

Chapter 8

Attention and Consciousness



Dualism is not overcome by synthesis, but by the acknowledgement that, at the root of things, there is no dualism at all.

(Prodi 1987b: 119)

Abstract The human is an animal that refers to itself as an “I”. According to Descartes, the subject is an axiom, and everything else follows from this primordial certainty. This is a dualism: to postulate an I as separate from the natural world. Prodi rejects this dualism. The challenge of Prodi is to find a naturalistically way to explain how human subjectivity can emerge from the world of things; that is, from biosemiotic complementarity to the I. For Prodi, following Vygotsky’s hypothesis, the “I” *qua* self-conscious psychological entity, is inseparable from the pronoun “I”, i.e. the discursive capacity to refer to oneself. Human consciousness is therefore the capacity to pay attention to oneself by means of language.

Keywords Anti-dualism · Consciousness · Self-consciousness · Attention · Vygotsky

The Cartesian model begins with consciousness, with mind. The I is an axiom. Therefore, Descartes’ approach is dualist and radically anti-naturalistic. Conversely, as we have already seen in Chap. 5, Prodi’s model is radically anti-dualistic: at the beginning, there is the relation between things and the world, natural semiosis. And yet, the experience of oneself as something interior and intimate seems wholly natural. It is therefore necessary to explain—like it was explained in Chap. 7 *vis a vis* language—how an animal capable of thinking of itself as an I could have emerged from the natural world. The topic of this chapter, then, is the natural history of human consciousness. This theme has recently received quite a lot of scholarly attention (Sherwood et al. 2008, Humphrey 1992; Tattersall 2016), but once again Prodi’s solution is both profoundly original—especially so considering that it was formulated over 30 years ago—and coherent with his radical biologism. Let us

begin with relations: these precede the consciousness of the I, as well as the very distinction between subject and object. Prodi's axiom is that:

[a] properly interior knowledge (intended as an unveiling of something noumenal relative to thought) does not exist. This assertion needs to be clarified: we do have a kind of knowledge of ourselves as epistemic structures. But this is historical and progressive, correlated to our development and to our surroundings, and based upon — as well as sensitive to — relations and permutations between those. It is therefore the exact opposite of an interior knowledge intended as a central and resolute unity, preceding our experience of another sphere. (Prodi 1974: 18)

There is no privileged access to the interior world (Ryle 1949). In the natural world, everything happens in the light of day or in the shadow of night. Interiority is nothing but the other face of exteriority:

every distinction [between internal and external, mind and body] is a second step. [...] So, the discourse about knowledge begins from the fact of the interaction between the two domains, which occurs, structurally and inevitably, at every moment as an integral part of the process of knowledge itself: the possibility of setting it apart, to bracket it even just for an instant, is nothing but a myth. (Prodi 1974: 27)

Before examining this argument closer, let us try to detail the explanatory model used by Prodi when giving an account of human knowledge and of the natural history of the I. We are already familiar with the general model: that of the circle. But in this case, it is expedient to refer to a topological morphism of the circle: the Möbius strip.

The Möbius strip has two distinct faces, but it is also a continuous surface. This means that, for a hypothetical organism, walking the surface of the strip starting from any point, it will be possible to return to that same point having traversed its entire surface without taking her own feet off the strip. There is no dualism between two sides of the strip, yet it undoubtedly has two sides. Two sides, one strip surface. Two distinct advantages are gained by employing this figure as a model for human subjectivity, thus replacing Cartesian dualism: (1) The unity of the human animal is not questioned. An explanation of the I grounded on this model is thoroughly naturalistic. (2) This model preserves the constitutive duality of consciousness: always consciousness *of something* and in particular of oneself in self-consciousness. There is both continuity and discontinuity; there is the monism of the human animal and the dualism of consciousness. Both nature and consciousness are preserved. Once again, it is clear why the model of the circle is so dear to Prodi: it allows to avoid both reductionism and dualism.¹

Before moving on to human consciousness, we should take a closer look to consciousness in general, at a more elementary level. Let us consider the simplest of examples: the encounter of two molecules. Not every encounter is possible, since certain combinations are foreclosed by the physical structure of the molecules themselves. From the point of view of a molecule, this means that certain combinations are “meaningful”, while others are not. A combination is meaningful only relatively to another specific molecule. Indeed, to say that “something is meaningful”

¹The first application of the Möbius strip to semiotics can be found in Lo Piparo 1992.

amounts to saying that “something is meaningful” *to* something else (Prodi 1979: 187). It is meaningful because it allows the formation of a larger assemblage:

an organism has its external correlates to which it is adapted: the things it can exploit. These are meaningful for it. Let us consider these correlates at their highest genericity (from oxygen as a gas necessary for life to oxygen as an object of chemical-physical hypothesis). The adaptation was phylogenetically organized: some things in the environment “become” meaningful for the organism because the organism evolves, thus becoming capable of reading and interpreting them. (Prodi 1979: 187)

At the beginning, as we know, there is a completely natural phylogenetically established complementarity. This is before the emergence of distinction between subject and object, in the realm of relations between *things*: “meaning is not an abstraction or an abstract correspondence, but a relationship between concrete things [...]: it is not a content poured into a vessel, but a fact defined through evolution” (Prodi 1979: 188). Let us now go back to Fig. 6.2, where *A* and *B* form the assemblage *AB*. At the same time, *A* does not form anything with *C*, *D*, or *E*. To say that *A* is “interested” in *B*, yet uninterested in all the other things in its “surroundings”, is no concession to anthropomorphism, because in this case “interest” simply refers to the possibility of forming complex structures. A possibility that, in turn, is determined by *A*’s make-up, its material structure. In this sense the “complementarity” between *A* and *B* is thoroughly natural. That *A* is “interested” in *B* means that *A* “pays attention”—in a completely natural way—to *B* while not “paying attention” to *C*, *D*, or *E*:

there is no organic function (in any organism) that is not buttressed by specific correspondences between molecules, selective processes wherein an interpreter reads signs. These are necessary for life: life is a sequence of interpretations that feed energy to the reader (as a categorial machine, as a reading apparatus oriented towards the world). Interpretation is always necessary. (Prodi 1989: 94)

A living relation entails a selection, among all present things, of those that allow the formation of larger and more articulate assemblages. These things “mean” that a relation is possible. Natural meaning, then, is nothing but a thing’s capacity to selectively establish links with other things—where selection means capacity to pay attention to something rather than something else. Finally, bio-semiosis means the ability to paying attention, i.e. to “select”. There is no semiosis without this “control” of attention. Such is the fundamental difference between the relations supported by “material logic” and those supported by “categorial logic”—the first kind is “fundamentally nonpreferential”, while the second:

marks the first step towards a preferential reading. [...] In nature occur both situations of preferential reading and of interpretation: these are material states that react selectively with other material states — and only with them — interpreting them operatively. They ‘categorize’ reality. (Prodi 1982: 40)

There is a crucial nexus between semiosis and attention. We are now in a position to define “consciousness” as this primordial capacity for selectively paying attention to things in the world (Cimatti 2000c). Based on this definition, we can see that there is no life—no semiosis—without a primitive form of consciousness (Emmeche 2004; Baslow 2011).

Returning to our example, *A* is conscious because when in the presence of *B*, *C*, *D*, and *E*, it “chooses” *B*. This kind of definition does not contain any dualist presupposition nor does it entail that *A* would somehow contain within itself a special entity called “consciousness”. On the contrary, “consciousness” means nothing but the ability of selectively form assemblages with other things. In turn, this is not an intentional “mysterious” (McGinn 1993) ability, since it is nothing but the thoroughly non-intentional result of the physical morphology of *A* and *B*. This is worth repeating: we can talk of “consciousness” with regard to a thing only if we refer to a selective movement towards other things—a “selecting object” is therefore a “conscious” one:

[such an object] will come in contact with an indefinite number of other objects, and it will only undergo changes through such contact. Only thanks to this contact it will preserve its coherence: otherwise it will decay (for ex. it will be disassembled to its component elements). (Prodi 1982: 42)

Attention and consciousness have no intentional or “subjective” character, since “categorization” is nothing but a “point of view” on the world (Prodi 1982: 43). Every point of view can discern only a particular fraction of the world, the one that—relatively to that point of view—is meaningful or interesting (here Jakob von Uexküll’s influence on Prodi is extremely clear).

This capacity for selective attention towards the world defines the domain of life. And according to this perspective, every form of life possesses it: whether vegetable (Brenner et al. 2006) or animal (Griffin and Speck 2004; Mendelson et al. 2016). It is evident how this is a radical critique—a thoroughly naturalistic critique—of the Cartesian standpoint. Usually the latter is criticized by arguing that non-human animals too have something similar to human consciousness. However, to target Descartes’ exclusion of animals from the process of knowledge paradoxically means failing to criticize his dualism: by defending the earthworm’s right to have a consciousness one is simply extending Cartesian dualism all the way down to the earthworm. But a more radical critique of Descartes rejects dualism itself. It is not merely a matter of granting consciousness to the earthworm, or to an onion, but rather to deny that the human animal would somehow not be included in the natural world. Dualism is the problem, not consciousness, and with his biosemiotic theory of consciousness, Prodi is launching a direct attack to dualism. In nature, consciousness is not *something* separated from all other material things. For Prodi this is an anti-Cartesian position because it denies consciousness—the consciousness of the dualist paradigm—to the human and not because it extends it to the earthworm.

But if this is the common background of all living (and non living) beings, how does the specific human consciousness emerge? We should begin by clarifying the problem: the issue is not that of searching, within humans, for a special kind of entity that dualism calls “consciousness”. Such an entity does not exist. Rather, it is necessary to understand how the development of the human capacity for experiencing the “I” has been possible. Once again, this does not entail the search for a special substance called “consciousness” but rather a peculiar relation that human beings—as well as, it seems, certain animals trained to use a complex form of human

communication (Tomasello and Call 2004; Lyn 2017)—have towards themselves. Human consciousness is not a thing within *Homo sapiens*; it is the linguistically mediated means for humans to establish a relation with themselves. To be more precise, human beings *qua* humans *are* nothing but such a relation.

Prodi's most evident inspiration, when tackling this problem, is Vygotsky's historical-social psychology (Cimatti 2000c), a very well-known and popular doctrine in Italy during Prodi's time. We should remember that Prodi was living and working in Bologna, the capital and largest city of the Emilia-Romagna region, well known in Italy as well as abroad for the quality of its kindergartens and elementary schools. The pedagogical model employed in these schools was—and still is—that of historical-social psychology. According to Vygotsky,² the psychic development of human beings is not an internal process of growth; on the contrary, every psychological capacity—from sensation and perception to higher cognitive functions—is formed through the relation with the social instruments that children encounter in the community within which they grow up. For Vygotsky, then, nobody is immediately born *qua* human—rather, one *becomes* a human. In particular, a child of *Homo sapiens* becomes a fully-fledged human only when he or she is able to use upon him- or herself the external social instruments offered by the social environment where his or her development took place. The most important of these is speech:

the transition from the biological to the social way of development constitutes the central link in this process of development, the cardinal turning point in the history of child behaviour. This road — passing through another person — proves to be the central highway of development of practical intellect, as demonstrated by our experiments. Speech here plays a role of primary importance. (Vygotsky and Luria 1994: 116)

In particular, the child—at a certain stage of his or her cognitive development—begins to use upon himself or herself those forms of social behaviour, specifically linguistic ones that were previously used only towards others. For example, at first words would only be used in order to ask something to someone, a way for the child to “control” the behaviour of others. But what happens when there is nobody to ask for help to? It is in this circumstance that, according to Vygotsky, a radical change takes place: the young human tells himself or herself what to do. That is to say, he or she starts to actively control her/his own behaviour. The child's self-consciousness is, for Vygotsky, nothing but this linguistic capacity for self-control:

[t]he greatest change in child development occurs when this socialized speech, previously addressed to the adult, if turned to himself, when, instead of appealing to the experimentalist with a plan for the solution of the problem, the child appeals to himself. In this latter case the speech, participating in the solution, from an inter-psychological category, now becomes an intra-psychological function. The child applies to itself the method of behaviour that it previously applied to another, thus organizing its own behaviour according to a social type.

²Nowadays it is becoming less and less certain that the texts traditionally attributed to Vygotsky were actually written by him alone (Yasnitsky, Van der Veer 2016). However, the ideas that one can find in Vygotsky and Luria's *Tool and symbol in child development* are very similar to those found in the books that were published under Vygotsky's name when he was still alive. For this reason, I believe that *Tool and symbol in child development* can still be considered a reliable source for Vygotsky's own ideas.

The source of intelligent action and control over his own behaviour in the solution of a complex practical problem is, consequently, not an invention of some purely logical act, but the application of a social attitude to itself, the transfer of a social form of behaviour into its own psychological organization. (Vygotsky and Luria 1994:119)

What was once an intra-psychological behaviour, taking place between people, now becomes and inter-psychological one, within the child's psyche. Properly speaking, then, the conscious psyche of the child is nothing but this capacity to apply to oneself a social instrument. What before was said to others is now said to oneself: human consciousness is nothing but this capacity to speak to oneself. Through inner speech (or "verbal thought"), the young human becomes able to pay attention to his or her own behaviour. This is the reason why consciousness is not a thing, since it is nothing but this capacity for self-attention. Therefore, the child does not speak to him- or herself as if two distinct entities resided within: the one that speaks—the mind—and the object of the speech, the body. The child's consciousness is the very act of speaking to him- or herself: it is a reflexive use of language. More precisely still, the intra-psychological use of language allows the child the pay attention to his or her own behaviour. The primary function of "verbal thought"—i.e. an interior form of social speech—is the voluntary focusing of one's attention. The "will" is nothing but the control of one's behaviour instantiated by the "verbal thought" (be it explicit or implicit):

[f]rom the first steps of the child's development, the word intrudes into the child's perception, singling out separate elements overcoming the natural structure of the sensory field and, as it were, forming new (artificially introduced and mobile) structural centres. Speech does not merely accompany the child's perception, from the very first it begins to take an active part in it: the child begins to perceive the world not only through its eyes, but also through its speech, and it is in this process that we find an essential point in the development of the child's perception. (Vygotsky and Luria 1994: 125)

We once again encounter the theme of the control of attention, a central issue in Prodi's thought: "with the help of the indicative function of words, noted above, the child begins to master its attention, creating new structural centres of the perceived situation" (Vygotsky and Luria 1994: 132). Human consciousness, unlike that of animals or plants, coincides with the inner capacity of directing one's attention. Specifically, the child's behaviour becomes truly "his" or "her" behaviour only once the ability of controlling it through "verbal thought" is acquired. The distinction between the body and the mind, that is, between the action and the conscious control of such an action (this is the consciousness) is nothing but the "by-product" of the self-reflexive use of language. Building upon Vygotsky's theories, Prodi thus manages to deliver a plausible account as to how a young human being—a primate very similar to anthropomorphic monkeys (Gagneux and Varki: 2001)—can develop the control of his or her attention first and acquire consciousness later. This is a fully naturalistic (non-dualist) account, articulated within a framework of continuity between the animal and plant world (the domain ruled by "categorical logic"), which is a complication of the natural world (that of "material logic").

Going back to Fig. 8.1, we now fully understand the expediency of the Möbius strip model. According to the latter, consciousness appears whenever a speaker using language reflexively (Dennett 1991) institutes a momentary split between

Fig. 8.1 The Möbius strip
as a model for human
self-knowledge



inside—a speaking voice—and outside, the bodily behaviour that the voice is describing. This is not an absolute separation, and it is certainly not a dualism: on the contrary, it is a distinction that is instituted by the act of reflexive speech and lasts only as long as the latter. As Benveniste (a linguist whose work Prodi was well acquainted with) put it:

[i]t is in and through language that man constitutes himself as a subject, because language alone establishes the concept of “ego” in reality, in its reality which is that of the being. The “subjectivity” [...] is the capacity of the speaker to posit himself as ‘subject’. (Benveniste 1971: 224)

Human consciousness—i.e. the “I”—is nothing but a “collateral effect” of the reflexive use of language. In particular, consciousness is the attention that the speaker turns to him- or herself through the employment of language:

[w]hat then is the reality to which *I* or *You* refers? It is solely a “reality of discourse”, and this is a very strange thing. I cannot be defined except in terms of “locution”, not in terms of objects as a nominal sign is. I signifies “the person who is uttering the present instance of the discourse containing I”. (Benveniste 1971: 218)

There is nothing left of Cartesian dualism. The Möbius strip shows us how there is only the natural world but that this world can fold upon itself without breaking its continuity: human consciousness is the natural fabric of the world folding upon itself. This is only possible for the linguistic animal par excellence, the human animal, the only animal who has made of language its own environment and who has adapted itself to it and constructed itself around it:

[f]or every thing that is recognized and linked to spoken word there needs to be the activation of a sequence of specialized circuits, one after the other, with different filters and at different levels. When spoken word enters into a logical play —used in a context of logical operations — a system of circuits is linked to other systems. This has to be a unitary process, because step by step the cerebral system rotates as if anchored to a central joint, and the entire system works for that point, as if there was no constant centre and every point could function as centre. This variable condensation onto a single point is *attention*, i.e. the process of focusing the entire machinery that, for a given process, puts itself at the service of one of its parts (an object, a word, a person, a logical process...). [...] Therefore, if we interpret reality [...] through a given hypothesis, then it is as if we were building a network with certain connections (materially instantiated by a series of activated circuits [...]) and this network would then “filter” the reality it delivers to us, catching those fish/objects that are the right size and shape to be caught by such a net. (Prodi 1987b: 53)

Prodi’s image is both simple and efficacious: the words of a language allow us to catch “fish/objects”, i.e. the entities we can turn our attention to. The point is that these fish can be caught only because they let themselves be caught. This means that

the network of language is built on the world; that it, language is a phylogenetic adaptation to the “fish/objects”. Language can say the world only because *it is* made of world: language is a part of the world that talks about another part of the world. This is a point that Prodi shares with Jakob von Uexküll:

Since Uexküll believed that this activity of the mind consists in the reception and decoding of signs, the mind-in the final analysis-is an organ created by nature to perceive nature. Nature may be compared to a composer who listens to his own works played on an instrument of his own construction. This results in a strangely reciprocal relationship between nature, which has created man, and man, who not only in his art and science, but also in his experiential universe, has created nature. (Thure von Uexküll 1987: 149)

This is the kind of predicament illustrated by the Möbius strip: language is the world folded upon itself, a questioning about the world starting from the world itself—and such a questioning is nothing but human consciousness. The latter, therefore, is not a starting point: not of semiosis nor of language. As Prodi writes:

once examined, the facts of “consciousness” appear grounded on natural bases, unconscious and automatic, and can only exist thanks to them: consciousness, then, is just the tip of the iceberg, and if we intend to explain anything at all (i.e. put it in connection with something else) we need to invoke the submerged part, that which allows the tip to surface in the first place. (Prodi 1977: 18)