GROUNDING IN INWARD ARTICULATION

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1. Agent-antagonist equalization action

You research shows that connecting inward directed consonantal sequences with positivity is a proven fact. Interestingly, the approach, which looks at the biomechanism involved at a **subordinate** hierarchical level, can be further pursued at a higher level. Controlled movement is governed by agonist-antagonist coaction, where two forces oppose each other while moving in opposite directions relative to a central point, to their center of mass, where they intersect. (Cf. center of mass between the sun and a planet). Tongue movement, is therefore **not independent**, but is opposed by forces coming from the **posterior** oral region, which is also linked to the laryngeal apparatus. The tongue operates in an agent-antagonist coactive **coupling**.

2. The two variables in lingual agent-antagonist coaction

There are two variables in agent-antagonist coaction. **Variable 1** is the direction of inward vs. backward movements. **Variable 2** is the question of which of the forces is **primary**. The primary force (prime mover) is the action **initiator**, operating at a hierarchically higher level than the antagonist, which is secondary and which responds as an equalizing force.

I gather that you have no problems with using proprioception in experimentation: (cf. Topolinski 2007: "...Take a moment, articulate your name, and carefully observe…), and so you would readily sense that the articulating tongue when **protracting** is countered by antagonist **retraction** in the back of the tongue. In contrast, backing the tongue results in advancing the posterior region. A symmetry exists here; just as the tongue back is attached to the oro-velo-pharyngeal complex, similarly the tongue is also attached frontally, through the genioglossus to the jaw and through the jaw to the facial musculature—the external (somatic) and internal (visceral) bodies are continuous.

3. Primary initiator

Coming to specifics, in the case of BAKO and KENOBA the primary initiator is not, as it would intuitively appear, BA or KE, but rather, KO and BA. To observe this pronounce BAKO and while keeping the oral frame of the word intact allow the tongue to relax, to neutralize its pull. Note that the frame tension of the word moves posteriorly and **settles** at its word initializing position, one that generates the syllabic nucleus of BA. From this setting the word can again

be pronounced. Thus the anchoring source of **backward** movement is **not** in the articulating tongue, but in the **posterior region**, where the prime mover resides. When distorting secondary tensions are released the primary initiating force is what remains. The primacy of the posterior region in speech was expressed in Brown et al. 2009, (*The somatotopy of speech: Phonation and articulation in the human motor cortex*): "The results showed that the strongest motor activation for speech was the somatotopic larynx area of the motor cortex, thus reflecting the significant contribution of phonation to speech production" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2873785/).

4. The tongue anchor in backward movement – the <u>m</u> anchor

(Note: The symbol <u>m</u> denotes an anchoring function, to distinguish it from the phoneme /m/.)
The **posterior** region, which takes part in phonation, consists of the **back** of the tongue bonded to the oro- velo-pharynx and the hyo-larynx. Importantly, the consonant that is anchored in a biomechanically central spot in the tongue back, in its center of mass, happens to be **/m/**. It is misleading to call it a labial because the closure of the lips is only the **secondary** response to the initiating **primary** action of retracting and lowering the tongue to generate /m/. **Releasing** the labial compressure component of the /m/ articulating frame makes this evident as the frame retains the posterior <u>m</u> anchoring. At this point lip closure regenerates the /m/. Whereas if the **lips** are made the prime movers in producing the /m/, the tongue is strongly **impeded** from shaping the /m/.

5. It is the /<u>m</u>/ frame that connects to positivity

The region in question (the **<u>m</u> anchor** region) is the central mass, or point where the muscular forces of the tongue, and of the naso-velar and pharyngo-laryngeal muscles intersect, and regulate both respiration and feeding passing through it. Therefore, it may be **hypothesized** that this <u>m</u> region is where **positive** and negative aspects of respiration and feeding and of speech--which combines elements of breathing and mastication--are myologically and neurally **grounded**. Indeed, evidence suggests that the forces arriving in this center from all directions modulate the framework and generate various manifestations of **positivity**, as listed in the following.

6. The <u>m</u> anchor and positivity

a. An important positivity connected to the <u>m</u> anchor is olfactory perception of enjoyable food **aroma** during mastication and immediately prior to swallowing. Opening the olfactory channel occurs sequentially during chewing and most

significantly just before the point of swallowing, which exhibits a subvocal /m/.
The opening is triggered by the repeating sequential jaw closures in mastication.
Thus, the action of the m anchor relates to the positive experience in eating.

b. The /m/ anchor is present in smiling and laughter. The efficiently articulatable phoneme in these behaviors is /m/.
c. Speakers of European languages verbally express the pleasure in food with the **sound** "m". The articulatory setting for the phoneme /m/ is, thus, closely related to the oro-laryngeal center of mass, and so calling it the m anchor is convenient.
d. Nasal breathing, with enlarged naso-velo-pharyngeal spaces relates to bodily and mental tranquility; /m/ is pronounced with open nasal expiration. (The other nasal, /n/ involves added tract strictures; going further, m, n, and h are germinal lingual anchors in respiration, mastication and speech: h=inspiration/ingestion (oral food intake); n=nasal respiration with open jaw/mastication; m=nasal respiration with closed jaw/swallowing.)
e. Focused olfaction incorporates the /m/frame.
f. In English the exclamation signifying agreement is approximately "ahem`" (/ɘhm/), with /m/ anchoring. Not surprisingly, the final settled initating articulatory anchor of the word "OK" is m, hence its global adoption.
g. /m/ is a back anchored consonant, not a labial, as currently classified (see below at **CCT**, where it is shown that /b/ and /l/ are also back anchored). These two consonants also relate to positivity, cf. "Eng. love, baby, Germ. Liebe, Lob, Russian lyub-, Latin libet, libido, etc. The universal "ba-ba" and "ma-ma" of infants' talk also indicates this in speech ontology. The **m** anchor is not absent here; b is a subordinate satellite anchor of m and l is the counterpart of m in the pharyngeal articulatory region. (Cf. CCT below).
h. Frontally anchored words tend to be associated with negativity, cf. Eng. no, nix, German nein, Latin/Romance non, ne, noli, nihil, nix, also the words hate, hassen, horror, pain, crying, bitter, as well as curse words, etc. (The fact that "nai" (/nè/), means "yes" in Ancient and Modern Greek is possibly explained as the influence of a Pre-Greek Pelasgian substrate and also by the pitch accent of Ancient Greek.)
i. The anchor m relates also to the sense of self and to inward mental projection, cf. Indo-European language use of /m/ in the oblique forms of the first person singular (Eng. me, mine, Germ. mein, mich, French me, moi, Russian mnye, moy, menya, Latin me, mihi, Sanskrit mam, maya, mahyam, etc.) However, the first singular pronoun is not with /m/, but with frontal anchoring, cf. Eng. I, German ich, French je, Russian ya, Latin ego, Sanskrit aham, etc. This is because here a forward, outward projecting aspect of the self is expressed.
The inward projecting nature of /m/ is also evident in words relating to the **mind**: English mind, memory, mental, remember, Spanish mente, French mémoire, German: Meinung, Latin memini, Greek memno, Sanskrit: manasam, mati, muni, etc.

The self and **inward projection** aspect of /m/ is fundamental in Eastern yoga and related techniques: /m/ is prominent in mantras such as Indian “om”, “om mani padma hum”, Japanese Zen “mu”.

Other embodiments of /m/: the m anchor is also grounded in several other body regions. E.g., in the fourth and fifth fingers. Subvocalizing /m/ enables stable attention on these fingers, but not on the others. Sensing these fingers generates subvocal /m/.

j. Inward directed positivity was discerned by William James writing that the perception of "self" appears to be located in the head and throat region: “the 'Self of selves,' when carefully examined, is found to consist mainly of the collection of *these peculiar motions in the head or between the head and throat***.** I do not for a moment say that this is all it consists of...but I feel quite sure that these cephalic motions are the portions of my innermost activity” (James, The Principles of Psychology, 1890, 1:301).

k. In cross-language contrasts we can find complete mirror reversals as in how “bu” means “no” in Mandarin Chinese and is “m” in Cantonese. You might find it interesting to read
http://www.garystong/LanguageRule/LanguageRule.doc
which discusses a wide range of contrasting articulation related groundings among language groups, like directions of writing or preferences in eating utensils.

l. CCT (Complex Consonants Taxonomy)
The traditional consonant classification is an artificial construct, based on tongue contact points and airflow cross sections. This is as superficial as classifying plants by leaf shape, or animals by number of legs, rather than by evolutionary lines. The CCT is a system map of built-in physiological relationships between lingual articulative anchors, or centers of mass, innate to every consonant. Their kinesiological relations and relative positions in the tongue are clearly illustrated. It can be seen why defining /b/ or /m/ as labials is misleading. The **CCT** is taken from a chapter covering the subject, but I think it is comprehensible on its own.
Link: http://www.garystong/CCT/CCT3.pdf

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