

<https://doi.org/10.21638/2226-5260-2021-10-1-232-257>

TECHNO-TELEPATHY & SILENT SUBVOCAL SPEECH-RECOGNITION ROBOTICS: DO ANDROIDS READ OF ELECTRIC THOUGHTS?

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The primary focus of this project is the silent and subvocal speech-recognition interface unveiled in 2018 as an ambulatory device wearable on the neck that detects a myoelectrical signature by electrodes worn on the surface of the face, throat, and neck. These emerge from an alleged “intending to speak” by the wearer *silently-saying-something-to-oneself*. This inner voice is believed to occur while one reads in silence or mentally talks to oneself. The artifice does not require spoken sounds, opening the mouth, or any explicit or external movement of the lips. The essay then considers such subvocal “speech” as a mode of writing or saying and the interior of the mouth or oral cavity as its writing surface. It briefly revisits discussions of telepathy to recontextualize Heidegger’s warning against enframing language exclusively within calculative technics and physiology, which he suggests is detrimental to *Mundarten* (mouth-modes of regional dialects). It closes in reconsideration of Husserl’s phenomenology of language and meaning in *Ideas* as it might apply to subvocal speech-recognition interfaces. It suggests ways by which the electrophysiology that the device detects and deciphers (as an alleged intention of a presumed natural language unspoken vocally or aloud) might supplement Husserl’s insinuation of the *Leiblichkeit* of language through a self-stamping extraction of an extension of meaning.

Keywords: intention, meaning, language, telepathy, cybernetics, logic, embodiment, orality.

ТЕХНО-ТЕЛЕПАТИЯ И РОБОТОТЕХНИКА БЕЗЗВУЧНОГО ДОГОЛОСОВОГО РАСПОЗНАВАНИЯ РЕЧИ: ЧИТАЮТ ЛИ АНДРОИДЫ ЭЛЕКТРИЧЕСКИЕ МЫСЛИ?

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В центре этого исследовательского проекта — интерфейс беззвучного и доголосового распознавания речи, реализованный в 2018 году в качестве устройства, носимого в амбулаторных условиях на шее и считывающего биотоки мышц с помощью электродов на поверхности лица, горле и шее. Эти биотоки возникают из предполагаемого «намерения говорить» носителя прибора, *молчливо-что-то-говорящего-самому-себе*. Считается, что этот внутренний голос проявляется при чтении «про себя» или при мысленном разговоре с самими собой. Аппарат не требует произнесения звуков, открывания рта или какого бы то ни было внешне видимого движения губ. В статье эта доголосовая речь рассматривается как способ письма или говорения, а ротовая полость как поверхность для письма. Кратко рассматриваются дискуссии о телепатии, чтобы переосмыслить предостережение Хайдеггера против встраивания языка исключительно в рамки руководствующейся подсчётом техники и физиологии, которую он считает губительной для *Mundarten* (привычки речевого аппарата, характерные для региональных диалектов). Статья завершается пересмотром гуссерлевской феноменологии языка и значения в *Идеях*, в той мере в какой она может быть применена к интерфейсам доголосового распознавания речи. Предлагаются направления, по которым электрофизиология, которую считывает и расшифровывает устройство (как предполагаемое намерение произнесенного вслух или громко высказывания на естественном языке) может дополнить Гуссерлевские размышления о *Leiblichkeit* языка, проявляющуюся через само-запечатлевающееся извлечение расширения смысла.

Ключевые слова: намерение, значение, язык, телепатия, кибернетика, логика, воплощение, устная речь.

...of androids rising
botnets compassionate
machines empathic [*maşinării empatice; empatiske maskiner*]
and these fleshines [*şi acestse carnuri; og disse kødskiner*]
...dancing on a new bill of rights.

Ankersen & Zbirnea (2019, 10, 15, 20)

Subvocal's the way. I pick it all up through the skin.

William Gibson (1988, 4)

This project attempts to attend to cyborgs, robotics, and artificial intelligences made operative by transmissions of information, intentions, articulations, thoughts, words, expressions, or perhaps even ideas that are internally and inaudibly said-to-

oneself in subvocal¹ silence. These enable something close to what is often called “thinking” to augment realities in new technical ways. The first section introduces the device, itself, with descriptions by its designers of its functionality and efficacy, followed by brief notes on telepathy and thought transference. The following sections apply various phenomenological perspectives (even if critical of “phenomenology,” proper) to the artifice in terms of (2) the mouth as the scene of writing, (3) Heidegger’s critique of technics and physiology in defense of *Mundarten*, and (4) the possible *Leiblichkeit* of language at work in Husserl’s self-stamping extensions of meaning.

1. ALTER-EGOS

At the 2018 Intelligent User Interfaces (IUI) tech conference in Tokyo, researchers from the MIT Media Lab presented a prototype of their wearable silent speech interface called “AlterEgo.” The headset—neckset or mouthset—of external electrodes enables its user to “silently converse with a computing device without any voice or any *discernible* movements” (Kapur, Kapur & Maes, 2018, 43). The silent conversant thereby communicates with AI assistants or other humans (thereby assisted) in “a silent, concealed and seamless manner” (Kapur, Kapur & Maes, 2018, 43). The wearer’s “*intention* to speak and internal speech is characterized by neuromuscular signals in internal speech *articulators*” (Kapur, Kapur & Maes, 2018, 43). These are received by electrodes through which the AlterEgo system “reconstruct[s] this speech” (Kapur, Kapur & Maes, 2018, 43).

Users “can silently communicate” in what its designers call “natural language” and even receive “aural output” (through “bone conduction headphones”) by which a “bi-directional interface with a computing device” becomes “a seamless form of intelligence augmentation” (Kapur, Kapur & Maes, 2018, 43). Test runs of the interface display a 92% “median word accuracy” (Kapur, Kapur & Maes, 2018, 43, 45). The system is “ambulatory [and] connects wirelessly over Bluetooth” (Kapur, Kapur & Maes, 2018, 45).

With the ambition of “closely coupling humans and machines,” AlterEgo enables a thinker “to provide arbitrary text input” to either another human or a machine

¹ This article’s subtitle evokes the title of a Philip K. Dick novel which struggles at its core with the phenomenology of “empathy” in an imagined posthuman or cybernetic era (2017, 16–17, 53, 59, 98, 112). An android, the replicant Rachael Rosen, understands that her “*verbal responses won’t count*. It’s solely” physiological reactions that “the Voigt-Kampff testing apparatus” will “use as indices” (2017, 38, italics added). The testing is set in motion earlier by a human, Inspector Bryant, described as “working his tongue in and around the fringes of his mouth” while “he continued to leaf through” pages of text in a “bundle of notepaper” and “notes” (2017, 28).

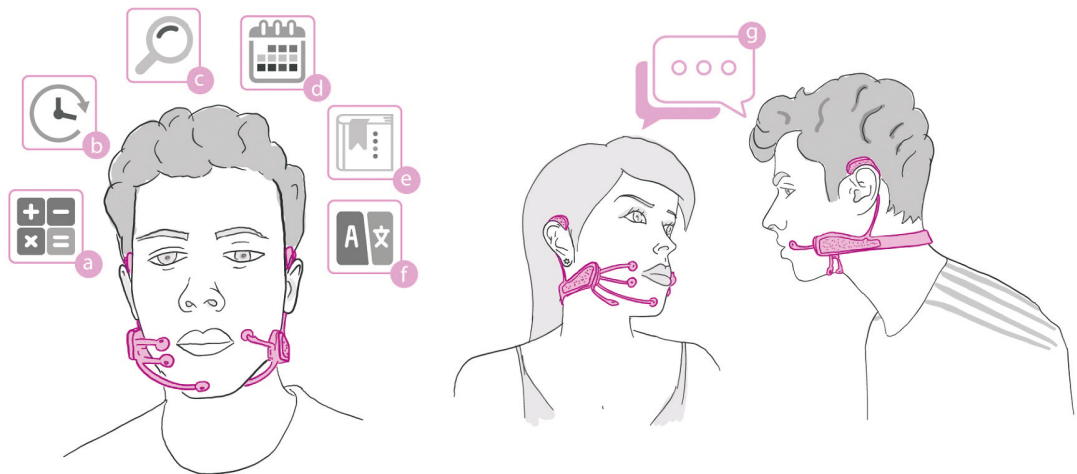


Figure 1. Headset Sketch (Kapur, Kapur & Maes, 2018, 43)

“without any observable action at all and without explicitly saying anything” (Kapur, Kapur & Maes, 2018, 43). The device seeks “to move in the step to couple human and machine intelligence in a complimentary symbiosis...which would lead to an eventual convergence” (Kapur, Kapur & Maes, 2018, 51) as seamlessly as humans colloquially communicate in “meatspace” (Pynchon 2013, 77, 429) through sounds, speaking, and their organic sensory interfaces of colloquial speaking and hearing sense organs.

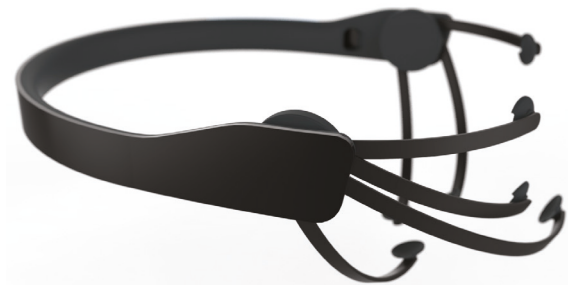


Figure 2. Headset Free (Kapur, Kapur & Maes, 2018, 45)



Figure 3. Headset Worn (Kapur, Kapur & Maes, 2018, 45)

The designers cite developmental studies predating their own that began in the innards of the body and others that eventually progress outward to the dermal surface. Previous research utilized more invasive techniques (Hueber, Chollet, Denby

& Stone, 2018) using “sensors placed on the tongue to measure tongue movements” (Kapur, Kapur & Maes, 2018, 44). Studies gradually move outward in developing a non-invasive system “decoding speech from facial muscles movements using surface electromyography [EMG]” (Kapur, Kapur & Maes, 2018, 44). These previous EMG studies (Jorgenson, 2005) were able “to detect subvocal words” in order to operate a web browser with 33% accuracy without the need for manual digitality or fingers to type keys or swipe screens. The previously non-invasive techniques “require the user to explicitly mouth their speech with pronounced, apparent facial movements,” though they need not make a sound. This required the user “to lip sync the words in a pronounced fashion” (Kapur, Kapur & Maes, 2018, 45).

Such *mouthings*² might be considered alongside the *Mundarten* of Heidegger (discussed below), who warned would be left unconsidered or forgotten through the course technological development. The pivotal advance in AlterEgo’s subvocal speech-recognition is that it “performs robustly even when the user does not open their mouth [or] make any sound” (Kapur, Kapur & Maes, 2018, 45; cf. Ableman, 1969, 142). AlterEgo all but claims to achieve precisely what Heidegger laments: usurpation of mouth-modes and an overcoming of overt animal mouthing techniques in meatspace.

“The modality of natural language communication without any *discernible* movement is key, since it allows for a seamless and discreet interface” (Kapur, Kapur & Maes, 2018, 45, italics added). In a section entitled, “Indiscernible Silent Speech Recognition,” designers explain their understanding of soliloquy, internal monologue, or simply the silent practice of “internally talking to oneself” (Kapur, Kapur & Maes, 2018, 46, 52). As such, it begins encroaching upon Husserlian *Bedeutung*, discussed in more detail below. “Internal vocalization [...is...] the characteristic inner voice in humans that is usually noticeable while reading and can be voluntarily triggered while speaking to oneself, excluding deliberate lip or discernible muscle movement” (Kapur, Kapur & Maes, 2018, 46). They later refer to such internal vocalization as an “utterance” (Kapur, Kapur & Maes, 2018, 51; cf. Derrida, 1973, 70–87).

The suggested *myoelectrics of meaning* registered detectable by silent subvocal speech-recognition technics are described as “projections” from “the ventral sensorimotor cortex” of the brain projected “to the face, laryngeal cavity, pharynx and the oral cavity” (Kapur, Kapur & Maes, 2018, 46). By nerve impulses,

the neurotransmitter [...is...] released into the synapse [...] releasing *sodium cations* in the muscle fiber, triggering an *action potential propagation* in the muscle fiber. This

² On the phenomenology of *mouthings* (“mouth” deployed as an activity or verb), compare Marion’s use of « *s’abouchant* », akin to “mouthing each other” or “mouthing ourselves” (2003, 210).

ionic movement [...] generates *time-varying potential difference patterns* that occur in the facial and neck muscles while *intending to speak*, leading to a corresponding myoelectric *signature*... (Kapur, Kapur & Maes, 2018, 46, italics added)³

These are, in turn, detected by electrodes in the headset “from the surface of the skin in the absence of acoustic vocalization and facial muscular articulation for speech” (Kapur, Kapur & Maes, 2018, 46).

Silent and subvocal speech-recognition obliquely invites consideration of a certain mode of telepathy perhaps indissociable from what Freud once considered the “omnipotence of thought” (Freud, 1998, 73–77) made possible by a tele-technical prosthesis that prepares pathways to possible “thought-transference” (Freud, 1955, 184, 193). Such a dynamic would be difficult to dismiss as simply impossible upon appreciating any psychoanalytic notion of the unconscious (Derrida, 2007, 237–8, 256; Freud, 1955, 220; Brower, 2011, 216–29).

As he struggles with Freud’s own struggles regarding important possible differences between thought-transference and telepathy, Derrida draws close to describing a technical textualization of thoughts akin to the subvocal speech-recognition device discussed above.

Always difficult to imagine that *one can think something to oneself* [*à part soi*], *deep down inside*, without

being surprised by the other, *without the other being immediately informed* [*averti*], *as easily as if* he or she had a giant screen *inside* [...] with *remote control* [*telecommande*] for changing channels and fiddling [*jouer*] with [...] *the speech dubbed with large letters* [*le discours étant doublé en grosses lettres*] in order to avoid any misunderstanding. (Derrida, 2007, 237, italics added; 1998, 247)

Endeavoring to “avoid any misunderstanding” is one of Derrida’s primary concerns. Such a screen need not be imagined as giant—though it may well remain “gigantic” in the Heideggerian sense (Heidegger, 1999, 94–96, 310–312)—nor necessarily inside (yet). Silent speech-recognition addresses precisely *thinking something to oneself deep inside* that is tele-technically decoded to alert or *inform another remote screen* on which its *speech* (if it is that) *is dubbed in letters* to be read rather than heard

³ The prefix of “myo-electric” denotes musculature. It is a physiological term describing electrical signals, stimuli, or impulses across—emitted from or received by—muscular membranes. A cation is a positively charged ion. The charge renders it prone to be drawn, attracted, and detected by appropriate electrodes. See also the phenomenology of being drawn [*trahitur*] and modes of attraction (Marion, 2016, 38–44; cf. Hegel, 2010, 138–151) and the possibility of being *suddenly* “drawn into” a process that *might* be discerned from “*gerissen*” (Hegel, 2010, 640; 1969b, 421).

(but, as such, it may then be heard, fiddled, or played through automated read-aloud software).

While hypothesizing such a telepathic dubbing device, Derrida cautiously suggests that “one can safely *envisage* the *probability* of telepathy; *on peut tranquillement envisager la probabilité télépathique*” (Derrida, 2007, 256, italics added; 1998, 265). Is there a probability (or a telepathy) that will not have been a *telepathic probability*? If not, would this allow oneself to dream more safely in the vicinity and microscopic interstices of a possible cosmology or ontology of “probability fuses” (Moravec, 1999, 183–186)? As Derrida is a thinker far more concerned with possibilities, noteworthy here is a rare recourse to the language of probability in what seems to read in an affirmative valence. He consistently associates probability with modes of *calculation* throughout his works, whereas possibilities will have been “beyond all calculation of probability” (Derrida, 2007, 235, italics added).

Far safer it seems to envisage telepathy in terms of probability⁴. This should be kept in mind when noting that John Maynard Keynes confronts telepathy in *A Treatise on Probability*.

I see no *logical* difference between the problem of establishing a law of telepathy and that of establishing the law of gravitation. There is at present a *practical* difference on account of the much narrower scope of our knowledge, in the case of telepathy, of cognate matters. We can, therefore, be much less certain [regarding telepathy]; but there seems no reason why we should necessarily remain less certain after more evidence has been accumulated. It is important to remember that, in the case of telepathy, we are merely discovering a relation between objects *which we already know to exist* [i.e., consciousnesses]. (Keynes, 2017, 343, italics added)

It is worth anticipating Serres’ suggestion that non-automated sapience, discussed below, somehow “tastes improbability” (Serres, 2008, 223). Freud, Derrida, and Keynes are not interested in colloquial superstitions of telepathy associated with occultism, magical mind-readers, or spiritualist animism, but rather in experiential phenomena of relations between living consciousnesses. Telepathy, as such, would be more closely akin to an object of scientific study and eventually, given appropriate techniques of experiment, due as much serious attention as the role of gravity in the development of physics and natural science.

⁴ Alfred North Whitehead and Derrida nearly telepath each other on this point, as if probability and modes of envisagement are indissociable. The former’s mathematical critique of statistical probability takes recourse to a singular *envisagement* beyond the merely probable (Whitehead, 1957, 305–8, 70; cf. Brower, 2020, 17–22).

Just as the silent auto-affection of inner voice never completely escapes the fundamental phonics of phonocentrism (after Derrida, discussed below), so too might telepathy remain vulnerable to technical glitches such as those that disrupt telecommunications. A mode of “destinerrance” informs the possibilities of telepathy: “it is because there would be telepathy that a postcard can always not arrive at its destination. The ultimate naivete would be to allow oneself to think that Telepathy guarantees a destination that ‘posts and telecommunications’ fail to assure [*échoient à assurer*]”⁵ (Derrida, 2007, 239; 236; 1998, 349; cf. Wiener, 2013, 129). This might be read as a Derridean warning against any assumption to successfully delimit the transference of something silently said to oneself to a specific sensor, alone, technically devised to receive it. There would be no guarantees to reception.

2. OF PALATOLOGY

With some understanding of subvocal speech-recognition robotics now on our minds, this section suggests ways by which the anatomical zone of meaning around the mouth might reveal itself as a scene of writing (rather than speech, voice, talk, language, or *logos*). To begin, let us attend to the possibility that “speech” is perhaps the wrong term and misbegotten for certain phenomenologies to be discussed. As it is the descriptor of choice deployed by the designers, I will continue to address it as “speech” *conditioned* by subvocal silence. But I also employ and encourage consideration of it in terms of *saying* (*dire* rather than *parler*) as one finds in the writings of Levinas (1961, 260; cf. 40) or Cixous (1987, 203; 2004, 41, 47, 86, 108, 116, 122).

At the advent of cybernetics, one discerns a certain drive or primal ambition for *special sense* as it is drawn toward “the theory of the sensitive automata” (Wiener, 2013, 43).

Much of the psychology of the past has proved to be really nothing more than the physiology of the organs of *special sense*; and the whole weight of the body of ideas which cybernetics is introducing into psychology concerns the physiology and anatomy of the highly specialized cortical areas connecting with these organs of *special sense*. (Wiener, 2013, 18, italics added)

Wiener later analogizes machine sensors to animal sensation and sense organs by taking specific recourse to the language of gustation regarding ion receptors, such

⁵ Telepathy is not alone in this problem. Probability, too, has been a question or paradox of assurances since its budding articulations in Port Royal: « *Mais est-il probable que la probabilité assure* » (Pascal, 1963, 584)?

as “hydrogen-ion-potential recorders, which *may be said to taste*” (Wiener, 2013, 42, italics added).

Note the Alter Ego designers’ repeated recourse, above, to the language of *discernibility* and consider the gustatory associations often attributed to *discernment* (cf. Mackey, 1958). The device all but proclaims to discern the indiscernible⁶. Michel Serres notes a *gustological distinction*⁷ within extant robotics. Whereas optics (e.g., facial recognition), acoustics (audible voice recognition), and corporeal haptics (robotic self-correction upon appendage loss, damage, or amputation) all seem computational, automatable, auto-corrective, or machine translatable, Serres suggests that a certain sapience does not (as yet):

A robot with a tongue of stone, iron or wood, it speaks, cannot know thirst. We know how to build machines that talk, *we do not know how to build robots that can drink or taste*. A tongue can become artificial, intelligence frequently does, but sapience never does. It is in this sense that an automaton differs from *homo sapiens*: it has the first tongue [i.e., speech], but not the second [i.e., taste]. (Serres, 2008, 175, italics added)

This all-too-human and (supposedly) non-automatable sapience would likely be at work in Heidegger’s *Mundarten*, discussed below. Speech-recognition technology would cause Serres no surprise, be it operational in silence or otherwise, as speaking-tongues are already mere machines for him. He is more interested in mouth-modes beyond speech or talking, namely, the tasting, gustatory, savoring or sapient capacities of living tongues which he suggests beyond the scope of machinic automation. At least once Serres describes this singular tasting capacity as a form of writing [*écriture*]: “Take this great wine, taste it, the map of its temperament will be traced [*écirira*: written] on your tongue” (Serres, 2008, 159; 1985, 172–173).

But the tongue need not be limited to a fleshy surface written upon as it is perhaps here in Serres. It may also be employed to do the writing itself. The textual datification of the myoelectric signatures seems more akin to writing-recognition than that of silent speech, in the sense that “the contemporary biologist speaks of writing

⁶ It is difficult to ignore that this trope of *discerning the indiscernible* was employed by Kant while grappling with radical evil. No matter how superfluous or detached phenomenology may feel in attending to the seemingly subsidiary signatures at play in techno-telepathy artifices, it is worth considering that it is again confronting that very same Kantian enigma, if only indirectly. “[W]hat we want to discern [*einsehen*], but never shall, is this: how can *pre-determinism* co-exist with freedom...” (Kant, 1996, 94; 1974, 59).

⁷ This has all the larval potency of a post-Heideggerian *gustological distinction* (to come) by a radical empiricism that might supplement or perhaps supplant the well-worn *ontological distinction* of twentieth-century phenomenology as it progresses into the posthuman cybernetics of the tele-technoscientific age of information.

and *pro-gram* in relation to the most elementary processes of information within the living cell. And [...] the entire field covered by the cybernetic *program* will be the field of writing” (Derrida, 1974, 9, 84). Mouthparts have perhaps become a new re-coordinated “field,” as such, covered by a cybernetic program of headset sensors. Are not these sensors attempting to detect what Derrida calls “the writing before speech and in speech” (Derrida, 1974, 51)? The supposed signature it records seems to remain transcribed “through the irreducible notion of the trace [...] as it appears [...] notably in biology” (Derrida, 1974, 70).

Derrida’s supplemental critique of Husserl in *Voice and Phenomenon* (and elsewhere) is not only further affirmed but becomes even more crucial in a time of digital datafication. The “pure auto-affection” Derrida interprets in Husserl as “the operation of hearing oneself speak” need no longer be colloquially heard aloud. Deconstruction is already well-prepared to attend to such a voice *unheard-of* (Derrida, 1974, 12, 65, 234; Derrida, 1973, 102–103, 153; Derrida, 1978, 111, 139; cf. Chrétien, 2004, 15). Subvocal signatures do not necessarily surpass or escape the foundational and metaphysical *phonè* of tele-phonics or phonocentrism. The device still “seems to reduce even the inward surface of one’s own body, in its phenomenal being it seems capable of dispensing with this exteriority within interiority, this interior space in which our experience or image of our own body is spread forth” as Derrida already forewarned, even if it is reliant (as yet) upon an external headset. “An objective ‘worldly’ science surely can teach us nothing about the essence of the voice to be produced in the world as pure auto-affection” (Derrida, 1973, 79). But subvocal speech-recognition might at least surely teach us that any alleged auto-affective purity is prone to disruption. It nevertheless continues to constitute “the epoch of speech as *technical* mastery of objective being” (Derrida, 1973, 75) now operational in extracting subjective signatures.

One might look to theologians, scriptural exegetes, or philosophers of religion for thinkers acclimated to thinking the tongue as an instrument of writing. It is the Psalmist who offers: “my tongue is a pen of a ready/gifted writer” (Psalm 45:1). The Septuagint reads: “ἡ γλῶσσά μου κάλαμος γραμματέως ὀξυγράφου [*hē glōssa mou kalamos grammateōs oxygraphou*].” As such, the tongue becomes grammatic. In many ways it is pro-grammatic. This *glossa mou* is a pen of *grammatos* by an oxygrapher. The *tongue* is a certain *stenographer’s writing* tool. The *glossa* *grammatizes*. Here, the mouth opens itself to a possible *grammat*-ology of the *glossa*—on the tongue—beyond the overtly *phonemic* “glossematics” of Hjelmslev. The Psalmist sets a stage for a *glossa-grammatology* to come. Its speaker—perhaps speech itself—becomes a lingual stenographer by way of the tongue as pen.

Importantly, it is not simply *a* tongue but “*my tongue*” [*glossa mou*] implying all the appropriate self-styled phenomenological insularity. Auto-affection becomes glossal-stylization. As *my tongue* writes, my tongue-writing *stylizes-itself*. It is because my-tongue writes that my-tongue is tongue-pen. I, my-tongue am my-tongue-pen. This suggests a new glossa-grammatic mutation in the cogitation of the *cogito*: I tongue, therefore *I am* my-tongue; My-tongue writes, therefore *my-tongue is* pen. My-tongue pens, therefore *my-tonguepen writes*. This would also imply a singular sort of “self-taste” discernible during the tongue usage of mouth-writing, which Derrida considers “a ‘selfhood,’ a ‘self-awareness’ that, long before *thinking itself*, long before the *cogito*, senses the taste of self” (Derrida, 2005a, 698–699, q.v., 690–691).

Such tastes might be better considered “tastetexts” (Cixous, 2007, 137). Cixous ruminates upon intertextuality with sapient discernment. Certain words taste better if spelled and written differently (Cixous, 2011, 36). This again discloses differences between saying (*dire*) and speech (*parler*). Instead of speaking and hearing, Cixous says and tastes: “I say [*Je dis*] ‘Mandela’ and *my mouth has the subtle taste* of fresh almonds, the taste of milk of the biblical fruit, hiding its firm *sweetness* within its hardness” (Cixous, 1987, 203).

She expresses something similar when she writes about writing itself. Cixous is a writer that tries-out words by tasting them on the way to writing.

It’s like this: I grope. *I try the word* —hesitation. *I taste it*. No pleasure. *No taste*. I cross out. *I try*: —correction. *I taste*. No. *I taste ten words*. Finally I fall on the word: —essay. *Before even trying I already sense a pretaste* [...] *I taste*. And, that’s it! *Its taste* is strong and fine and rich in memories of pleasure. (Cixous, 1998, 18)

Cixousian writing is trying, sampling, or testing. Would this pretaste “sense” something insensible? Is this a gustatory hetero-correction beyond algorithmic auto-correction? “Tastetexts” are blind taste tests (perhaps more *kosten* than *schmecken* in German). It would discern differential “problems [through] tests and selections” (Deleuze, 1994, 162). Such gustatory elements might be easily lost in reading English translations of Deleuze and Guattari: “All we can do is ‘sample’ [*goûter*]...” (Deleuze & Guattari, 1983, 24; 1972, 31). Saying-words-to-oneself while writing accompanies experiences of real, *körperlich*, or empirical tastes—and perhaps “irreal” (Husserl, 1976, 41), phenomenal, or *leiblich* foretastes—in the mouth of Cixous on their way to becoming written from her pen.

Is this what AlterEgo aspires to attach to itself? Would a Cixousian neck register a higher median accuracy? What exactly would be the differences between (1) Cixous’ writing-sample by taste and (2) the designers’ description, above, of the headset’s

electrodetection of muscular signatures on the throat? *C'est à dire*: are (2) the “sodium cations” and “ionic movement” detected by electrodes in subvocal speech recognition (Kapur, Kapur & Maes, 2018, 46) qualitatively distinct from (1) the hidden “sweetness” Cixous attributes to word-sampling, keeping in mind the role of electrochemical ionization at work in the physiology of experiencing any tastant as sweet or non-sweet with “the cations [...] being the effective agents” (Mackey, 1958, 580)? Why might the head of a laughing Medusa not require an external headset to telepath with the writing process? Does the coming advent of techno-telepathy anticipate why this singular writer might mourn “the lost taste of writing” (Cixous, 2009, 151)?

Would the hesitation of a Cixousian tongue not also *taste time itself*—in a mode by which the headset sensors cannot—as it ruminates on words beyond any decimation of time clocked at 0.427 seconds? This is the alleged “real-time” of the algorithmic prediction of the intention or meaning statistically correlative to the detected signature of the subvocal utterance by probabilistic computation. The “computational latency” measured between “the end of an utterance [silently said to oneself] until the corresponding [machinic] transcription” of its most probable meaning is “0.427 seconds” (Kapur, Kapur & Maes 2018, 51; cf. Eckhart, 2009, 235; Serres, 2008, 159).

The quantification of temporality fails to find the temperance of orality. Baseline on a non-sensory, numerical, mathematical, and linear conception of time (in which Husserl finds humans so often sedimented), the operativity of Alter Ego quantifies and correlates datapoints of potentiality, intention, time, and signature. This time-signature is perhaps the very remnant of phenomenal humanness that the mouth artifice endeavors to cyber-substantiate into computation alone, technically and sensorily indifferent to the regionally seasoned neck meat around which it is worn. Deleuze suggests “it is important to understand [...] the interior of the mouth, with meat...” (Deleuze, 2003, 23). Any sensory baseline to living experiences of subvocal orality (Cixousian taste tests or Derridean selftaste) would be gustatory and include inner and idiomatic self-meatiness.

Perhaps only upon thinking (1) “*my tongue is a pen*,” (2) *my mouth as its scene of writing*, and (3) “*speech as my tongue-pen writing in the mouth*, may a mode of writing—if there is such a thing—converge upon a certain mouth-mode approaching the seemingly impossible task demanded of such writing by Derrida: “*Originary writing, if there is one, must produce the space and the materiality of the sheet itself*” (Derrida, 1978, 210). Any such materiality “*must be informed*” in as much as its form “*must materialize itself*” (Hegel, 2010, 393). It is worth considering that subvocal speech-recognition is attempting to detect, decode, and transmit nothing less than this kind of informing of information...including the silences in which it is formed (and by which it is informed).

When Friedrich Kittler warns against the violent epoch in which “humans change their position [and] turn from the agency of writing to become an inscription surface” (Kittler, 1999, 210) this “turn” need not necessarily be enframed in exclusive extremes. But the warning ought not be forgotten. There may still be a certain “agency” of writing—though no longer exclusively handwriting, and, as such, perhaps no longer properly agential—that yet becomes a surface of inscription. “We would be written [...] we are written only as we write” (Derrida, 1978, 226). My-tonguepen writes in and *on* a body, in the spirit of Jeanette Winterson (1992) and the “corporeographies” of a “*Corpus Delecti*: The Body as the Scene of Writing” discussed by Vicki Kirby in *Telling Flesh*.

What is required there is a sense that *ideality and materiality are enmeshed and empowered by what*

Derrida might call an inscriptive efficacy [...] This productive entanglement is so entire that ideality and materiality, as they are commonly conceived, are profoundly altered [...] we witness the sense of the corporeal differently and in a way that *includes the tissue of the body in the sensible textile* of an “arche-writing” [...] relaying a *script which is still very much alive*. For what is writing when it is more than writing [...] when there is no getting out of this ubiquitous text? And *how is the body itself a scene of writing*, subject to a sentence that is never quite legible, because to read it is to write it, again, yet differently. (Kirby, 1997, 81, 55–56, italics added)

This becomes the-body-that-writes *because* it is the-body-written-on (and *in*), just as the irreducible notion of the trace in biology (evoked by Derrida, above) comes to disrupt the colloquial opposition between inside and outside.

As such, it seems to resist a certain corporeity de-scribed by Jean-Luc Nancy: “the body’s no place for writing [...] That we write no doubt is the body, but absolutely not *where* we write, nor is a body *what* we write—but a body is always what writing *exscribes*” (Nancy, 2008, 87). This body immaculately conceived as *no place for writing* seems ever banned from saying or speaking at all, be it vocal or subvocal (as well as from the most direct sensory experiences of selftaste). Neither merely inside nor properly outside, my-tonguepen would still inscribe as it exscribes. It would bear the muscular signatures of the exscription of that which it yet inscribes in and on itself.

Recalling the inescapable sufflations indissociable with vocalization, Derrida evokes a “breathing through a thousand mouths that leave a thousand *imprints on our skin*” (Derrida, 1978, 298). These would also leave imprints on the mouths and sign the throat muscles through which it breathes and vocalizes. It is difficult to adhere to the alleged “triumph [...] reached only through the creation of *breath-words* [...] in which [...] values have been replaced by *values which are exclusively [...] not written*,” if “there is no longer anything to prevent [these supposedly non-written values] from

falling back onto bodies and from mingling their sonorous elements with the body's olfactory, *gustatory*, or digestive affects" (Deleuze, 1990, 88, 91, italics added). Gustatory affections of Deleuzian breath-words no doubt exceed writing in the colloquial sense, yet might possibly effectuate affective experiences of embodiment, enfleshment, incorporation, incarnation, and selftastes of that very writing once considered corporeographically after Kirby with a "my-tonguepen" of the Psalmist.

There is a subfield of speech therapy, prosthodontics, or dentistry referred to as palatography. It is concerned with vocal articulation by way of the "marks made directly on the roof of the mouth" by the tongue and "the contacts of the tongue against the surfaces of the teeth" (Abercrombie, 1965, 125, 129, italics added). Pioneered by Charles Darwin's grandfather, Erasmus, along with Francis Galton, it experiments with traces or indentations left by the tongue—if tongues can be said to leave *dentations*—on the palate by covering the oral cavity with tinfoil (Abercrombie, 1965, 126–127). More recent palatography paints or coats the tongue with "ink" (Moses, 1964, 17), meal, or watercolor (or, inversely, paints or coats the teeth or mouth instead) to determine where and what the tongue writes or marks on the palate (linguogram), or the part of the palate contacted by the tongue (palatogram) (Zsiga, 2013, 91–94).



Figure 12

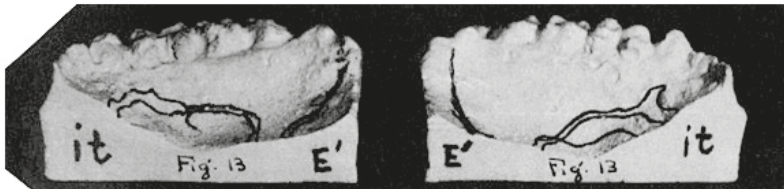


Figure 13

Figure 4. Palatographs⁸

⁸ These indirect palatographs are on plaster molds made from the speaker's mouth (as opposed to direct palatographs on a living mouth) and show the tongue's writing pattern on the palate while speaking "id" and "it" (Moses, 1940, 10–11) (Figs. 12–13). I would have liked to inscribe my entire project around an analysis of the photographs of these two palatographs. One can detect or read the not indiscernible differences between a speaker mouth-writing and selftasting the words or phonemes, "it" and "id" (not to mention over-clinical English translations of Freud's „Es“).

One study literally writes in the mouth to “clarify palatograms using a black felt-tip pen” (Arai et. al., 2004, 386) while fitting dentures to determine more comfortable tongue contact. There would be as many spaces, margins, or traces at play in palatography as those haunting colloquial writing or any possible science of grammatology to come. “On any palatogram, the area which appears as having been touched by the tongue is not wholly representative of the actual area so touched” (Haden, 1938, 22–27). Again, this would seem to be more about “selftaste” than mere touch (cf. Uexküll, 1957, 19; Beadnell, 1942, 10–11), keeping in mind there would be no selftaste or taste without touches by tongue. The tracing of the trace is inescapable, whether a tongue touch-tastes on the mouth or a pen touch-writes on a legible sheet surface.

3. MUNDARTEN

With the AlterEgo headset in mind this section turns to the *Mundarten* discussed by Heidegger and their potential augmentation by a mouth-artifice. One finds mention of them in his Freiburg lectures on *Das Wesen der Sprache* (1957–8). They herald dangers of technological attempts to enframe language within the confines of physics or physiology, acoustical or otherwise. These would seem to include any myoelectrical sensors of signatures of thoughts silently said to oneself. If the “-arten” of *Mundarten* implies *sorts* of mouthing that can classify speakers by their self-sorting speech patterns in regional dialects, they are perhaps closer to probabilistic algorithms and sorting machines than phenomenologists may initially want to believe. Algorithmic sorting draws computer scientists into explanations of such functions that seem a hair’s breadth away from phenomenological principles: “It’s empirical, but it’s also experiential” (Whittaker cited in Christian & Griffiths, 2016, 73, 59–83; cf. Marion, 2002, 119).

This section does not intend to re-scientize *Mundarten* against Heidegger’s wishes and warnings. It aspires only to keep in mind the myoelectrics of silent speech-recognition to the extent that Heidegger’s aspiration to remember them in proximity to region, terrain, and “the earth’s flow and growth [*das Strömen und Wachstum der Erde*]” also participates in the physics of osmosis, geology, or meteorology. Heidegger’s recourse to Hölderlin’s *Germanien* to reconsider *Mundarten*—in which “Language is the flower of the mouth [*Die Sprache ist die Blume des Mundes*]” (Heidegger, 1971, 99; 1985, 194)—is no more limited to an exclusively biochemical or botanical perspective than it is indemnified from the physics and clemency of any blooming plant life. Much like Kittler, above, Heidegger warns against,

[...] *the danger* of understanding melody and rhythm [in language] from the perspective of *physiology and physics*, that is, technologically, calculatingly in the widest sense [*Sinne technische-rechnerisch vorzustellen*] [...] the metaphysical-technological explanation gets everywhere in the way, and keeps us from considering the matter properly [...] the different manners of speaking in different sections of the country *Mundarten, modes of the mouth*, hardly ever receives a thought [*die landschaftlich verschiedenen Weisen des Sprechens die Mundarten nennen, ist kaum bedacht*]... (Heidegger, 1971, 98; 1985, 193–194, italics added)

This brings attention to a wide range of regional dialects comprised of site-specific idiomaticities (e.g., accent, cadence, pause, grunt, groan, stammer, stutter, intonation, or ex-/insufflation) indicative of spoken styles nearly unthought or unheard-of outside localized language usage (cf. Derrida, 1974, 226). The silence of such pauses would be singularly notable and noteworthy.

Heidegger emphasizes aspects of language or vociferation most difficult (if not impossible) to technically detect and transmit. He laments that they are nearly forgotten and rarely considered. Such flourishes resist the kind of rote transcription or digital dictation attempted by auditory speech-recognition platforms of sounds vocalized aloud. These are not merely ornamental and are capacitated to communicate a singular mode of spoken signature. But they no doubt effectuate collateral oral, buccal, laryngeal, or pharyngeal affectations detectable by mouth artifices that should equally be considered.

The primary concern is that the *Mundarten* of language must not be exclusively delimited to the mere physiology of mouthparts alone. Heidegger does not intend to forfeit the necessary physics or physiology that emerge from “different movement patterns of the organs of speech” (Heidegger, 1971, 98). “Vocalization [...] may no doubt be explained physiologically.” “No doubt much can be learned this way that is correct” (Heidegger, 1971, 9). He simply encourages the audience in earshot of his lecture to consider that “the mouth is *not merely* a kind of organ of the *body* understood as an organism [*der Mund ist nicht nur eine Art von Organ an dem als Organismus vorgestellten Leib*]” that merely moves anatomical parts (Heidegger, 1971, 98, italics added; 1985, 194, emphasis added). Despite Deleuze’s distancization from Heidegger and Husserl, *Mundarten* seem comparable to the “polyvalent orifice” irreducible to organicity in Deleuze’s direct engagement with the “*perhaps* insufficient” “lived body” of phenomenology (Deleuze, 2003, 41, 39, italics added). “Even in the meat, is there not a very distinct mouth...which cannot be confused with other organs?” (Deleuze, 2003, 42). *Mundarten* “do not solely nor primarily [*nicht nur und nicht zuerst*] grow out of different movement patterns of the organs of speech [*Bewegungsformen der Sprachwerkzeuge*]” (Heidegger, 1971, 98, italics added; 1985, 194; cf. Kristeva, 1989, 19).

Although geolocation data could be encoded into recognition platforms to attempt correlating regional contexts, the problem would be that subvocal speech-recognition technology detects *nothing but physiological signals* of mouthparts. It would fall short of properly decoding at least some such signatures that it may nevertheless properly sense through its sensors, record, and transcribe technically. The nontechnical elements of *Mundarten* with which Heidegger is concerned anticipate that the eventual development of subvocal speech-recognition technology through mere myoelectrical sensors of the exclusively physiological signatures of speech organs seems prone to overfit and fail (by the very virtue of its technical reliance) to account for the earthy *Umwelt* that surrounds and saturates the thinking and speaking of mouth-fleshed lifeforms [Leiber].

Heidegger does not wish or intend “to belittle *vocal sounds as physical phenomena* [*leiblich Erscheinung*], the *merely sensuous* side of language [*als das Bloß Sinnliche an der Sprache*], in favor of what is called the meaning and *sense-content* [*Bedeutungs- und Sinngehalt Gesprochenen*]” (Heidegger, 1971, 98, italics added). This physicality is fleshier—*leiblich*—than it may sound. Even though the word “side” might be implied by Heidegger, it does not appear in the German text. But one might phenomenologically reduce the technical problem at hand to (a) something silently said or “spoken” *inside* which is detected by (b) sensors worn *outside*. Taking sides one way or another for (b) physical or fleshy sensuality beside (a) sense and meaning only augments the problems.

Silent speech-recognition seems to problematize Heidegger’s position once reconsidered as *subvocal non-sounds of physical phenomena*. Its sensors perhaps only ever detect the side of language that is distinct from language itself. Conversely, perhaps they only detect *vibrations* of language itself but fail to approach any meaning carried over to what Heidegger insinuates to be a *leiblich* appearance on the side of sensuous language.

If sense were taken off the sidelines—including any sense attributable to something silently said to oneself—it might be considered beyond Heidegger as a Möbius topology suggested by Deleuze (1990, 20, 123; cf. Hegel, 2010, 456, 463). The surface of a human body might be conceived as a Möbius surface whose orifices are the twists, curves, or clinamina. The mouth would be a singular twist in such a surface by which the (a) inner surface lining the oral or buccal cavity and the (b) dermal surface of the face and neck outside the mouth are yet one and the same surface of sense. As such, it is perhaps not surprising that signatures signed on one side are detectable by dermal sensors on the other, especially in the proximity afforded by the headset.

The myoelectric recognition sensor might yet only detect a particular side of the possible sense of an inner something silently said to oneself. The sense detected

would persist upon another side of the same sense surface that yet stretches beside the detected recognition. Would not some aspect of sense remain insensible to such sensors precisely because they are unable themselves to embody the meaty surface of throat muscles on which the signatures they are programmed to discern are signed (cf. Deleuze & Guattari, 1983, 40; Deleuze, 1990, 20, 123)? Beyond collateral sound, audible vocalization, or acoustical audition, the side of language distinct from subvocal speech might yet still be considered at play in Heidegger by way of (a) myoelectrical signatures thought as *vibrations* and (b) sense thought as meaning (or *Sinn*). “It is just as much a property of language to [...] vibrate [*schwingt*] [...] as it is for the spoken words of language to carry meaning [*einen Sinn hat*]” (Heidegger, 1971, 98; 1985, 193). Would the vociferation that ferries voice still carry the same meaning if it remains docked in sub-voice (cf. Derrida 2009, 23, 65)?

It is no longer technically impossible for a mouth artifice to receive and translate physiological *information of something silently said to oneself* which captures and conveys some—if not most—of *what informs* the saying itself. Precisely because of its inescapable electronic limits, subvocal speech-recognition technology offers new opportunities for human thinkers to reconsider the importance of “modes of the mouth.” Its very functionality cannot help but tune into mouth-modes for its sensors to detect the signatures of silent speech effects. It does not claim to recognize thought or thinking. It merely detects digital stimuli effectuated by silently saying something (if not thinking a thought) to oneself received by a mouth artifice.

A sensor of silent speech remains to some extent a silent censor of that very speech. This would at least be the case with regards to sense and meaning. These are hardly worth agonizing over (as yet) since the devices in question do not posture as meaning-recognition or sense-recognition machines. But these very distinctions will hardly receive a thought by the optimized techno-telepathic cyborgs to come.

“*The mechanical brain does not secrete thought* [...] nor does it put it out in the form of energy, as muscle puts out its activity. Information is information, not matter or energy” (Wiener, 2013, 132). Can we still affirm such an exclusive disjunction between matter or energy? Even if we concede that it does not record matter, does not a subvocal speech-recognition electrode detect and record some energetic valence of muscular activity? Does the oral cavity of the mouth and throat somehow create the very headspace in which the brain might secretly escape its mechanical limitations?... just as, after Derrida, any originary writing must produce the space and materiality of the sheet itself on which to be written in the first place? There is a simultaneity in this “intimacy [...] at once dream and science [...] bite and knowledge, mouth and brain” (Deleuze, 1994, 219; cf. 1990, 223). After Wiener, must we not give considera-

ble thought to the subtle but solemn difference—perhaps indiscernible—between any (a) information said silently to oneself and the (b) information relayed and detected by a myoelectric signature of throat muscular activity effectuated by it? Different still would be any (c) information translated, decoded, transcribed, and transmitted from the electrode detection of that muscular signature. Altered further would be the (d) information one then reads from the transcription off a screen that receives that transmission after the fact.

The optimization, adoption, and eventual proliferation—no doubt soon to be surgically implanted by self-experimenting cyberpunks and biohackers (*if* a simple mouthpiece, necklace, neck strap, choker, or even earring will not suffice upon further development)—of these devices will likely accompany similar dangers as those already proclaimed by Heidegger. These are dangers with which socially over-mediated information society is already overwhelmed (e.g., sorted microtargeting of transmitted mis/information) and to which twentieth century structural linguistics were already attuned through diverse schemas of signification. The nearly instantaneous tele-techno-transmission of myoelectrically recognized and digitized thought-traces will always carry the risk of dulling its human receivers into believing that any non-technically augmented human recognition (if there is such a thing and if it would merit remembering at all) of its intentions and/or meanings may be safely presumed to have always been as equally automatic as the robotic receptions of their virtual transmissions (in uncritical or unthinking complacency).

But a transmission remains worlds removed from thinking. Technically speaking, Heidegger reminds us that almost any mouth-mode (technical or otherwise) hardly ever receives a thought precisely. Remarkable as the efficacy and practical benefit of this techno-telepathy will likely become, the fundamentally mouth-modified lifeform does not seem properly prepared to receive a thought (even less the sense and meaning of it). It perhaps does not and will never need to do so. But it does seem prone to become further programmed into a particularly stunted or boxed (cf. Bostrom, 2014, 158–160, 163–171) receiver of tendentious transmissions of automated transcriptions of technical detections of mere myoelectrical and physiological signals. These remain several layers removed from thinking the very thought it desires to receive. These layers of instrumental estrangement from the *leiblich* appearances of *Bedeutung* that Heidegger suggests are enrooted in *Mundarten* must be kept in mind as the next section turns to experiences of language in Husserl. Any *reception* worthy of the name would likely exceed the capacities of capacitors, transistor amplifiers, or radio receivers, if it is to acclimate itself toward what Husserl calls “gifts of meaning” (Husserl, 2012, 206).

4. HETERO-AFFECTIVE CO-ENFLESHMENT OF SAYING-SOMETHING-TO-ONESELF

From a certain Husserlian perspective, the device is anything but alter-ego. Altered it may be, but ego it is not. One feels almost nothing for it, as any ego feeling itself comes to feel further encumbered by attachment to it. Its alleged 'ego' alters the very idea of ego as much as its alteration evades any possible egoism. Yet the device remains even more egocentric than any detached living egoist.

Is it ironic that a cybernetic AlterEgo comes to disclose how meaning is potentially as much besouled or incarnated in the living flesh of throat and neck muscles as is colloquially attributed to a thinking mind—so often theoretically reduced and stranded somewhere in the brain [or *Gehirn*] (cf. Kant, 2002, 312; 1905, 324; Solymosi, 2011, 347)—through artificial devices that detect, learn, and compute far beyond human capacities precisely because of the nonliving incorporeity of devices incapable of empathizing with alter-egos (cf. Husserl, 1999, 118–120)? Is the machine perhaps trying to empathize as it auto-corrects and self-optimizes? Would such automated self-optimization or auto-correction—including the seemingly autonomous ability to incorporate new data and algorithmically rewrite-itself—merit consideration as a mode of “auto-affection”⁹ (Henry, 1973, 186–191; 1975, 41)?

Silent and subvocal speech-recognition offers new devices by which to critically reexamine Husserl's earlier ambition to unite the supposed non-sensory aspects of mental expression with its collateral lived and *leiblich* sensory aspects. Can the silent soliloquy of inner voice or inner monologue (on the level of meaning or mental expression) still be classified as non-sensory? It is detected by nonliving sensors attached to living flesh. It is this living flesh that does not seem to detect it while bearing the very signatures detected. Hegelian aspirations for similar unity persistently struggled with “this airy element, this sensory-unsensory...” (Hegel, 2007, 58; cf. 2010, 444). The

⁹ If we accept that “all affective content contain a very strong hormonal element” that are “involved” in “the storage function of the nervous system,” that is “stored largely as changes in the permeability of synapses and it is perfectly possible to construct artificial machines where information is stored in that way” (Wiener, 2013, 129–130), detectable and discernible by electrodes akin to those of subvocal speech-recognition, *then* perhaps such cybernetic operations are not far removed from valences of auto-affection, as such. Even if so, does an algorithmic code (and the megadata from which it correlates, learns, incorporates, and auto-corrects) contain any “autos” to affect or correct at all? If not, could it register hetero-affection alone instead? Would a phenomenological principle such as, “auto-affection alone makes possible hetero-affection” (Marion, 2007, 114) become reducible to affirming that any algorithm coded to calculate sense-meaning ever bears an ineradicable stamp of humanity encoded or written into it? (cf. Zellini, 2020, 14, 17, 70).

myoelectric signature seems to disclose itself in a sensory *Leiblichkeit* registered by a non-living artificial corporeity. In Chapter 4, Book 1, §124, of *Ideas*, Husserl writes:

Let us start from the familiar distinction between the sensory, to so-called bodily [*leiblich*] aspect of expression, and its non-sensory “mental” aspect. There is no need for us to enter more closely into the discussion of the first [*leiblich*] aspect, nor upon the way of uniting the two aspects... (Husserl, 2012, 256)

The employment of *leiblich*, here, is perhaps not as fleshed-out in distinction from *körperlich* as will be developed in Husserl’s later writings (cf. Husserl, 1999, 97). Over a century before AlterEgo, he suggests an extension of meaning beyond colloquial speech:

“[M]eaning” (*Bedeutung*), and “meaning something” (*Bedeuten*) [o]riginally...relate only to the sphere of speech, that of “expression” [...] But it is almost inevitable, and [...] an important step for knowledge, to extend the meaning of these words, and to modify them [...] to all acts [...] when referring to any intentional experiences [or sense; *Sinn*] [...] generally used as an equivalent for “*Bedeutung*” (meaning) (Husserl, 2012, 256)

This is perhaps an extension of meaning that offers a point of departure. Husserl even evokes a peculiar instrumentality of intention, though perhaps not necessarily technical (if there is such a thing as a non-technical instrument) (cf. Agamben, 2015, 66–79).

Whereas the AlterEgo designers speak of signatures signed on muscular surfaces, Husserl thinks of a *Bedeutung* self-stamping itself on expression:

every [...] act-meaning [...] *stamps itself* ‘conceptually’ in the noematic phase of the expressing. A *peculiar intentional instrument* lies before us [...] reflecting back as from a mirror every other intentionality [...] copying it whilst colouring it [...] working into it its own form of conceptuality. (Husserl, 2012, 257)

In robotic terms, this auto-affective reflection of intentional meaning—once peculiarly instrumentalized—would interact through something like “an essential bi-directional conduit that passes information” (Moravec, 1999, 197).

The device detects the mirroring between meaning and myoelectricity and decodes the muscular reflections into something that is difficult to dissociate from Husserl’s peculiar inner intentional instrument of mental conception. The mode by which intention stamps itself on meaning becomes neurally “projected” by *leiblich* effectuations into myoelectrical signals that would self-sign, self-mark, or self-stimulate themselves upon throat muscles. The digitally decoded transcript receivable by text message is merely epiphenomenal.

Husserl might consider the resultant technical telepathy an evidentiary transcript of an entanglement between the lowest *leiblich* layers of logical construction with “the basic laws of formal logic” (Husserl, 2012, 260). “[E]ssential logical constructs which mediate the law’s self-evidence have lower layers connected with them [...] which are brought to logical expression; *but these lower layers do not need to be brought to clearness when it is pure logical insight that is involved*” (Husserl, 2012, 260). AlterEgo receptors perhaps bring the lowest layers of meaning into a computational clearness (if there is such a thing) through a peculiar muscular mediation of intention, meaning, and formal logic itself: the logic of speech that need not be brought to expression that is yet translatable into some logico-textual semblance of mental expression.

The brain may not secrete thought (Wiener, 2013, 132) but might a superordinate system of “inner secretion” (Ingarden, 1983, 92) within the innards of the human lifeform informed by a brain possibly secrete the formal structures of logic, themselves (so often presumed analogous to the extant natural laws and shapes of physics)? If so, they would seem indissociable from those “nodal lines [*Knotenlinie*]” of Hegel (2010, 318–320; 1969a, 435) at the thresholds of solid-state chemistry, akin to the “most primitive form of universal stuff [*l’Étoffe universelle*]...in which all that has shape [*figuré*] in the world is but a series of fleeting ‘verticies’ [*ne serait que de fugitifs « tourbillons »*]” (Chardin, 2008, 42; 1960, 37). These would accommodate themselves to an electro-microscopic grammar of “formal shapings’ [*Auffassungen*]” along the lines suggested by Husserl (2012, 206) into which any myoelectrical signal must take shape if it is formally detectable at all. The lowest or basement-level layer would be muscular and progress to the higher layers from which the probability of intended meaning translated from muscular signatures may thereby secrete itself through the proper profile for electro-detection.

If Hegel’s critique of the inherent approximations ever squaring a circle at the bases of differential or integral calculus provokes an advance from thinking nodal points to nodal lines, the myoelectro-detection of subvocal techno-telepathy succors an additional step toward subsequent and collateral *nodal fields*. The alleged nodal lines of solid state chemism and any nodal lines assumed to shape the figures of syllogisms, logic, or meaning would no longer be dissociable (as Husserl suggests above) precisely through conceptual articulations of the ideas of the living in the mouth-modes of *Leiblichkeit* and sapient selftasting fleshhoods ever saying themselves. Some proximate sense to something silently said to oneself might thereby leap toward electro-detectable approximation of it with considerable median accuracy (cf. Hegel, 2010, 214–216, 232, 237, 320, 645–647, 680–688, 706; cf. Zellini, 2020, 125–129). Within such nodal fields would dwell the elusive bioelectrical airy elements emanating about

or around the muscular signatures that currently have such thinking lifeforms by the throat, yet on the threshold of a “hybrid cybernetic biorobotics” to come (Tseng & Levin, 2013, 7; cf. Hegel, 2007, 58).

Any mindless myoelectrics of meaning could belong among the vague and background thoughts to which phenomenal attention is simply not adequately attuned or attentive. Husserl suggests that a “thought...can emerge as a ‘vague’ thought. It then appears without any articulation that is actual [...since...] at first we are not turned towards it: it emerges in the ‘background’...” (Husserl, 2012, 255). If neither articulation nor attention is truly turned towards such a thought, it is difficult to imagine its collateral myoelectrical signal as transcribable (but still not outside the realm of possibility). But it is difficult to think such a thought as a thought at all. This is perhaps simply one way by which Husserl anticipates AlterEgo’s 8% margin of inoperative error. But its overwhelming percentage of supposed success implies that any myoelectrics of meaning cannot be confined exclusively to Husserl’s background thoughts. They would be somewhere at work in the foreground of Husserlian thinking.

The two sides of Husserl’s mirror of meaning may “belong to two *totally different dimensions*” (Husserl, 2012, 206). “Every hyletic element has its place as a *real (reeles)* integral part in the concrete experience” just as any “phenomenologically pure experience has its *real (reelen)* components” (Husserl, 2012, 206, 204). But silent speech-recognition (along with much post-Husserlian thought) calls into question anew any presumed idealism of phenomenal purity. A hyletic idea is not only accompanied by the concrete experience of its real referent in the world but the equally concrete myoelectrical signals that accompany the subvocal saying of it (which seems to overlap with its meaning and intention). Mental expression becomes only further concretized in speech which technology now decodes in silence while maintaining at least some semblance of its intended meaning. The processes by which “material elements are ‘animated’ [*beseelt*; besouled] through noetic phases” as “animating apprehensions” (Husserl, 2012, 206) are but one of many polyvalent *leiblich* aspects of meaning, expression, and intention that may now be myoelectrically received around the mouth and neck by external electrodes.

The *leiblich* aspect of thinking would not only find expression in besoulement or animation but also in accompanying experiences of *Gemüt*. Husserl concedes that “all these syntactical forms [...] belong as much to the acts of feeling [*Gemüt*] themselves [...] as to the doxic positionalities that run parallel to them and share the same essential nature, *and may be extracted* from them [...]” (Husserl, 2012, 252). Subvocal speech-recognition appears to be a new mode of such extraction of *doxa* (or doxic profiles) from feeling. It is likely the first of its kind.

A substantial aspect of any phenomenal feeling would seem ever to feel its myoelectric signatures. These need not necessarily register and perhaps need not even be decoded (*if* a nonaugmented lifeform could decode them at all). They also need not be confined to the pharyngeal, laryngeal, or throat zone alone, even if electro-detection of them is currently confined there. But beyond Husserl's fixation on hands conceived as exemplary touch-organs—which persists to the pinnacle of his philosophy—to help reveal the feeling of fleshhood (Husserl, 1999, 97; cf. Derrida, 2005b, 152, 156), the throat, neck, and mouth—and arguably the tongue (on which subvocal recognition says virtually nothing)—have disclosed themselves anew as privileged anatomical sites and peculiar physiological instruments by which *Körperlichkeit* exceeds itself through an extraction of intention and meaning as it feels itself felt in auto-affective experiences of *Leiblichkeit*...in silent, mindful, and mouthful meditations.

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