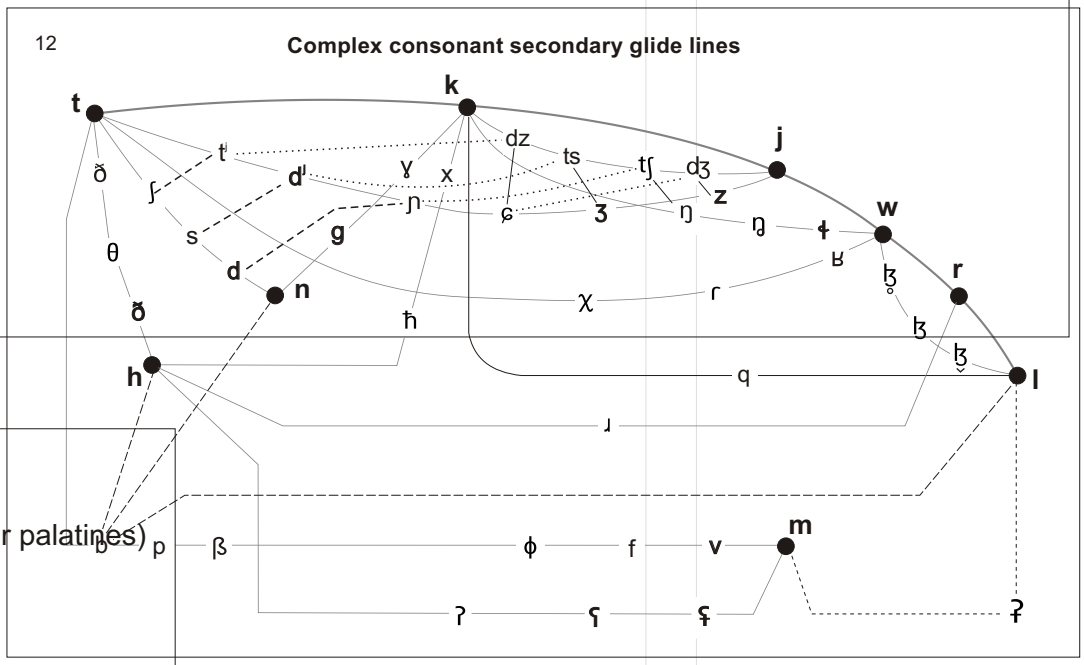
Node regions related to specific languages

Since each language group have particular phonetic characteristics each language will include different parts of the complex consonant map. Regions can be pointed out where some typical phonemes of a language occur.

Chinese: the k-j line: dz ts tʃ dʒ

English: the t-n line: ð θ ð̠ ʃ s ɖ

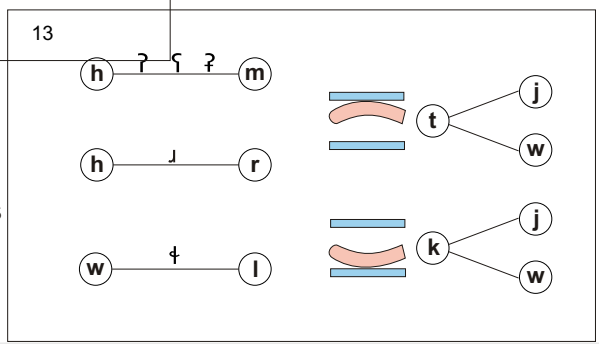
Arabic: the k-h, k-l, m-t and m-h lines: x ħ q b f ʔ ʕ

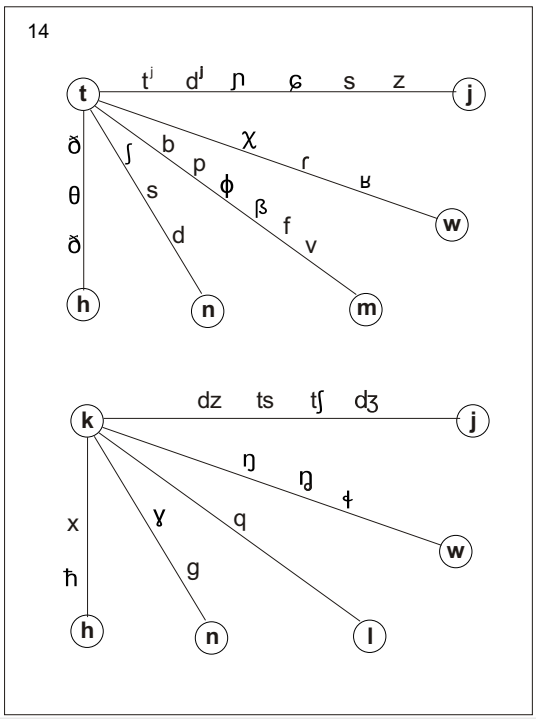


CCT alernate diagrams

Maps extracted from the global CCT map, and grouped according to prime mover agents offer a branched pattern of classification of complex consonants,

Figs. 13 and 14 show such classification with parent nodes and branches or lines of mergers. The parent nodes are the two dorsal simple phonemes and t and k as well as nodes of the primal phonemes. The t and k nodes each connect to the j and w pair as well as to the primal phonemes. Whether t and k merger with j or w is determined, respectively, by dorsal or ventral superimposed lingual presettings.





Palatalization

Palatalization, both historical and synchronic, is a general tendency in various languages to **raise**, as well as to **retract** the tongue so that a secondary glide to /j/ is appended to the articulation of certain phonemes. Such secondary articulation produces allophones of these consonants.

Although it is it is traditionally held velar consonants. like /k/ or /g/ are protracted in palatalization since the velum is posterior to the palate, where /j/ articulation occurs, this is not true at the **isolated** nodal level, where the n node is anterior to the j node. In nodal mechanics palatalization is always **retractive**.

It is important to note that among the various variations of palatalization one type needs to be **distinguished** because it morphologically and mechanically differs from the others. While in general palatalizations create allophones, morphological palatalizations produce phonemically contrasting nodes, that is, new phonemes. Such is the case in Russian (hard) /t/ vs. palatalized (soft) /t^{j}/, etc. /brat/ (brother) vs. /brat^{j}/ (to take).

However, this process whereby palatalization creates **new phonemes** is only one member of a class of tongue-retractive merger processes, in which certain frontal consonants are merged with a set of nodes j, w and l. It is convenient to assign to this process the term r**etrovection**.

Retrovection: directionality in certain phonemic consonant mergers

In retrovection the nodes of modified consonants are created by the mergers of certain consonants with the nodes of j, w, and l. The option as to which of these mergers appears is determined by the **articulatory basis** of a given language.

The merger lines of alveolar-palatal consonants with j, w , and l, as illustrated in the CCT represent only those languages in which **palatalizing** retrovection is **typical**. For Semitic, Indian or African phonologies, that have different bases of articulation the same merger lines yield different results where approximations focus not on palatal, or /j/, but rather **lacunar**, or /w/, and **pharyngeal**, or /l/ targets.

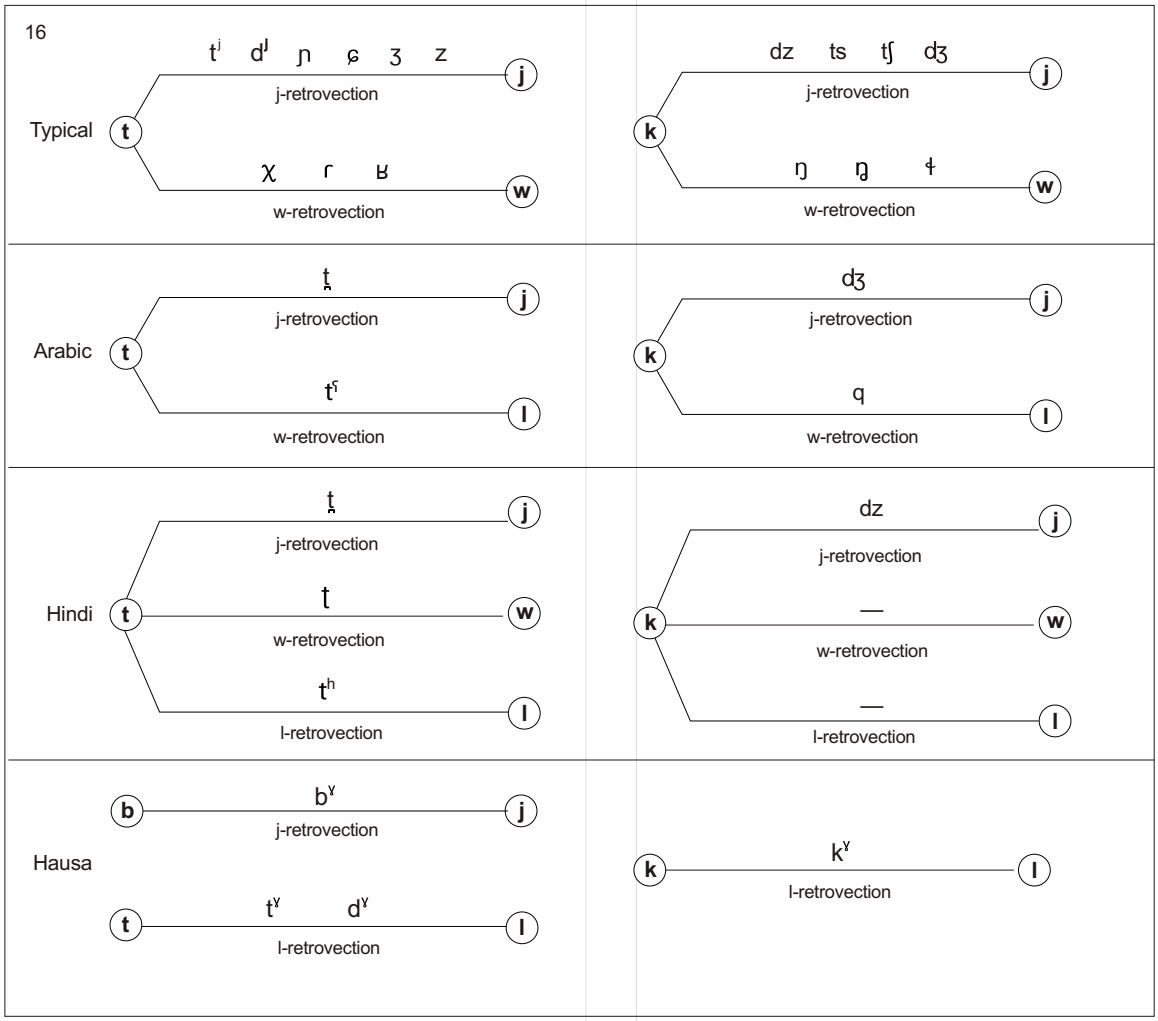
These processes include the Arabic emphatics /t̪ˤ/, /d̪ˤ/, /z̪ˤ/, etc., the retroflex and aspirated phonemes /ÿ/, /t^{h}/, /ë/, /ê/, etc., in the languages of India, the glottalized consonants /t~/, /d~/, /k~/, etc., in Hausa.

Palate-directed tongue body, (i.e., n-division) elevation occurs in all three modes of retrovection, but this cannot be regarded as "palatalization" because the tongue dorsum is significantly distant from the palate. See fig. 15.

15 **A case of retrovection: glottalized /t/ and /d/ in Arabic**

After Marcais, 1948, in Harmut Kästner, "Phonetik und Philologie de Modernen Hocharabisch", VEB, Leipzig, 1981.

Fig. 16 below illustrates patterns of typical **retrovections** of /t/ and /k/ and /b/ in several languages.



The j, w, l valvular faculties

These three are among the simple consonants. Their presence at such high-ranked hierarchical level is derived not so much for their roles in speech, but those in respiration. They are, when isolated, the nodes that control the valves leading into the three interconnected air channels: j̲ closes the nasal passage, w opens the nasal passage and l̲ closes the pharyngeal one. This is ascertainable when one generates these isolated nodes and then observes the route of the respiratory airflow. This faculty is supporter by the fact that there is efficient nodal connectivity between the nodal couplings, respectively, of h-j, n-w and m-l, see fig. 17. This faculty justifies the prominence of their roles in retrovective targeting in the context of speech .