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SPEAKING OF THE INTELLECT, INSTINCTIVELY[1]

Abstract: To the extent a cognitive artifact extends natural language, questions of the former should be preceded by answers to those of the latter; and, questions about cognitive science and pertinent technology should begin by asking how one may verbalise one's ideas about cognition, one's own cognition to start with. One does that, it is plain, in two ways: one talks of one's thoughts and one's feelings. One thus sees oneself not as one but as at least two. Not to cause unrest, however, one continues to talk of oneself as one, calling one's pluralistic faculties in the singular as the Soul or the Intellect, the nest of the classical *trivium* of the beautiful, the good, and the intelligent. Degraded to tangible by social demand, the Intellect becomes intelligence plain, semantically rooted in behavior, hence operational, prerogative of machine. One's remaining spiritual faculties, collectively labeled psyche, are something to aid by therapy or drugs to keep one from acting strange. Bottled in rational formaldehyde for almost a century, only recently get they restituted by science as key actors of cognition. But in public space they remain *non gratae*, increasingly so indeed as the digital strait jacket steadily tightens around people's souls, taking the spark out of their social and professional presence, the spark that survived both Descartes and Marx. A century after Freud, four after Shakespeare, and four and twenty after Plato, feelings remain a mystery eluding words. Perhaps they should? We share our feelings on these vital mushy matters, irrespectively.

> *A cow gave birth to a fire: she wanted to lick it, but it burned;*
> *she wanted to leave it, but she could not because it was her own child.*

[Ethiopian proverb, Leslau 1962]

It is not our aim in this essay to be precise or comprehensive. Quite to the contrary, and in agreement with the spirit of the many meanings of the word we table, we shall be brief and symbolic. Immediate details and generalizations the reader's intellect will have no trouble supplying, while comprehensive treatment of the topic is way beyond our competence and any single paper. One thing must however be said in full. We are scientists by mind and heart, which is to say that we try not to take

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sides and back the rational, and by reason and feeling oppose the sentimental, the superfluous, the shoddy, the wishy-washy, the wishful, and all spurious born of mindless heart or shameless affluence.

This needed saying because our present concerns are literary and to a point perhaps moral rather than scientific; and because we shall be looking at the scales of the Intellect tipping the opposite way: at the absurdities of a heartless mind, of intelligence without goodness or beauty. Borges' [1941] *Library of Babel* is literarily best known perhaps, but we shall follow another path, one lit by the indisputable realization that this breed of intelligence exactly is prerogative of machine. The trivial turns profound by iteration, propagated by the dynamics of the mechanical, the cognitive, and the social.

It is since Freud quite beyond dispute in science that feelings do matter, though how they matter remains much a matter of opinion, and their ramifications largely remain unrecognized. The appreciation of feelings' critical importance for thinking on the one hand, and for forming and maintaining human culture on the other, has always been present in literature and philosophy but only marginally in science. However, among the big questions of science today, from foundations of quantum theory to pragmatic negotiation of meaning, are in fact questions about conscience, hence feelings. Quoting [Eich et al. 2000, p. 3]: "Recent years have witnessed a revival of research interest in the interplay between cognition and emotion – a subject that stimulated much debate and discussions among psychologists of in the nineteenth century but was shunned throughout most of the twentieth". There indeed is revived interest [Anderson et al. 2004; Minsky 2006; Stainton (ed.) 2006; Wierzbicka 1999]. We shall not be seeking secrets of cognition, however, but only coherence between how one talks, and how one thinks and feels; thoughts of few but tongues of many shape the world of values [Graham 2002].

Our story starts with the word "intelligence". When a machine passes a Turing test, as Deep Blue spectacularly did a decade ago, the term "artificial intelligence" loses its virgin touch of that of a toy replica. How does it differ from the original? People and computers together perform cognitive tasks. May one talk of collective intelligence? How would it then relate to that of its constituents? Would it be monotone in their number, so that high intelligence could arise from many low-intelligent parts? Such deceptively innocent questions, by now classical [Boden 1990], in effect transform person and society from subjects of history into objects for cognitive manipulation, verbal at the very least, and thus most strongly stimulate people's imagination. They legitimize fictitious worlds where machine and person stand equal but for their complexity, a difference too deep to fathom hence ignored.

Offspring to Kubrick's *Odyssey*, *The Matrix* and *I, Robot*, parallel litters of hotter spicing that *en masse* educate the for ever rooted by their screens young, the teachers too preoccupied feeding human plug-ins to The Market Moloch. Business visionarios desperately exhale imperative optimism for vital superhighways to global opportunities staked-out by critical XYZ Systems, as if life indeed depended on

cranking chip and piling code; in the rat race, it just for now might. Culture in general is the culture of movies: by familiar recipe, the dada deity of the hero, superhuman by genetic transduction and electronic implants, who saves the Planet twice between breakfast and lunch, legitimizes by negation the insignificance of the real one, dissolving in venoms of anesthesia of heart, next to the fumes of which Orwell's scent nostalgia.

George Orwell's teacher, Aldous Huxley, would surely raise a brow in pensive delight at demonstrated foresight. In his nightmare of a future [Huxley 1932] as in our present, and in much concurring directions, the chariot of history is pulled by vanity and power, a duo beyond any mortal's control. It is however driven, may we be bold to maintain, by people's live language in which all have a say, and there thus is a point in noting how people talk under digital pressure contrasting the way they perhaps should.

Symptomatic of ailment is the current debate on the crisis of academia, set off in America by [Blom 1987], now vocal in Europe United, a historic theme obligating deference of daily politics and the engagement of the crème de la crème; a debate lost in simpleton lingual combinatorics as if by sold robotoids. As put in [Plato 1951, p. 82] about 385 BC: "The truth of the matter is this. No god is a lover of wisdom or desires to be wise, for he is wise already, and the same is true of other wise person, if there be any such. Nor on the other hand do the ignorant love wisdom and desire to be wise, for the tiresome thing about ignorance is precisely this, that a man who possesses neither beauty nor goodness nor intelligence is perfectly well satisfied with himself, and no one who does not believe that he lacks a thing desires what he does not believe that he lacks". For robotoids "who possess neither beauty nor goodness", nor indeed surplus intelligence, the desire to be wise could hardly appeal, and since it is them that by the nature of things talk more and louder than the "wise already" but who not always have been so, the winning idea of university could only be that of a big machine making small machines.

We are not mocking the robotoid. In the Robotoid language, there is no word for beauty nor for goodness nor wisdom nor desire, nor any other word of the heart, so however hard a robotoid may try, he can only think robotoid. It is much one's language that makes one robotoid.

In Orwell's words [1946] from before the digital: "A speaker who uses that kind of … phraseology has gone some distance toward turning himself into a machine. … And this reduced state of consciousness, if not indispensable, is at any rate favorable to political conformity". Interpreting these for today, one's language lobotomized down to that of machine, one cannot quite make out own feelings and hence neither can one articulate one's emotional civil stand. At the same time, the difficult things in life cannot be worded in the rational, the Intellect being a tripod, not a monocycle. By this token, flooded in simpleton lingo of the omnipresent computer, the fake of the media, the superficial of the market, and the square of the professions – none immune to ramifications of the point-and-click debility – people of good heart

loose spirit, and their powers of speaking for the good and the beautiful, fade. If honest, they must in the end resign from socially negotiating value. Irrespective of rational status, each leaves the emotionally too hard to others, by the same absolving the social value, un-negotiated and hence necessarily embodied in a police apparatus of propaganda and surveillance, always ugly, often mean, from respecting what for a machine is just not there: them as persons.

Within fully functional, affluent, enlightened democracy, the reins of political power get in this way in the hands of those least troubled by own moral void. The outcome is not unusual in history perhaps, but here it happens by default, no one to point a finger at, hell paved by good intentions. On the black list of monstrosities fathered in modern times by reason void of feeling, next to its cult of itself and, in Marx's spicy words [Marx 1973], next to its offspring of universal prostitution, we must write: ubiquitous computing. Neither money nor computation nor indeed the magic mushroom, are in themselves particularly evil, to make it painfully plain, neither better nor worse than the wheel or dynamite, all but artifacts of expediency; the vile lies in setting them loose. Let out of the bottle, the former proceed to demoralize culture, gradually replacing traditional artifacts, not all of which are but old follies, by some so-called rational ones, mechanical, structural or procedural, which may appear expedient at the time, but which also are impersonal hence morally empty. And, being in the rational unstoppable, the greater the moral void around them, the harder they are to contain. At the moment, however, school children are warned but for Peyote.

Could the spiral be stopped? Not without due linguistic distance between oneself and the machine, and indeed between oneself and the said cult of the rational that in the Occident since Descartes monopolizes people's souls. To hear of machine stupidity more often than of its intelligence, as one indeed would if words reflected facts, and to listen to Baudelaire more than to Brussels, could be a start. Quoting [Thompson 2003]: "It is a paradox of the work of Artificial Intelligence that in order to grant consciousness to machines, the engineers first labor to subtract it from humans". What the engineers imply, machines do. Consciousness without feelings is hard to conceive, and feelings may indeed quite easily be drained from a person but at a cost: it is the heart not the mind that ultimately guides one in the world. That emotions are personal but not private in that they must matter in social count, fundamentally, is by the way not at all at odds with models of rational behavior, where however they enter tacitly, bundled as the artifact of preference. And they place people's cognitions light-years from those of today's machines (though not from the animals' of course), as far from talking robots as from rusty tractors.

To sanitize aberrant ramification, logically, one must trace back the stems to the time when all was still healthy, from there then tracing forth and removing spurious growth. The golden time of the Intellect, before the Machine, was two and a half thousand years ago, and the place was Athens. The art of rhetoric there practiced, itself object of controversy, was the very vehicle for negotiating value that we today

find missing. We naturally side with [Miller 2007] that the world of human affairs should not be talked about in the language of psychology and the social sciences, but in that of history and the humanities, and that the teaching of the latter language to the young, Socrates' tragic end notwithstanding, is the true purpose of school.

The problem herewith articulated concerns quite directly all citizens who feel responsible for their times, among whom one must hope to find all who take part in technological deployment in public space. It is however hardly a problem that all can analyze. We, the present authors, are not among the chosen: we are not social scientists to give it weight, and neither are we of the Letters to give panache. Had we been, we could have given better justice to whatever is known about emotions in psychology [Becker 1962; Lewis et al. 2008], philosophy [Crawford et al. 2005; Minsky 2006; Tatarkiewicz 1979], language studies [Schumann 1999; Wierzbicka 1999], etc., the references carefully chosen but symbolic of course. We could have also better presented cognitive science, the past [Boden 2008; Dupuy 2000] and the current [Stainton 2006]. Being mathematicians as we are makes us rather unqualified to talk of social phenomena but less unqualified to know how emotions relate to the formal: mathematics is indeed an emotional affaire [Poincaré 1908; Hadamard 1945]. We know enough, we feel, to advise all and everyone not to approach live problems of moral deficit by raw formal means, and some actually do, nor indeed any problems of mental challenge. By most crude association: who of good heart would attend a live butterfly with a pair of pliers? Indeed, of the few friendly things one could do to a butterfly, touching is not one.

Once formulated, a universal problem is not hard for anybody to find in hindsight a personal motivation for. Ours surely goes back a lifetime, but more tangibly for the present forum to our papers [Baborski, Bonner 2001] and [Bonner, Mamchych 2005] that examine the logic behind the artifact of knowledge management in business firms.

In the former, with Baborski, the theme was the apparent dual form of knowledge in the pragmatic context of an enterprise. We there noted, with certain unease of not being able to say more, that the "knowledge" that was object to "management" either was of explicit nature, essentially computer programs that indeed could be manipulated at will, or else it was inherent in the structure and operations of the firm, including its staff, and thus it neither was catalogued nor object to manipulation; in the latter case, any "management" of the knowledge disjoint from that of the rest of the firm was hard to conceive. The latter point was also raised on semantic grounds, may we note in passing, by [Wilson 2002], who notes (our wording) that one cannot manage something that one neither has the means nor the authority to touch.

We put the logic of managing knowledge in business rather more seriously on the stand in [Bonner, Mamchych 2005], on account of inherent unaccountability. To the extent one's knowledge determines one's cognitive identity, we argued, altering knowledge may alter preference. From here it followed that any decision to alter

one's knowledge will be evaluated twice, before and after alteration, possibly by different preferences, and there was no natural way to merge these. The posterior preference may be unknown at the time of decision, and, if known, preferences are hard to reconcile rationally. Prior accountability of decision being roughly the same as economic rationality, it all amounted to saying that rational management of knowledge was impossible, while irrational was unthinkable.

In each of the cases, one runs into trouble because of machine thinking. In the human world, unless one aims to confuse everyone as indeed some do, one has precious little need for ultra-abstract words like knowledge or management, and especially not for these in combination. This is so because such words come from the real world and they are to be used by real people in that real world; they are not formal constructs of a virtual world to be blindly manipulated by logic. The cognitive rules of these two worlds may relate reversely: the most simple in the first may be least simple in the second. Recall the algebraization of geometry by Descartes, or if one so prefers, modern computer graphics: for people elementary visual geometry is advanced image processing for machines, while for machines trivial formal logic is advanced mathematics for people. It is mere mental aerobics for a person to translate the geometry she sees into an algebra that machine understands, unless the machine is to do some real work with it.

So, unless a machine is to do some real work with general descriptions of situations where people and computers work together, in which case the machine must be explained in terms of other artifacts what the artifact of knowledge management is and what it is not, a most formidable task indeed [Fagin 2003], talking of it *in abstracto* is but a pastime.

Similar holds true of many other words. For example, neither the present authors nor, we suspect, the present readers, use the word intelligence except when naming the courses we read, the books we order, or the departments we visit. Neither do we seem to need this word when the crucial ingredient is missing, as in American jokes about Poles, or in the Russian about Chukchas, or in the universal ones about politicians or busty blondes. Likewise for that matter, we do not much use the word information other than in technical sense such as that of conditional entropy, nor the word system, etc. We suspect that it is so because we all sufficiently well for own purpose can differentiate the different meanings of each of these words, label them, and then employ the label that fits best the situation at hand. Thus, instead of saying "I possess the information about the train traffic", trendy maybe but vague, one may perhaps say "I have a timetable", or "I have checked the timetable", or "I do have it but have not checked it yet", etc., whatever the case may be. Of the sixteen tabled topics for the present conference, one may be amused to observe, most of which circle around intelligence, only three employ the word.

In short, when speaking, we rarely want to be most exact, most general, or most concrete; rather, we want to be most informative, and informativeness is not a prop-

erty of a language alone, but as much or more perhaps, of its use – obviously with feeling.

The source of problems in [Bonner, Mamchych 2005] was our tacit insistence that preferences of individuals, the one before alteration and the one after, be formally combined before alteration into a single one, by which the alteration could be deemed rational. In the world of the machine, there really can be no preferred criterion to choose criterion by which to reconcile individual preferences, other than possibly the esthetics of intrinsic structures that furnish that world. In that world, the machine would have to admit arbitrary act, or freeze. Over a very long time of acting arbitrarily, the machine might learn that in certain situations certain choices work better than other, if it indeed had an ultimate criterion of goodness to parallel live survival, and it could perhaps incorporate this knowledge into its preference. In the world of animals, this role exactly play emotions and instincts; in the world of people, these moreover negotiate moral value and rules of conduct. With emotions allowed, the problem of social choice no longer is merely about synthesizing collective preference from arbitrary individual, vainly, but also about choosing individual preferences among those that suit the collective. The lack of symmetry in the attention that colleagues have been giving the two approaches, may we note in passing, feels odd in that the physical individual, abstracted to the atomic entity of economic agent, is in fact composed of live organs, each promoting own well-being but subdued to the collective.

Joint history of cognition and culture, which we thus are touching upon, is today much spoken of [Donald 2005] and should indeed be the scientific centerfold of these pages. There is a standard game known as the prisoner's dilemma, a toy version of the very real scenario of apparent conflict between the individual and the social, where heart beats mind. Recall the story of the game, in simplest form. Two men rob a bank one night. The next morning the police stop them, put them in separate rooms for questioning, and to each they say: "Here is our deal to each of you two: if you admit, you serve one year; if you do not admit while your partner does, you serve ten; if neither of you admits, you both go free, of course". What should each do? If each acts upon premise that both are rational-selfish, then in absence of prior agreement each must admit the possibility of the other dobbing, and hence must quickly dob himself; they then get one year each. Should each act emotionally by the 'friend or foe' principle, so neither can harm the other nor help police irrespective own fate, then neither cooperates and both go free.

As we are writing these lines, the prices of petrol in Europe are hitting new heights amid the confusing as usual, misty, sensational reporting. There is nothing that an average consumer could do about these price games, and no collective action is realistic; being rational as most are, he might cut his expenses, take an extra job, change to a smaller car, etc. But he might also get pissed off at the shady figures playing around with honest people's wallets from behind cheap smoke-screens, and squarely stop buying their stuff, cost what may. Should sufficiently many experience

this emotion at about the same time, strongly enough to act upon it, they would by the same win the game: there is no true shortage of petrol, yet.

Our stories bring out a typical mechanism: action by instinct for common good, which may indeed be best for each, cannot happen if each insists on acting by reason for own good. It is of course possible to formally set common good as own good, but who of warm blood and sane mind would coldly consent to that? Time and time again history has shown that this cannot work.

Now, we have all along been making claims to the effect that affluence and the computer make people unable to articulate their feelings, or at least make them suppress feelings in public, the effect in any case being the subtraction of heart, and thus of taste and sympathy, from negotiation of social value. What evidence would back such claims? We are not being scientific in our claims but neither are we trying to be. No, we do not have formal evidence to table, neither to be honest have we thought too long whether we could readily produce some or not, though we must of course believe that we could. Indeed, had we felt that we had to have formal evidence ever before opening our mouth, we would have been by self-reference a prime example of the very evidence we felt obligated to produce. And, had that been the case and we had not found formal evidence, we would have never opened our mouth, and the prevailing silence would continue to convince the uncritical of prevailing order.

It indeed is likely that there would be silence, as when one of us witnessed a friendly Swedish border police officer loudly ask in a train car entering Sweden: "Är någon här utländsk medborgare?" (Is anybody here foreign citizen?). It is rather rigged to ask in the rational whether some are unhappy with the rational, or to ask in machine lingo whether some dislike the machine, and take no answer for a no-answer. When thinking about thinking about thinking, to recall, one must watch out for traps of self-reference as Gödel and Tarski warn. But why ask indeed? The well-being of people obligates their language to reflect in the first place their true condition, individual and collective, and only then the condition of the machine; any machine, whether electronic, political, linguistic, whatever. This is by plain fact rather far from being the case today, neither in public place nor in workplace nor indeed in hyperspace of the Web; certainly not, by implication and everyday toil, in places of higher education.

The "powerpoint syndrome" is universal. For a chilling example, the axe of legal decision is today operated by words, not by spirit, as if indeed law was written for tin robots, which by the same it turns out it was; the live ones can easily be as tin-brained but not nearly as reliable. Few bother that a heartless justice machine, hence possibly both ugly and mean, cannot be set apart from what in common language be called despotic, cold-blooded, and cruel. A machine cannot be just of course, not even in principle, at best non-capricious, an iron tyrant in other words, able to keep order perhaps but one void of meaning. The justice machine that we see does however involve people, and what makes a person act consequently under pressure is a moral spine, here demonstratively missing.

All accountable decision, not just legal, appears in fact destined to shrink to the ultimate gem of computerized bureaucracy, a Universal Boolean Function, the awe of personal judgment thereby for ever eliminated.

All is thus nicely on track towards impeccable rationality, the trauma of a person's uncertain future in principle removed at birth via utility maximization. The unfortunate infeasibility of implementation of effective algorithmic solution to utility-maximizing optimization problems in multi-agent rational games in the presence of uncertainty and imperfect information, is most effectively helped by the conformably compulsory software that assists one's choices and by the prompt; which, not unlike the galley with its drum, help one and one's co-workers choose when to pull and when to push. Things of the everyday, all really that involves the computer, are linguistically muddled quite beyond decency as ever so gently just hinted, to efface their physical roots and emotional coloring, and thereby their sense (who are behind all this? or are we all to think that it just happens?). And ubiquitous computing permeates all.

To add insult to injury and more injury, computers are now trained to spy on whatever of the human touch people may have kept in their language [Wiebe et al. 2005].

It cannot be sane of people to let their language and consequently their thoughts and feelings forgo thousands of centuries that formed them on account of a heated night with the robots; it humiliates the individual and endangers the collective. The language had evolved, as have the cerebral hemispheres, balancing the rational and the emotional, the particular and the general. It matters not whether electronic emotions are possible; today, machines do not have them. Lobotomizing one's language down to machine deprives one's emotions of respectful means of expression. With the right hemisphere blocked, one's consciousness and conscience do indeed come closer to those of the machine – the perfectly rational idiot savant, the ultimate bureaucrat, the indifferent obedient dextrous imbecile for which things like beauty, compassion, dedication, loyalty, pride, or even privacy or plain personal integrity, do not exist.

The lost consciousnesses do not somehow pop up as a collective one, the way some known but purposefully uncited soap-in-the-eyes writings impertinently imply. There is no such thing as collective consciousness of course other than a foul idea in the mind of a conscious beholder, and neither is there collective intelligence to speak of other than those of herd or hive; but there surely is collective madness as when a herd runs off a cliff. People might then by collective agreement continue toward insectoid culture, a thought doubly humbling, an apocalyptic choice to be made by half-brains unable to sense whereto their road in fact leads. When consciousness goes worries go, also about preservation of swarm: insects survive because of countless colonies, and even so, they do not adapt fast enough to the changes people cause.

Recall [Borges 1941]: "Perhaps my old age and fearfulness deceive me, but I suspect that the human species - the unique species - is about to be extinguished, but the Library will endure: illuminated, solitary, infinite, perfectly motionless, equipped with precious volumes, useless, incorruptible, secret".

To be quite clear, we are not at all by this essay trying to say that The End is near. If to extrapolate linearly the dehumanizing trends of the latest decades, then perhaps indeed one would find it hard to avoid apocalyptic conclusions. But history is not linear. Perhaps people do need the experience of a robotoid phase to better appreciate the things that set them apart from the mechanical?

Our sense of humor fails us at this pensive moment to supply pointers that would act towards confining readers' thoughts and feelings to a philosopher's stone, one and the same for all; we do not wish to offend. But we do wish to share a final thought. Since we are sharing thoughts freely, let us openly admit that all along writing this essay, we were troubled by a nudging feeling that the rather lateral ideas that we were here to table, might perhaps not be taken to kindly in a forum by its short but set tradition dedicated to longitude. But we were not after kindness, not unconditionally at least, and we let the presence of this feeling kindle a thought to round off with: some feelings help thinking, other do not.

Excessive feelings of conformity that we in effect are now talking about hamper the negotiation of good language. When people encounter words that they feel dubious about, they may be afraid to confront their feelings or to hurt the feelings of others, and so they do not thrush such words out yet use them. Since they have no feeling for these words, they can only use them the way a parrot might, and they end up with a bird language.

Language is much too precious a gift to let conformity or indulgence spill. We are far from original in saying this, suffices to listen to Orwell [1946] speaking for the English language when misused by politicians, but there is no harm in saying it again and again for the adversary is formidable. To talk well, our feelings about words must matter, the feelings that counter those, should not. It is for one's feelings for the language, one may say, and for those of personal intellectual honesty, to tell the good feelings from the bad.

And, let us not forget that in the final count any cognitive artifact is but an extension of language. Having made Hamlet's choice in the positive, both the personal and the collective, it is only our duty after Camus [1956] to demand that these artifacts serve us all well, at the very least not worse than language has. As we are typing these last words, it occurs to us to thankfully acknowledge Google (Scholar), Wiki, Plato at Stanford, Oxford English Dictionary, LaTex and LaTexEditor (LEd), and other unmentioned such wonders that all have indeed been doing just that.

No spelling checker guarded us against typos; the one we had entertains in compensation below, following the References.

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The Spelling Chequer (folklore, short version)

Eye halve a spelling chequer
It came with my pea sea
It plainly marques four my revue
Miss steaks eye kin knot sea

Eye strike a key and type a word
And weight four it two say
Weather eye am wrong oar write
It shows me strait a weigh

As soon as a mist ache is maid
It nose bee four two long
And eye can put the error rite
Its rare lea ever wrong

Eye have run this poem threw it
Am shore your pleased two no
Its letter perfect awl the weigh
My chequer tolled me sew.