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Becoming Beside Ourselves:
the Alphabet, Ghosts, and
Distributed Human Being
Durham: Duke U.P., 2008

Introduction

LETTERED SELVES AND BEYOND

Reflecting on the relation between the human and the machinic, the cognitive theorist Andy Clark urges "We shall be cyborgs not in the merely superficial sense of combining flesh and wires, but in the more profound sense of being human-technology symbionts: thinking and reasoning systems whose minds and selves are spread across biological brain and non-biological circuitry." (2006, 1)

Until recently it was possible to believe otherwise. To believe that human organisms and their technologies, however messily intermixed and interdependent, were fundamentally different and in principle could be separated: on the one side, mind and culture and things of the spirit, on the other, tools, machines, and techno-apparatuses; the former invents and uses technology but is not itself, in its 'essence,' technological. Now, as technological systems penetrate every aspect of contemporary culture, bringing about an escalating and radical series of cognitive and social upheavals, it has become clear that no such separation of mind and machine is possible. Nor was it ever. Humans beings are "natural born cyborgs"; the 'human' has from the beginning of the species been a three-way hybrid, a bio-cultural-technological amalgam: the 'human mind'—its subjectivities, affects, agency, and forms of consciousness—having been put into form by a succession of physical and cognitive technologies at its disposal.

Leaving language aside for the moment, which properly speaking is a bio-cultural given rather than a technological medium, the chief mind-constituting technology, "mind upgrade" in Clark's phrase, and the mother of almost all subsequent cognitive upgrades, is writing. Writing in its two dimensions: the writing of ideas, patterns, and procedures whose most focused and abstract realization is the symbolic ecology of mathematical thought, and writing as an apparatus for inscribing human speech and thought among whose multiform achievements is the production of

a literature and of a literate form of discourse, that enables one to read and write texts—such as the present essay—about the nature of writing.

Though I shall touch on some aspects of mathematical writing, my main concern will be with writing as the inscription of spoken language. For Western culture the writing of speech has been exclusively alphabetic, a system which from its inception has served as the West's dominant cognitive technology (along with mathematics) and the medium in which its legal, bureaucratic, historical, religious, artistic, and social business has been conducted. The result has been an alphabetic discourse, a shaping and textualization of thought and affect, a bringing forth of a system of metaphysics and religious belief, so pervasive and total as to be—from within that very discourse—almost invisible. Certainly, for at least the last half millennium the very concept of a person has adhered to that of a 'lettered self,' an individual psyche inextricable from the apparatus of alphabetic writing describing, articulating, communicating, presenting, and framing it. "In the society that has come into existence since the Middle Ages, one can always avoid picking up a pen, but one cannot avoid being described, identified, certified, and handled—like a text. Even in reaching out to become one's own 'self,' one reaches out for a text" (Illich and Sanders 1988, x). The "text," as Steven Shaviro observes, is the "postmodern equivalent of the soul" (1995, 128), a fact only recognized within the newfound interest in alphabeticism over the last two decades.

In the nineteenth century the totality of the alphabet's textual domination of Western culture encountered its first real resistance, its monopoly challenged by new media, technologies of reproduction and representation that have since appropriated many of the functions which had so long been discharged and organized by the alphabetic text: thus the alphabet's hold on factual description and memory was broken by photography; its inscription and preservation of speech sounds eclipsed by the direct reproduction of sound by the phonograph and its descendants; its domination of narrative form, fictional and otherwise, upstaged by documentary and film art; and its universal necessity weakened by television's ability to report or construe the social scene, via images and speech, in a manner accessible to the non-literate.

But this dethroning of the alphabetic text is now entering a new, more radical phase brought about by technologies of the virtual and networked media whose effects go beyond the mere appropriation and upstaging of alphabetic functionality. Not only does digital binary code extend the alphabetic principle to its abstract limit—an alphabet of two letters,

0 and 1, whose words spell out numbers—but the text itself has become an object manipulated within computational protocols foreign to it. At the same time the text's opposition to pictures—its ancient iconoclastic repudiation of the image—is being reconfigured by its confrontation with the digitally produced image. With the result that technologies of parallel computing and those of a pluri-dimensional visualization are inculcating modes of thought and self, and facilitating imaginings of agency, whose parallelisms are directly antagonistic to the intransigent monadism, linear coding, and intense seriality inseparable from alphabetic writing.

On a different (but ultimately related) track is the alphabet's reductive relation to the corporeal dimension of utterance, to speech's embodiment. Not only are letters in no way iconic, their visual form having no relation to that of the body or to how the sounds produced by the body's organs of speech are received by those hearing them, but the sounds which the letters notate are meaningless monads, minimal hearable fragments of speech absent any trace of the sense-making apparatus of the body producing them. This disconnect between alphabetic writing and the speaking body occurs most radically at the level of the phrase and the utterance. For what the alphabet eliminates is the body's inner and outer gestures which extend over speech segments beyond individual words. Both those visually observable movements that accompany and punctuate speech (which it was never its function to inscribe) and, more to the point, those inside speech, the gestures which constitute the voice itself—the tone, the rhythm, the variation of emphasis, the loudness, the changes of pitch, the mode of attack, discontinuities, repetitions, gaps and elisions, and the never absent play and musicality of utterance that makes human song possible. In short, the alphabet omits all the prosody of utterance and with it the multitude of bodily effects of force, significance, emotion, and affect that it conveys. It was the recognition of the reductive consequences of this omission, evident early in Greek literacy as soon as speeches were delivered by orators rather than the bards who composed them, that was instrumental in founding the art of Gorgian rhetoric. Since then confronting it has been the driving force in the historical development of all forms of 'prose' and poetic diction along with the reading and writing protocols associated with them.

It is not by chance that this previously ignored gestural dimension of speech should now be of interest. Among other things (its role in Sign language, the discovery of an intimate association between gesticulation and narrative speech, its relevance to voice-recognition software), gesture

and gestural communication (to include haptic and tactile modalities) have become of growing importance within contemporary explorations of body/machine interfaces. A significant component of this reappraisal is the development of motion capture technology, a new digital medium which works by tracking the positions of markers attached to the moving body and recording their paths through three-dimensional space. What is captured as a digital file can include any kind of human (or animal) movement from dance, sport, and theatrical performance to the postures and passing gestures of social interaction. As such, the technology offers the possibility of capturing the entire communicational, instrumental, and affective traffic of the mobile body—projecting the outlines of a gesturo-haptic medium of vast potential. One whose theoretical significance has yet to be thought through, but whose practical realizations are already to be found in art objects and installations, animated film, computer gaming, electronic dance performance, and attempts to create virtual theatre. As alphabetic writing segmented the flow of speech into separate, decontextualized, discrete, and fixed objects of awareness—'words'—that could be examined and compared, giving rise to grammar, its own form of literate awareness, and the study of the resulting written language, so motion capture likewise opens the possibility of a 'gesturology,' a science of gesture that might allow the semiotic body the conceptual space to emerge from under the shadow of spoken language's lettered, disembodied inscription.

This is not of course to proclaim (which would be absurd) the imminent demise of alphabetic writing, or to want for communication in general the equivalent of what Artaud desired in particular for a theatre freed from subservience to written texts—the pre-eminence of screams, silences, and above all the gesturing body as the superior and proper vehicle for theatrical affect. But rather to point to the end of writing's three-millennia hegemony as the result of its ongoing subsumption within a digitally expanded mediational field. It is not, then, its still important and widespread use, but the *regime* of the alphabet that appears to be drawing to a close, the "period of alphabetic graphism" in André Leroi-Gourhan's phrase giving way to an era in which the inscribing of speech sounds with letters is but one element, not necessarily the overriding one, in the ongoing bio-cultural-technological 'writing' of the body's meanings, expressions, affects, and mobilities.

In the process, the alphabetic self, the embodied agency who writes and reads 'I,' and in so doing performs a complex play of same and other-

ness, actuality and virtuality, with the one who speaks and hears 'I,' will be confronted by a third 'I,' a self coming into being to the side of the written form, what might be termed a *para-self*, whose enunciation of 'I' will take place (and only take place if it is not to collapse back into its written predecessor) in the interior of a post-, better, trans-alphabetic ecology of ubiquitous and interactive, networked media.

"Writing," Walter Ong insists, "alters consciousness." (1982, chap. 4) Indeed. As do all media, not least each strand of the lattice of communicational technologies currently dissolving writing's pre-eminence, loosening the alphabet's hold by substituting *their* hold on consciousness. As Félix Guattari has observed, informational and communicational technologies "operate at the heart of human subjectivity . . . within its sensibility, affects and unconscious fantasms." (1995, 4) An observation that repeats the inescapable two-way intimacy remarked earlier between *techne* and *psyche*. Technology's mode of operation at "the heart" of the subject is not simply the action of something external introduced into a 'natural' psyche, one that was inner, private and secluded from technological influence. The operation of machines both augments already existing sites of technological mediation of the self and is transformative and works to constitute the very subject engaging with them. A phenomenon Roland Barthes observed for the action of writing: "In the modern verb of middle voice 'to write,' the subject is constituted as immediately contemporary with the writing, being effected and affected by it. . . ." (1986, 18)

This understanding of technology rejects the instrumental view of it as the use of tools and body-extending prostheses by pre-existing human subjects fully articulated before its deployment. And it likewise rejects the conception of technological media in terms of their representations, in terms of their content, the intentional manifest meanings they signify—whether linguistically, aurally, pictorially, kinetically, haptically—to pre-existing, self-sufficient subjects. In both views the phenomenon that is unseen and unexamined is the direct effect of technology's materiality, an effect always outside its explicit human, socio-cultural character and which transforms the bodies, nervous systems, and subjectivities of its users. This action of technology's 'radical material exteriority,' the subject-constituting work it performs, occurs at a pre-linguistic, pre-signifying and pre-theoretical level. As such it is antagonistic to understanding technology's achievement in terms of its purely discursive, socio-cultural constructions. Communicational media and semiotic apparatuses never coincide with their intended social uses or cultural purposes or their defined

instrumentality or the effects sought and attributed to their manifest contents. Always something more is at work, a corporeal effect—a facilitation, an affordance, a restriction, a demand played out on the body—which derives from the uneliminable materiality and physicality of the mediological act itself, and which is necessarily invisible to the user engaged in the act of mediation.

Expressed differently, no encounter with a mediating apparatus can be reduced to the purely mental, ideational effects, one articulated within the discourse of its declared signifying and representational means, that occludes its physiological actions. As Steven Shaviro puts it for the apparatus of film, "We neglect the basic tactility and viscerality of cinematic experience when we describe material processes and effects, such as the persistence of vision, merely as mental illusions. Cinema produces real effects *in* the viewer, rather than merely presenting phantasmatic reflection *to* the viewer." (1995, 51) What is true of the "psychophysiology of cinematic experience" holds for any encounter with a mediating apparatus—cinematic, computational, telephonic, televisual, photographic, audiophonic, telegraphic, or any other: always the user is used, the psyche-body of the one who views, listens, speaks, computes is activated and transformed by an undeclared affect, a force outside the apparatus's explicit instrumentality.

Ignoring the action of this material underbelly projects an account of technological mediation that denies it an unconscious, denies it any under-the-radar, pre-discursive or pre-semiotic effects, and embeds its action and mode of being entirely in language and discourse, thereby domesticating it as a project and set of processes wholly capturable and able to be made explicit within conscious, representational thought. Mark Hansen describes this reduction as a fall into *technesis*, a "putting into discourse" of technology, a body-denying move that, he claims, underlies twentieth-century thinking about the nature of technology and material agency (2000, 2004).

Writing, like any medium, is a re-mediation; it engenders a clutch of interconnected discontinuities in the milieu of what preceded it: a disruption of the previous space-time consensus of its users and an altered relation between agency and embodiment giving rise to new forms of action, communication, and perception. It introduced a domain of virtual, seemingly 'unreal' objects, entities that are without context, endlessly repeatable, and free to be reproduced at any time, place, and cultural situation. For the medium of writing these virtual entities are texts. To engage with them writing posits, as does any medium, a virtual user, an abstract reading/writing agency who or which is as distinct from any particular, embodied, and situated user as an algebraic variable is from the individual numbers substitutable for it, an agency who/which accommodates all possible readers and writers of texts regardless of how and when in space and time they have or might have appeared. This floating entity makes ideas of disembodied agency, action at a distance, and thought transference plausible. As a result all communicational media have about them an aura of the uncanny and the supernatural, a ghost effect which clings to them. In the case of the telegraph, which introduced a new form of written converse with an absent agent, the effect conjured not ghosts as such; rather it inspired a new religion based on a telegraphic, table-tapping mode of conversation with the newly conceived ghost-spirits of the departed.

Long before this, writing (which had always been friendly to messages and self-proclamations from the dead) conjured into being ghosts of a different sort. Unlike telegraphy the conjuring did not follow immediately on the medium's deployment; it depended on a specific phenomenon—a self-reference within or by the medium, a written 'I'—to bring it about. Writing 'I,' pointing to a self in writing, is in effect making writing circle back onto the writer and confronting the self with a virtual simulacrum. Unlike the spoken 'I,' chained to its utterer with its referent unambiguously the one speaking, who or what the written 'I' is is indeterminate. It could be real or fictional, existent or nonexistent. It could be any writer of a text anywhere at any time for any purpose, a hypostatization or entification of the alphabet's virtual user: an unembodied being outside the confines of time and space operating as an invisible and unlocatable agency.

A trio of entities answering this description, namely God, Mind, Infinity, have formed the metaphysical horizons of Western religious, philosophical, and mathematical thought. Each such ghost is a phenomenon inseparable from alphabetic writing. The first arose from the writing of 'I' as in "I am the Lord thy God" and "I am that I am" to refer to and define Himself; the second from the writing of 'I' in Greek philosophical thought to refer to an un-embodied *psyche* lodged in the soma; the last from the writing of 'I' as a pronoun designating Aristotle's *nous*, that disembodied organ of rational thought able to count without end.

To summarize: A succession of media—speech, alphabetic writing, digital writing—each transforming their environments through a wave of virtuality specific to them. In the first, virtuality is located within the symbolic function per se, inherent in a speaker's capacity to refer to nonexistent and disembodied agencies; in the second, virtuality is located in

writing's ability to signify across space and time in the absence of a real or embodied speaker; the third, still breaking, wave is manifest in the contemporary phenomenon of virtualizing X, where X ranges over the characteristic abstractions and processes of the alphabetic, pre-digital age. Associated with each of these virtual waves is a potential ghost effect, one specific to the medium concerned, realized in relation to a self-enunciation expressed within or by the medium. For language it is the ghostly presence of the other in the spoken 'I' giving rise to the belief in a 'spirit' separate from the gestural 'I' inseparable from the proprioceptive body; for alphabetic writing it is a transcendental agency, the hypostatizations we call God, Mind, and the Infinite Agent. For the digital or better network 'I,' a self-enunciation specific to contemporary media ecologies is still in flux, so a ghost effect, identifiable as a stable and repeatable phenomenon invoked by it cannot yet emerge.

However, within the contemporary digitally enabled scene, a network 'I' is being heralded. The features of such a third self-enunciating agency, differentiating it from the oral and scriptive 'I's, are becoming discernable. Such an 'I' is *immersive* and *gesturo-haptic*, understanding itself as meaningful from without, an embodied agent increasingly defined by the networks threading through it, and experiencing itself (notwithstanding the ubiquitous computer screen interface) as much through touch as vision,[1] through tactile, gestural, and haptic means as it navigates itself through informational space, traversing a "world of pervasive proximity" whose "dominant sense . . . is touch" (de Kerckhove 2006, 8). Such an 'I' is *porous*, spilling out of itself, traversed by other 'I's networked to it, permeated by the collectives of other selves and avatars via apparatuses (mobile phone or e-mail, ambient interactive devices, Web pages, apparatuses of surveillance, GPS systems) that form its techno-cultural environment and increasingly break down self–other boundaries thought previously to be uncrossable: what was private exfoliates (is blogged, Webcammed, posted) directly into the social at the same time as the social is introjected into the interior of the self, making it "harder and harder to say where the world stops and the person begins." (Clark 2006, 1) Lastly, such an 'I' is *plural* and *distributed*, as against the contained, centralized singularity of its lettered predecessor; it is internally heterogeneous and multiple, and, like the computational and imaging technologies mediating it, its behavior is governed by parallel protocols and rhythms—performing and forming itself through many actions and perceptions at once—as against doing or being one thing at a time on a sequential, predominantly endogenous, itinerary. In short, a self

becoming beside itself, plural, trans-alphabetic, derived from and spread over multiple sites of agency, a self going parallel: a para-self.

Mental pathways, ways of believing, modes of thinking, habits of mind, an entire logic of representation, born from and maintained by alphabeticism over the last twenty-five hundred years, become increasingly incompatible with such a self. Metaphysical claims by religions of the book, authenticated by the assertions of an absolute monobeing from within an alphabetic text, become less tenable as their uncompromising insistence on an aboriginal singularity confronts the pluralizing, dispersive vectors of contemporary mediation. The West's ontotheological metaphysics, with its indivisible, unique-unto-themselves and beyond-which-nothing monads of an absolute Truth behind reality and a monolithic transcendent God entity begins to be revealed as a mediological achievement—magnificent but no longer appropriate—of a departing age.

Brian Rotman

Becoming Beside Ourselves

One

THE ALPHABETIC BODY

The Alphabetic West

For Victor Hugo "Human society, the world, the whole of mankind is in the alphabet." (quoted in Ouaknin 1999, 9) Not quite. The Chinese system of writing speech is logographic: its characters notate morphemes, the smallest meaningful sounds, rather than the alphabet's meaningless phonemes. The Japanese use a mixture of morpheme- and phoneme-based systems. Neither of these cultures figured largely in Hugo's view of the world, but for Western civilization his trumpeting of the alphabet makes perfect sense: each of the two originating worlds, Judaic and Greek, which have respectively determined the West's religio-ethical and techno-rational/artistic horizons, was indeed created out of an encounter with a system of alphabetic writing.[1]

The encounters could not have occurred in more different social, historical, cultural, economic, religious, and intellectual milieus: 'cattle-herding semi-nomad' Israelites against slave-owning denizens of the Greek polis; agricultural exchange versus a monetized economy; scribe-priest control of writing versus a distributed citizen literacy; tribal kingdoms versus the militarized city-state; fixation on a single written corpus defining a religio-ethnic identity against an expanding ecology of literary and philosophical writings.

The Israelite encounter produced the transcendental Jewish God inhabiting a holy text, the sacred scroll of the Talmud or Five Books of Moses, a "library" of texts comprising "the verse of nomadic people, popular and religious songs of all sorts, mythical tales based on the cosmogony of the Middle East, oral traditions concerning national origins, prophecies, legislative and sacerdotal documents bearing . . . liturgical pieces, annals or chronicles, collections of proverbs written down long after their first appearance, . . . tales and romanticized fiction." (Martin 1994, 103–4)

The Greek encounter produced theatrical mimesis, deductive logic, and an invisible, disembodied Mind which has since its inception determined the relation of 'thinking' to 'writing' embedded in and transmitted by the founding texts of Western philosophical discourse. Each of these encounters and their metaphysical import will occupy us later (chapter 5).

Different alphabets were involved. Greek (its Romanized form now worldwide) was created circa 800 BCE when the Greeks modified the Phoenician consonantal alphabet by adding letters for vowels plus some consonants; Hebrew, used by the Israelites from circa 1000 BCE, thought also to be derived from Phoenician was, like it, voweless. Whereas vowels were necessary to inscribe Greek, a language which used them to register grammatical differences, Hebrew, a tri-consonantal semitic language, could be written without them. Plainly, the two alphabets will involve different writing and reading practices and be amenable to different uses.[2] Being entirely phonetic, the Greek alphabet allowed a word to be read outright from the text, whilst the Hebrew required interpretive work to determine it from the others within the semantic family indicated by its triple of consonants. For Ivan Illich and Barry Sanders, the former "picks the sound from the page and searches for the invisible ideas in the sounds the letters command him to make," and the latter "searches with his eyes for inaudible roots in order to flesh them out with his breath." (1988, 13) They suggest the Old Testament command by God to Ezekiel to breath life (or soul, *nefesh*) into the dry bones "so that they may live" is a metaphor for the need to add the moistness of vowels to lifeless consonants. More extravagantly, David Porush claims that all that is intellectually significant about the accomplishments of the Jews stems from this failure to notate vowels; an "imperfection" he connects to the "central metaphysical tenet" of Judaism, the "unpronounceability, the unwritability, and the unthinkability of the name of God." (1998, 54)

For this essay, the metaphysics of alphabetic writing, both Hebrew and Greek, will be seen from a perspective which doesn't turn on the presence or absence of vowels, or on the supposed travails of reading and interpreting an 'imperfect' script, or on the unpronounceability and so on of God's name (and its supposed metaphysical consequences), though all raise interesting issues, but rather on a feature of writing that precedes such phenomena, namely its ability, in its capacity as a medium, to perform a reflexive, self-citational move—inherent in the writing of 'I'—and thereby give rise, under appropriate conditions, to a disembodied, supernatural agency.

But before disembodied agencies come embodied ones. Alphabetic writing, like all technological systems and apparatuses, operates according to what might be called a corporeal axiomatic: it engages directly and inescapably with the bodies of its users. It makes demands and has corporeal effects. As a necessary condition for its operations it produces a certain body, in the present instance an 'alphabetic body' which has relations (of exclusion and co-presence) with existing semiotic body practices. The alphabet does this by imposing it own mediological needs on the body, from the evident perceptual and cognitive skills required to read and write to the invisible, neurological transformations which it induces in order to function. It is the latter effects, beneath the radar of the alphabet's explicit function of inscribing speech and so quite separate from its manifold inscriptional activities, that will be significant.

I shall approach the alphabetic body through the topic of gesture. The particular motive for proceeding thus will emerge in due course, but in relation to the general question of embodiment, communication, and human subjectivity the idea is not unnatural: there are deep-lying lines of force between gesture and becoming human. As an affective medium of the body and its semiotic envelope, gesture reaches deep into human sociality through its vital role in hominization (the proffered breast, the use of facial expressions, pointing, cuddling, the phenomenon of turn taking, the induction via visual capture and motherese into speech), and through its linkage to the embodied wordless empathy, the psychic mirroring of each other necessary for meaningful utterance and without which what sociologist Michel Maffesoli (1994) calls *puissance*, the 'will to live,' would not be possible. For Giorgio Agamben gesture constitutes a key category in relation to political ontology, a third term between means (pure action) and ends (pure production) whose essential mode of action is that within it something is "being endured and supported"—activities which, he claims, allow the "emergence of being-in-a-medium of human beings and thus opens up the ethical dimension for them." (2000, 57–58)

Human Gesture

Notwithstanding its role in empathy, hominization, and its relation to the ethical, making gesture the point of entry into the alphabetic body might seem puzzling. After all, the alphabet inscribes speech, and compared to the latter gesture is widely held to be crude and pantomimic, an atavistic, semantically impoverished mode of sense making overtaken by the devel-

opment of language. And though evidently important in ceremonies and rituals, prayer, and sacrifices to gods, and crucial to all forms of dance, music, and theatrical performance, gesture would seem to offer little to any contemporary discourse on language, the nature of thought, and the technology of writing.

Such a diminished status is no longer the case.[3] Nor was it always so. In the middle of the seventeenth century John Bulwer, pursuing Francis Bacon's dream of discovering mankind's original language that disappeared in the Biblical catastrophe of Babel, turned to gestures, "transient hieroglyphs" Bacon had called them, as the key to the search. Bulwer, a physician, was interested in gesture's physiological character. He looked to the fact and manner of gesture's evident embodiment to provide clues to the original but now lost universal language. Bulwer, inventor of the first finger-spelling alphabet, opens his book *Chirologia* with an extraordinary tribute to the hands' abilities to convey meaning and incite affect:[4] "With these hands," he says, "we sue, entreat, beseech, solicit, call, allure, entice, dismiss, grant, deny, reprove, are suppliant, fear, threaten, abhor, repent, pray, instruct, witness, accuse, declare our silence . . . ," (1664, 8) and so on, for some two hundred manual signs—revealing a gestural microcosm of mid-seventeenth-century English social, religious, and legal encounters. In an earlier essay, *Panthomyotomia*, Bulwer attempts a metaphorical dissection of the muscles of the face and head in an attempt to relate their movements to the motions of thought taking place so near them. Bulwer's writings inaugurate a (yet to be consummated) gesturology and make him the first theoretician of the semiotic body. In the next century others followed, most famously Condillac with his attempt to lay out the gestural roots of language, Charles de Brosses's project on the gesturo-physiological origins of language, and the Abbé de l'Épée's championing of a language for the deaf composed of gestures.

But by the mid- to late-nineteenth century gesture had fallen victim to a scientific psychology which subordinated an emotionalized (implicitly feminine), gesturing body to a rational, speaking mind. A cruel consequence of this was the banning in 1880 at a conference of deaf educators in Milan of all use of Sign (gestural language) from European and American schools in favor of enforced voicing and lip reading by the deaf: "Gesture," the organizers insisted, "is not the true language of man. . . . Gesture, instead of addressing the mind, addresses the imagination and the senses. Thus for us, it is an absolute necessity to prohibit that language and

to replace it with living speech, the only instrument of human thought." (quoted in Lane 1984, 391) Some eighty years later this phonocentric dismissal of Sign started to collapse when the gestural systems used throughout the world by the deaf to commune with each other were recognized as full-blown languages, on a grammatical, morphological, and semantic par with and in some respects superior to human speech. One consequence of this reevaluation of Sign was a reemergence of theories proclaiming the gestural affiliations and origin of human language.[5] (Nevertheless, some thirty years after Sign's linguistic recognition, traces of the phonocentric and textocentric derogation of gesture remain: several universities in the United States refuse Sign as a fulfillment of graduate language requirements on the kettle-logic grounds that American Sign Language [ASL] is not a 'real' language; ASL is not a 'foreign' language; and, in any case, ASL lacks a written form.) But its ability to replace the tongue as the vehicle and physical means of language is not the deepest nor, for our purposes, the most significant aspect of the relation between gesture and speech.

Interestingly, Maxine Sheets-Johnstone observes that the "skeptical assessments of sign languages, not to say their derision" are tied to the fact that in all forms of Sign the gestural articulations of thought are *perceived* rather than, as they are in verbal languages, *apperceived*. This fact makes mind–body dualists for whom thought is invisible and mental—inside the head—uncomfortable and reluctant to grant Sign the status of a language. (2002, 157) In relation to the body and alphabetic writing of spoken language gesture operates in the interior of speech itself as the presence of the body within utterance and the affective, intra-verbal dimension of the voice itself. But before this, a necessary clarification of the speech/gesture nexus by way of distinguishing two kinds of gesture: emblems and gesticulations—each with its own relation to language.

Emblem Gestures

Like spoken words, ASL gestures are coded entirely by a linguistic system. Distinct from these, not captured by a code, forming at most only a "partial code" situated between the two linguistic systems, is the field of so-called emblems. Emblems are what we ordinarily mean by 'gestures': holding up the palm, jerking the thumb, kissing one's fingertips, pointing, snorting, smacking one's forehead, squeezing a shoulder, bowing, slapping someone on the back, giving the shoulder, biting a knuckle, flourishing a

fist, tapping the nose, shrugging, chuckling, beating one's breast, giving the finger, winking, and innumerable other visible, haptic, auditory, and tactile disciplined mobilities of the semiotic body.

According to studies initiated by David Efron (1941/1972) and Adam Kendon (1972), and subsequently developed by David McNeill and others, emblems are gestures whose principal function is to carry out certain social activities. "Emblems," McNeill writes, "are complete speech acts in themselves, but the speech acts they perform are restricted to a certain range of functions. They regulate and comment on the behavior of others, reveal one's own emotional states, make promises, swear oaths [and are] used to salute, command, request, reply to some challenge, insult, threaten, seek protection, express contempt or fear." (1992, 64) This list (that could easily be describing a portion of Bulwer's enumeration of the expressions of the hand) makes it clear that emblems are social, experiential, and interpersonal, deployed to make something happen, to impinge on the behavior of the self and others; emblems are not really interested in making statements, analyzing matters, or conveying facts and propositions.

Unlike speech they do not combine via a syntax as part of a language or an elaborated code. And they differ from words in that their meanings are neither explicitly defined nor (outside of instruction in rhetoric or acting) are they intentionally learned or studied, but rather they are picked up, absorbed and inculcated, taken in directly by the body, as it were, and (perhaps for this reason) remain stable in form and import over long periods of time despite linguistic changes in the communities of their users. These features indicate that emblem gestures might operate according to a different dynamic and logic, and might accomplish different ends, from those of speech. Calling them 'speech' acts, suggests they are within the horizons of speech and assumes they operate, as a mode of meaning or affect creation in the same ways and for the same purposes as speech. But is this so? Are emblems in any sense translatable into spoken language? Can they be transposed into words? What, for example, is the speech equivalent of a wink? Or, for that matter, a shrug? a slap on the back? folding one's arms? hands clasped in prayer? And do their mode of operation and outcomes resemble those of speech? If so, why as speaking beings do we bother with them?

The cultural range, robustness, and persistent use of emblems, their way of refusing and displacing speech, calls for an explanation. McNeill offers one in terms of 'word magic.' "Spoken words are special and carry with them the responsibility for being articulated. However, conveying

the same meaning in gesture form avoids the articulatory act and, thanks to word magic, this lessened responsibility for speaking transfers to the speech act itself." (1992, 65) Doubtless, there is truth in the idea that gesturing rather than talking removes one from the net of justifications, arguments, questions, deceptions, interpretive qualifications, and recriminations that speech immediately introduces. But how many emblem gestures admit of the same meaning as a word or spoken phrase? Indeed, what does "having the 'same' meaning" mean? How convincingly can speech render an emblem? Giving the finger, for example, carries a different charge, has a different meaning, enables a different affect, initiates a different confrontation from *saying* "up yours" or "fuck you" or "go screw yourself," and so on. (That there are inequivalent verbalizations suggests emblems generate meanings by their very exclusion of speech.) But in any event, assuming that 'sameness' of meaning makes sense, is the difference between gesturing and voicing the 'same' meanings reducible to "lessened responsibility"?

Thus, consider other deployments of emblems, for example their extensive, deeply embedded, and seemingly indispensable use in secular and religious rituals and practices. Here something different from lessened responsibility, almost the opposite, seems to be in play; as if words, so easily uttered, are insufficiently responsible, not binding enough, too fleeting and precise at the same time, and only bodily action can fulfill the relevant ceremonial and devotional or liturgical purposes; as if gestures are able to create and stabilize belief, to induce as well as express religious feelings, social ideologies and moods, and forms of consciousness more radically and with more appropriate affect than the specialized precision of speech.[6] In this context, what André Leroi-Gourhan says about speech's (and writing's) inferiority to art vis-à-vis religion, "that graphic expression restores to language the dimension of the inexpressible—the possibility of multiplying the dimensions of a fact in instantly accessible visual symbols" (1993, 200), carries over from graphic symbols to visual gestures.[7]

Evidently, emblem gestures *say* nothing (even when they are auditory and even when they can be verbally parsed). In fact they function at their most characteristic when differentiated and opposed to speech. Unlike words, which stand in a coded relation to ideas, things, interpretants, people outside themselves, emblem gestures signify and have meaning—better: have force, affect, point—through the fact of their taking place, in the effects they help bring about, in the affectual matrices they support, in all that they induce by virtue of their *occurrence as events*. In other words,

emblem gestures do not say anything outside their own situated and embodied performance: their relation to speech is one of exclusion, avoidance, and on occasion silencing. Agamben locates the essence of gesture in this silencing and articulates it as an exclusively metamedialogical phenomenon: "Because being-in-language is not something that could be said in sentences, the gesture is essentially always a gesture of not being able to figure something in language; it is always a *gag* in the proper meaning of the term, indicating first of all something that could be put in your mouth to hinder speech, as well as in the sense of the actor's improvisation meant to compensate a loss of memory or an inability to speak." (2000, 59)

However illuminating it is to construe gesture in metacommunicational terms, as the "making of a means visible," the formulation is ultimately reductive in several senses. First, as we've seen, emblem gestures execute a variety of speech-act-like functions such as promising, threatening, and the like, as well as devotional and meditational acts that have little or nothing to do with the "exhibition of mediality." Second, insofar as they metacommunicate in this way, it is as emblems that they do so and not as gestures at large; moreover, they behave in this way in relation to speech and not necessarily with respect to other media. Third, even in relation to speech, gesture behaves in ways other than a gag: besides excluding or silencing speech or marking its inability to articulate in sentences the state of being inside language, gesture co-originates with and accompanies spoken language as *gesticulation*, and on a deeper level is intrinsic to speech as tone or *prosody*, the auditory gestures of the voice, without which human verbal utterance is impossible. Lastly, characterizing gesture in exclusively metalogic terms, "what is relayed to human beings in gestures is . . . the communication of a communicability" (Agamben 2000, 58) masks the fact that gesture is also and always a medium of no small importance in its own right. To say more we need first to describe its gesticulatory and prosodic forms of mediation.

Gesticulation

A casual look at conversation and storytelling shows verbal utterance accompanied by fleeting, often barely discernible, seemingly idiosyncratic and indefinite gestures of the fingers, hands, arms, shoulders, and face. Gestures that appear to be connected, although how is not clear, to the substance of what is being narrated. These gesticulatory movements are not planned or consciously produced; they are involuntary and spontaneous and are for the most part unnoticed and communicationally superfluous. Certainly, blind people have no difficulty comprehending speech, and people converse easily on the telephone, listen to recorded messages, and fully understand speech on the radio, without registering too much disturbance at the absence of any accompanying gestures. More than other kinds of gesture, gesticulation seems an unnecessary addendum to utterance, an echo perhaps of a pre-intellectual, pre-verbal form of communication, having little to do with the articulation or expression of thought in speech.

Empirical investigations of the gesticulatory activity accompanying verbal narration suggest otherwise. Far from being epiphenomenal, a surface effect unconnected to the expression of thought, gesticulation relates to the semantic, pragmatic, and discursive aspects of speech in nontrivial ways, embracing various kinds of gesture accomplishing distinct semiotic tasks. There are iconographic gestures, for example outlining a square shape depicting literally a 'window' or metaphorically indicating a 'window of opportunity'; kinetographic gestures, for example miming handwriting to indicate 'writing' or a 'text' or 'literacy'; or bringing the hands together accompanying the expression 'an agreement was reached'; or gestures to mark an abstraction introduced into the narrative, for example cupped hands (the container metaphor in Western culture) when narration jumps out of the story being told and refers to its genre. There are also 'beat' gestures, brief on/off movements marking the word they accompany as significant not for its semantic content but for its discursive or pragmatic role, for example, a hand flick when a new character or theme or metalingual gloss is introduced into a story. Beside these self-contained or holistic gestures there are also contrastive pairs. For example, a straight-line gesture indicating a direct source of information against a curved one indicating information that is mediated; or evolution in time by a series of looping gestures in contrast to a straight line for a succession of stages having no element of transformation. And there is a class of gestures that realizes experiential meanings, from self-pointing to specifying times and places, that correspond to deictic or indexical terms in speech such as 'I,' 'you,' 'here,' 'now' which make essential reference to the physical circumstances of the speaker.[8]

Plainly, gesticulation (notwithstanding its communicative redundancy in most practical contexts) is linked to the words it accompanies at nontrivial levels of speech. Why and how this has come about is not as yet understood. One might attempt an explanation along the lines that ges-

ticulation translates a prior version of the sentence that is uttered, or that gesticulatory movements are created to illustrate, amplify, or gloss speech as the latter is produced. That such explanations (which give causal priority to speech) are not feasible follows from the way gestural form and the meaning of the utterance it accompanies are connected: there is a tight temporal binding, accurate to fractions of a second, discovered to operate between gesticulation and speech. Any gesture has a preparatory phase, a stroke phase in which the gesture proper occurs, and a withdrawal phase. In gesticulation, the preparation precedes the word(s) it relates to while the gesture itself coincides exactly at the height of its stroke phase with the word(s) in question, after which gesture and words disperse together; a simultaneous anticipation, coincidence, and falling away only possible if gesture and words are produced together, only if they issue from something preceding each of them; only if, McNeill argues, there were some earlier linkage, a common 'origin,' in some sense pre-verbal and pre-gestural, to them both.

For McNeill (1992, 2005) this gesture–word nexus consists of a dialectic of opposed modes of representation: gestural (imagistic, holistic, and synthetic) and verbal (linear, segmental, and analytic); the final utterance being the result of an interaction between a relatively free, privately formed, individual gestural impulse and the rule-based, public, socially constrained demands of a linguistic system. In other words, thinking, at least insofar as it eventuates in speech, has its beginning in visuo-kinetic images which then become gesticulated and verbalized to form an utterance. One might note in this connection the linguist Wallace Chafe's analysis of verbal utterance as composed of 'idea units' corresponding to single 'thoughts'; the duration of each unit being about two seconds, more or less the time for a complete gesture to take place. (Chafe 1985) It is as if spoken thought starts life as a yet-to-be-realized gesture, an idea we shall encounter later in a more developed form operating within mathematical thought. I turn now to the third form of gestural mediation and speech, that which inhabits speech itself, namely prosody.

Gestures of the Voice

Emblem gestures operate outside of and alternative to speech; gesticulation operates alongside and parallel to speech. We come now to another form, ultimately more significant for our purposes, the audible body movements which operate *inside* speech: gestures which constitute the voice itself.

Speech involves systematic and interconnected movements of the lips, tongue, cheeks, jaw, glottis, vocal chords, larynx, diaphragm—identifiable and repeatable patterns of body parts—suggesting that it might be usefully regarded as a species of gesture, auditory as distinct from visual, but gestural nonetheless. Findings from research in phonetics and artificial speech synthesis over the past two decades confirm this. They indicate that it is precisely as a gestural system that the complex kinematics—the aural/oral assemblage of movements that make up the human voice—are best comprehended. Specifically, the task-dynamical, physiological models of the type describing the assemblage of movements and skeleto-muscular organization of the body during walking have proved ideal for modeling the dynamics of the lips, tongue, larynx, and so on, during speech production.

Moreover, not only is the production of speech gestural, but so it turns out, somewhat unexpectedly, is its perception: "Surprisingly," as the evolutionary neurologist Terrence Deacon finds himself saying, "auditory processing of speech sounds does not appear to be based on extracting basic acoustic parameters of the signal, as a scientist might design a computer to do, before mapping them onto speech sounds. Speech analysis appears designed instead to predict which oral-vocal movements produced them and ignore the rest." (1997, 14) We listen, it seems, not to speech sounds as such, not, that is, as isolatable sonic entities, but to the movements of the body causing them; we focus on what happens between the sounds, to the dynamics of their preparatory phases, pauses, holds, accelerations, fallings away, and completions—the very features of gestures we attend when we are perceiving them. In a certain sense, we listen to speech-sounds as signs of their gestural origins, as a physician listens to the sounds a patient's heart makes in order to analyze the movements causing them.

Linguists draw a fundamental division between two aspects of spoken utterance: they separate what is considered by them to be 'proper' to language—what is actually said, the grammatically and syntactically governed strings of phonemes, words, phrases, and so on, for example, "To be or not to be"—from the 'paralinguistic' manner of their saying, from how what is said is said, for example in this case, the prosodically varied ways such a line might be delivered by an actor playing Hamlet. Prosody is the gestural dimension of the voice, its "grain" (Barthes): it comprises all the

vocal dynamics often referred to simply as 'tone,' or 'tone of voice,' namely the phrasing, the intonation, the musicality, the rhythm, the volume and emphasis, the rise and fall of pitch, the fallings away and accelerations, the pauses, gaps, hesitations, the anticipations, elisions, silences, elongations, repetitions, and contractions that the word-strings of an utterance are subject to.

Prosody has an ancient lineage. It originates from innate primate calls. But though the two are closely related as signals, and though "laughing, sobbing, screaming with fright, crying with pain, groaning, and sighing" constitute a more or less innate repertoire of prosody-like calls, the two are distinct.[9] For, "unlike calls of other species," Deacon points out, "prosodic vocal modification is continuous and highly correlated with the speech process. It is as though the call circuits are being continuously stimulated by vocal output systems" (1997, 418), as though, as a neurological consequence of hearing oneself speak, the midbrain and limbic systems responsible for primate calls become detached from instinctual control, become de-innate. This allows them to be eventually re-deployed in expressively and semiotically variable ways: the vocal gestures that constitute prosody become culturally malleable vehicles of human affect.[10]

According to a recent, neurological account of the evolution of language by Terrence Deacon (1997) (see chapter 5), this move, the escape from instinctual calls to what we now identify as the prosodic dimension of spoken utterance, did not occur overnight. The prosodic system which is essentially a "system of indices" that direct attention to what the speaker deems to be most salient, must have been "tightly linked to the evolution of speaking abilities," that is, to the trans-indexical, symbolic use of words, over a considerable time period, since the two systems are "parallel and complementary to one another anatomically as well as functionally." This deeply laid down parallelism, manifest as a "seamless complementarity" (1997, 364), rests on a neurological division of labor between control of the rapid-fire articulatory phonemic movements and the slower waves of prosodic gestures.

One might observe here a similarity to the paralinguistic activity of gesticulation. The split-second coincidence of words and their accompanying gesticulation—a consequence of their co-origination—is here a literal fusing: word and gesture are integral, two sides of the same utterance heard as a single acoustic event. However, in the case of gesticulation, the gestures signal meta-linguistic and discursive features of the ongoing verbal narration, which are essentially markers of cortical origin, whereas

here the gestures constituting tone of voice signal subcortical, affectual aspects of the utterance originating in the midbrain, aspects that are often vital to the meanings put into play. As rhetoricians and actors know, differences in tone can make the same words gentle or withering, questioning or threatening, flattering, indifferent, or menacing, or sardonic or gleeful or seductive or pleading, and so on.

But, as we shall see, the inseparability of words and their tone, the seamless whole that constitutes verbal utterance, applies only to speech. It is precisely what is lost when writing enters the scene; as soon, that is, as utterance is transcribed and rendered as an alphabetic text. (Indeed it is only in the wake of writing that these separate aspects of speech appear.)

Writing Speech

What if one could separate speech from the voice? Eliminate the tone and keep the words? Alphabetic writing is a communicational medium, and every medium disrupts what had been for its predecessor conceived as a seamless whole, an integrated assemblage. The process of remediation involves a recalibration of space-time with consequent separations and severings of what were spatial and temporal and physical and aural contiguities and a reconstitution of (a dimension of) the original content in virtual form, which for writing is the text, speech being reconstituted in virtual form as 'speech at a distance.' Writing segments the spoken stream of sounds into words (which themselves owe their status as separate items to the action of writing) from the time, place, circumstances, psychological wherewithal, and social contexts of its production and re-situates it at another time, elsewhere, for other purposes, in other circumstances, in unknown contexts. It cuts speech loose from the voice, substituting for the individual, breathing, here-and-now agency of the one who utters them by an abstract, invisible author, and replacing a unique event, the utterance which unfolds over time, by fixed, repeatable, atemporal alphabetic inscriptions, inscriptions which necessarily fall short of representation. "Speech," Barry Powell observes, "is a wave," and the alphabet's separate graphic marks "cannot represent it." (2002, 123) And, more salient here, alphabetic writing eliminates all and any connection speech has to the body's gestures. One might object that handwritten alphabetic texts evade this total disjunction from gesture. Written emphasis, uncertainty, rhythm, discontinuity, stress, tailing off, and other scriptive traces of the body, might be said to be the handwriting correlates to certain rudimen-

tary forms of vocal gestures. But the effect, to the extent it exists, is tenuous and not uniform enough to serve any reliable communicative function. In any event, it was effectively eliminated from public texts with the arrival of printing and increasingly from private ones by typewriting.[11]

At first glance this elimination of gesture is what one would expect. After all, the alphabet writes speech and has no truck with emblems, which operate outside the domain of speech, and it has no interest in gesticulation, which adds nothing in practice to speech and is thus irrelevant to the alphabet's task. But omitting the gestures that are interior to speech—eliminating the entire prosodic landscape of vocal gesture—is another matter, one which makes clear that the alphabet does not and in fact cannot write speech. Alphabetic letters don't capture or represent or notate the utterance that comes out of the mouth and is heard by a listener. They notate individual(ized) words, which (in the wake of writing) can, as we've seen, be designated simply as 'what's said,' but they do not notate the prosodic dimension, not the affect, force, point, and manner of delivery of the words, not how what's said is said.

It would be difficult to exaggerate the consequences of prosody's omission for the development of Western literacy: responding to it has been the condition for the possibility of this literacy, shaping and inventing what counts as a text and, what is the same thing, establishing the protocols of reading alphabetic writing. The recognition that such writing falls short of speech was of course immediately apparent early on: in the writing down of Greek funeral orations and the problem of their delivery by an orator other than their bardic author; and in the Jewish Talmudic tradition of endless rabbinical interpretation engendered by the problem of interpreting the 'spoken' word of God. A contemporary account of writing's inability to render tone is offered by speech-act theory: "Writing," David Olson writes, "lacks devices for representing the illocutionary force of an utterance, that is, indications of the speaker's attitude to what is said which the reader may use to determine how the author intended the text to be taken. The history of reading is largely the history of attempting to cope with what writing does not represent." (1994, 145)

This is at best a partial truth. More is involved in prosody's absence than the loss of illocutionary force, understood here in terms of a speaker's "attitudes" and author's "intention" as a deliberately formulated, linguistically explicit, consciously presented 'thought'; an abstract entity whose very conception within the written history of the West is of an item originating in a 'mind'; itself an abstract disembodied entity brought into being

by alphabetic writing. Equating what writing omits with the content of a conscious speech act only obscures the inexplicit, a-conscious effect of this loss which, as we shall see, is key to the very construction of 'mind.' For the present we can observe that the identification is perforce reductive: it occludes the corporeal underside of the alphabet's action. What writing omits from speech is the body: the feelings, moods, emotions, attitudes, intuitions, embodied demands, declarations, expressions, and desires located in the voice, rather than consciously formulated (writable) thought. What it omits is the entire field of affect conveyed and induced by human vocality, through the voice's impulsions, inflections, and rhythms, its aural texture and emotional dynamics. A vocal field bordered on one side by song and on the other by the non-speech of sighs, moans, cries, grunts, screams, laughs, and so on, all that, in Roland Barthes's phrase, surrounds a "language lined with flesh." (1975, 66–67)

Notwithstanding this, it is still true that the history of reading is the history of redressing what writing fails to represent. Or, the same thing, the history of writing consists principally of attempts to find readable equivalents and alternatives to the vocal prosody necessarily absent from it. Lacking vocal gesture, writing was obliged to construct its own modes of force, its own purely textual sources of affect, which it accomplished through two dialectically opposed—or better, co-evolutionary—principles of creation: transduction (the discourses of narrative prose) and mimesis (the voices of poetic diction).

The poetic generation of affect is the more direct, iconic, and corporeally rooted one of mimetic retrieval: it seeks to recuperate vocalic gestures, to reproduce the oral/aural achievements of an embodied voice within the sound effects of speakable texts. Paul Zumthor commenting precisely on the performance and reception of oral poetry talks of "body movements" being "integrated into a poetics," and he notes the "astonishing permanence that associates gesture and utterance," insisting that "a gestural model is part of the 'competence' of the interpreter and is projected into performance." (1990, 153) The impulse is to reproduce a kind of sonically faithful simulacrum of the work of the voice: through words chosen as much for their aural/oral features as their significance, through fusions and splittings of phrases, through the deployment of textual arrangements—and ordering, juxtaposing, spacing, enjambment—which mimic the gesture-based dynamics of toned speech.[12]

With prose, retrieval gives way to textual reinvention. Here, alphabetic writing brought into being an entire apparatus of its own for inscribing

affect. Prose rejects any directly sonic recuperation of vocalic gestures in favor of a textual transduction of them. It transposes or transmutes prosodic effects into inscriptional ones through the invention of new, textual forms governed by grammar and syntax rather than sonic values, in the process distributing (written versions of) affect across the entire lexical and syntactic landscape via the creation of a range of devices—neologisms, phrasal conventions, textual diagrams, rhetorical inversions, figures of 'speech,' letter-forms, and narrative formulas and 'styles.' These devices serve and facilitate a great variety of affectual desiderata for various purposes, from the literary project of inducing polyvalence and estrangement (the primary function of literature according to Victor Schlovsky) to the sought-after clarity and unambiguous neutrality of legal texts and the 'plain style' of scientific prose intended to eliminate any trace of 'subjective' and nonliteral affect.

Observe that, strictly speaking, the development of prose and poetic diction is not the fruit of the alphabet alone, in the sense of being constructed from letters. Both mimesis and transduction called for and in turn were forwarded by devices and techniques of punctuation that discharge a core set of functions handled orally by tone. These are extra-alphabetic having to do with handling text—blank spaces between words, commas, question marks, periods, quotation marks, paragraphs, hyphens, marks of ellipsis, capital letters, exclamation marks, parentheses—rather than representing sound elements of speech. Moreover their introduction went hand in hand with the conceptual innovations they offered, "Certain constructs that cannot exist without reference to the alphabet—thought and language, lie and memory, translation, and particularly the self—developed parallel to these writing techniques." (Illich and Sanders 1988, x) To this must be added the use of these devices to aid reading. Thus St. Jerome described the segmenting of texts, writing 'by clauses and phrases' (*per coma et commata*), that he had found in classical texts, as being more intelligible to the reader than the textual practices of his day: "It told the reader either to raise or lower the voice, in order to render sense through proper intonation." (Fischer 2003, 48) But, as we have seen, only a small portion of (the work of) intonation, proper or otherwise, has been built into the augmented devices of the alphabet. Interestingly, the process continues: a whole new generation of punctuation techniques—mark-up languages, scripting codes, and style sheets—specifically for augmenting electronic texts are now being developed and used to make them easier to be read aloud by voice-synthesizing machines.

The two sides of human speech, syllables (self-contained, discrete) and the tone (continuous and extended) of their delivery, are governed neurologically by the comparatively recent neocortex and the ancient midbrain or limbic area respectively. In speech—indeed as speech—they occur simultaneously, are united, coupled into a single meaningful sonic event. Alphabetic writing disrupts this unity. It splits the voice, selecting from the stream of speech (what it defines as) words to notate, jettisons all trace of their tone, and sets up its own neurological apparatus to handle the writing and reading of the resulting letter notations.

At this point a neurological qualification is in order. Here and in what follows I deliberately adopt a simplified topographic picture of the arrangements of the brain's functions. In reality there seems to be not one localized area of affect and feeling—the midbrain and limbic structures—and one localized area of cognitive thought—the neocortex—but a number of separate, interconnected regions, distributed throughout the brain, each specific to types of emotion and cognitive processing. This is part of an emerging consensus of the brain as "a collection of systems, sometimes called modules, each with different functions." (LeDoux 1996, 105) An adequate neurological picture of how affect and abstract thought, tone and 'what's said' are interrelated, then, would have to incorporate how the relevant modules are connected to and interact with each other. No such account at present exists. In fact neurological interest in the topic of affect is relatively recent and has yet to provide such a picture. However, for the purpose of identifying the rudimentary, but highly significant neurological effects brought about by the practice of alphabetic writing and reading, a crude first approximation, framed as an opposition of cortical and midbrain systems, is more than adequate.[13]

'Learning one's alphabet,' acquiring the ability to read and write alphabetic inscriptions, is an intense cognitive business requiring a permanent alteration of their brains that takes human children a protracted period of repetition and practice to accomplish. Neurologically, the requirements of literacy create in the brain what we might call a 'literacy module,' a neural complex within the neocortex dedicated to writing and reading purely textual entities, that is, handling the production and reception of phonemic strings that constitute written words shorn of their prosodic content and associated affective fields, words decoupled from the moods, feelings, desires, and regulatory activity routinely evinced (and induced)

by spoken utterance. The module comprises a mesh of pathways centered in the frontal-occipital lobes and virtually unmoored from the midbrain. As such it is distinct from the 'speech areas,' the lateral-parietal network governing the generation and reception of utterance and which from the advent of language has been coupled to the affect apparatus of the limbic systems and midbrain.

One can relate the picture here to the neurological theory of 'emotional conditioning' put forward by the neurologist J. LeDoux (1994, 1996), according to which an input train of stimuli is split in two pathways: one going to the limbic systems and the other to the neocortex. The result is a division of labor: the older and earlier limbic systems govern the rapid affective evaluation of the stimuli with respect to memory and conditioning; the more recent neocortical apparatus handles the slower, context-dependent rational analysis of the stimuli. Though autonomous, the two pathways intertwine and combine affect and analysis within an emotional response. In like manner, the signifying neocortical dimension of words and their affective, prosodic dimension mediated by the limbic systems combine in speech. But writing's elimination of vocal affect foregrounds the neocortical dimension, which is thus set in opposition to the speech it purports to represent.

The opposition between speech and disembodied writing is a hierarchy. This is in the obvious sense that in the process of establishing itself as the vehicle for the creation and furtherance of Western culture, writing has from its inception dominated speech, assigning it a subordinate status within literacy's increasing colonization of all that was the province of oralism. And also in a less evident sense of being patterned on a neurological precedent difficult to avoid. Thus Terrence Deacon observes the production of human speech might be modeled on the "superposition of intentional cortical motor behavior over autonomous sub-cortical vocal behavior" necessary to counter the "unintended eruption of primate cries." (1997, 244) In like manner, writing can be seen as demanding a neocortical override of the midbrain, a superposition necessary to suppress or inhibit the production of prosodic speech. Corresponding to the unintended eruption of primate cries, then, one has the counterproductive eruption of vocal affect, of prosodic gestures which, interestingly in this connection, themselves derive from de-instinctualized primate cries. In any event, it seems that the familiar hierarchies—cognition over affect, thought over feeling, signification over force, and ultimately mind, soul, and spirit over body and soma—that permeate the intellectual mainstream

and values of Western culture, might have their antecedents in an absent—better, disenfranchised and repressed—midbrain set against a consciously present, inevitably foregrounded and dominating neocortex.

This means that on the one hand, writing's de-prosodized words appear incorporeal, as if they issued from a disembodied and autonomous source.[14] On the other hand, from its beginning, writing has effaced its own role in constructing the hierarchies of mind over body, thought over feeling, and so on. By claiming (in writing) to re-present speech without loss, by systematically identifying itself as a medium which transparently inscribes speech, it masks the radical disjunction from speech that enables it to make such a claim.

Conflating virtual and actual speech has consequences of an ontological and metaphysical kind. Once the alphabetic body is in place, once the neuronal pathways of literacy have been installed in the brains of its users and became automatic through the repeated alphabetic writing of speech and reading of lettered texts, that is, as soon as writing "invisiblizes" itself as a medium, the stage is set for the coming into being of an entity—necessarily incorporeal—who is imagined to write 'I.' Such a being or agency 'speaks' itself with a virtual voice and, in (undeclared and unexamined) analogy to the spoken 'I,' is imputed to be the source and origin of virtual speech. In chapter 5, we shall see how two such agencies—Mind and God—exhibiting different modes of transcendental escape from corporeality can be understood as medialogically engendered ghosts, spectral quasi-presences which emerged out of the alphabetic writing of 'I.'

One can ask about the 'speech' of such virtual beings. For example, seeing that the connections essential to vocalic affect are routed through the frontal lobes, imagine the suppression of them as performing a kind of orthographic version of a pre-frontal lobotomy: certainly, descriptions of lobotomized speech, "in their words . . . no traces of affection could be detected" (Amaral and Oliviero 2005), suggest how, if it were possible to realize it, we might perceive de-prosodized words, speech emptied of all affect; an idea I return to later.