

Bozzi on the autonomy of experimental psychology

A commentary on Bozzi's "A Logical Analysis of the psychophysical scheme"

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The main goal of Bozzi's paper is this: grounding the epistemological independence of "an autonomous theory of perception, a theory that speaks *iuxta propria principia* of objects of *observation*" (p. 1), without worrying whether these objects result from the volitions of a Cartesian demon or from other more plausible sources and thus along the lines suggested by Peirce's "phaneroscopy," and, we may add, Husserl's phenomenology. The goal in other words is to show the legitimacy of autonomously pursuing experimental phenomenology in the tradition of Gestalt psychology, thus hunting for intersubjective laws, such as Wertheimer's principles of perceptual grouping. The enterprise is "experimental," as these laws are grounded on experiments that manipulate parameters constituted by "percepts," with a methodology that Bozzi himself has contributed to enhance with his "inter-observational" method (Bozzi 2002, Vicario 2001, Ch. 6). And it is autonomous, since it is in no way dependent on the study of the neurophysiological and psychological processes underlying perception. Similarly, notes Bozzi, the laws of logic can be investigated independently of whatever mental processes underlie our reasoning events, as Frege and others have argued in their criticism of psychologism about logic.

To reach his goal, Bozzi views percepts as entities in their own right with their own *observed* properties and relations, in sharp contrast with philosophical accounts of perceptions such as *adverbialism*, according to which, e.g., we do not see a red percept, but rather "see-redly" (Crane 2011). Moreover, he appears to embrace a non-reductionist ontology of mind, according to which mental properties cannot be identified with physical properties in the way suggested by the so-called type identity theory (see below). This non-reductionism must certainly be quite different from the one stemming from Davidson's much debated anomalous monism (Kim 1998, p. 132). According to the latter doctrine, there are strict physical laws, but there cannot be strict psychological and psycho-physical laws and this is why mental properties cannot be identified with physical properties and psychology be reduced to physics. But Bozzi should hardly agree with this line, as it appears to be in straightforward contrast with his acknowledging laws of perception. For these, we think, should be regarded as *psychological laws*, even though Bozzi (2002, §10) claims that, in doing experimental phenomenology, he contributes to a "science of the external world" (we shall see below how this idea may fit in Bozzi's view of the mind). But if not a Davidsonian one, what kind of non-reductionism can be attributed to Bozzi? Before trying to answer this question, let us briefly review

some theoretical options currently discussed in the philosophy of mind and that are relevant here (for references and further details, see Kim 1998).

As is well-known, Descartes argued for a *substance dualism*, according to which minds are distinct immaterial entities exemplifying mental properties and causally interacting with material bodies exemplifying physical properties. This approach has still its own followers, including Eccles, discussed by Bozzi in his paper. The current *Zeitgeist* however favors a physicalist outlook, which shuns purely mental immaterial substances and presupposes the *causal closure* of the physical domain, i.e., that all effects must have physical causes. This is in tension with the intuition that mental events can have a causal influence on the physical world. The tension arises in view of our inclination to accept an independently plausible assumption about causation, namely that there is, at least in typical cases, no causal overdetermination. This rules out that an event with a physical cause can also have a mental cause.

At some point in the last century, the *reductive physicalism* proposed by Place, Smart and others, also known as the *type identity theory*, dominated the scene in the philosophy of mind. A good deal of its success was due to the fact that it appeared to eliminate this tension, by claiming that any mental property is identical to a physical property. For example, it was typically asserted, having pain is nothing but having C-fibers firing. From this perspective, any mental event turns out to be a physical event and can thus be seen as a cause without infringing the principle of causal closure.

In spite of this success, reductive physicalism has fallen in disgrace, mainly because of the multiple realizability argument put forward by Putnam and others. According to this argument, it is plausible to think that there are creatures, endowed with the mental properties that we humans possess (seeing red, feeling pain, etc.), which simply do not have the physical properties that, according to the reductive physicalist, would be identical to the mental properties in question. Thus, for example, there could be a sophisticated robot and a Martian humanoid, who are made up of inorganic matters and thus do not have C-fibers. Accordingly, they cannot have the property of having C-fibers firing and yet, for all the evidence we have, they could be in pain. Thus, feeling pain cannot be identical to having C-fibers firing. At most, it is some sort of "higher-level" property that can be "realized" by different "lower-level" physical properties in different creatures. In humans, the lower-level property may well be having C-fibers firing, whereas in the robot and the Martian it is, let us imagine, having R-fibers and M-fibers firing, respectively. Usually the higher-level properties are characterized as "causal" or "functional" roles and this kind of doctrine is accordingly called *functionalism*.

Reductive Physicalism has thus increasingly lost consensus and a *non-reductivist physicalist* paradigm has come to the fore. This physicalism is non-reductive in that it accepts a *property dualism* according to which mental properties are not identical to physical properties (thereby making room for

multiple realizability). But it is also physicalist in that it (i) still admits the causal closure of the physical domain and (ii) typically holds that mental properties *supervene* on physical properties, in that, necessarily, for every organism x and mental property M of x , x has a physical property P such that necessarily whatever has P also has M .¹

Bozzi explicitly acknowledges that a substance dualism such as the one defended by Eccles might be appealed to in order to ground the autonomous study of perception, but at the same time considers the ontological commitments of such a view as too high a price to pay. As an alternative, he offers two arguments, to be discussed below.

1) the non-necessary conditions argument

Bozzi grants that *our* percepts of such and such a kind causally depend on neurophysiological processes and (typically) distal physical stimuli of a so and so type, so that one can try and construct a “psycho-physical scheme” that provides a more or less plausible causal history of the path leading from the stimulus to the percept. Yet, he insists that the *physical* stimuli and processes involved are not necessary, but only sufficient conditions for the percepts: other physical stimuli and processes could do as well. A nice example (not used by Bozzi) at the level of the distal stimulus is provided by jade gemstones, which could be made of two quite different chemical substances, either jadeite or nephrite: there could in principle be two jade gemstones identical in color and shape, although one is made of jadeite and the other of nephrite. Given of course the appropriate activation of the relevant neurophysiological processes, each gemstone is sufficient to produce in a normal human subject a visual percept of a certain type (in terms of perceived color and shape). Nevertheless, since the other gemstone could perform analogously in spite of its quite different chemical composition, neither is necessary for that type of percept. Bozzi envisages other complicated ways in which the train of physical events ultimately leading to a percept of a certain kind could in principle vary while the percept remains of the same kind. For instance, mechanical, chemical or electrical stimulations of the eye could generate a photochemical reaction in the retina’s photoreceptors of the same kind as the one produced by the normal impact on them of certain packets of electromagnetic

¹ It is worth noting that the kind of doctrine that emerges if one accepts the supervenience of mental properties may vary depending on how one understands the necessity invoked in the appeal to supervenience. Very roughly (see Chalmers 1996 for a detailed analysis), if the necessity is logical-conceptual or metaphysical, one rules out altogether (metaphysically) possible worlds in which there are organisms with the relevant lower-level physical properties, but without the corresponding mental properties (which in our world accompany those physical properties). This is the view typically espoused by functionalists (especially if the necessity is of the logical-conceptual kind), according to whom the supervenient mental property is a functional role that is realized by the corresponding subvenient physical property. If the necessity is merely nomic (causal, physical), one simply rules out possible worlds *compatible with the laws of nature* wherein there are organisms with the relevant lower-level physical properties, but without the corresponding mental properties. This is the “naturalistic dualism” famously defended by Chalmers (1996, p. 162), who is also a “non reductive functionalist” (1996, p. 229) in that, according to him, the appropriate functional organization, even in the absence of organic matter, gives rise with physical necessity to mental (phenomenal) properties (which makes room for multiple realizability), but such properties should not be identified with functional roles.

waves. Or the electrical activity of the optical nerve's fibers that typically results from that photochemical reaction could be obtained by means of an appropriately calibrated prosthetic source of electrical signals. The electrical signals departing from the retina travel to the cortex through a complex path involving various components or areas of the brain, such as the hypothalamus and the mesencephalon, that somehow influence the signal. However, notes Bozzi, at each step of the path we can imagine a prosthetic device that artificially creates the same pattern of electrical signals that would have been normally generated by the activity of the relevant brain components. In the end, at any rate, as long as there are percepts, there must be a "closure of the process" and this closure "is the percept open to observation" (p. 8; our emphasis). In sum, all the causal steps leading to the percept are (jointly) sufficient conditions for the percept, but none of them is necessary, for it could have been replaced by something else playing the same role.

This argument has been seen as a rejection of reductive physicalism, inasmuch as it has been taken to suggest that "no matter how much one searches among the physiological process in the central nervous system, one will never be able to find the last unreplaceable process identifiable with mental life" (Vicario 2001, p. 186). But the argument cannot warrant this, because, correct as it might be, tells us nothing about the "closure of the process" itself and its ultimate nature. It only tells us about the different ways in which it could have been brought about. The closure of the process is for Bozzi a percept, and thus, one can surmise, an object and not a property. Thus, at first, it might not be clear how to relate Bozzi's discussion to the debate between the reductive and non-reductive physicalist, framed in terms of mental *properties*. However, Bozzi might say, as long as there is a percept, there is the mental property of *seeing* that percept (assuming that the percept is visual) and nothing in the argument shows that such a property is not physical. To take a standard example of property reduction, consider a gas in a container reaching temperature T as a result of being exposed to sunlight in a sunny day for a certain amount of time. This exposure to sunlight is only a sufficient condition, for the same temperature could have been reached by exposure to a source of artificial light. Yet, one can insist, the gas's having temperature T , whether it was brought about by sunlight or not, is nothing but its having a certain mean molecular motion. Similarly, if our fellow Tom is seeing a red percept, the identity theorist could insist that this is nothing but, say, Tom's having certain neural pathways spiking with a frequency of 90 hertz, even while conceding that this spiking could have had different causal routes than the ones it actually had, involving, e.g., a prosthesis in Tom's brain that generates appropriate electrical signals for the neural pathways in question. Such a claim of course rests on the assumption that at the closure of a process leading to the percept, there is a red percept if and only if there is also that kind of neural spiking. We might in principle find empirical evidence against this, but this is another matter. The point is that Bozzi's arguments speak only about the causal antecedents of the closure not of the closure itself. This is enough however to establish what Bozzi wants to

secure: how the percept was brought about is irrelevant for someone who can inspect the percept and wants to study *it*.

2) The Golem argument

To further support this point, Bozzi goes on to consider the extreme case of an artificial agent, a "Golem" or "Braitenberg vehicle," presumably not made of organic matter and yet endowed with the same "perceptual world" (p. 9) as a typical human agent and capable of dissecting and verbally describing this world with the same perspicuity as Bozzi himself. The Golem and Bozzi would thus respond with a percept of the same type to the same distal stimulus (say, a jade gemstone at such and such a distance with lighting conditions of a certain kind, etc.) and both would report their observation with analogous words. Both would declare, for example, something like "I see a translucent and intensely green roundish object." Thus, and here we come to what is most important for Bozzi, the Golem and Bozzi could proficiently interact and by appropriate experimentation and inter-observation come to realize that their perceptual worlds obey the same perceptual laws, e.g., they are both subject to the same Wertheimer's principles. Yet, Bozzi and the Golem are endowed with "different underlying mechanisms" (p. 9). For example, let us suppose, the latter experiences red insofar as its inorganic "brain" has certain copper pathways that spike at a frequency of 90 Hertz (Churchland 1988, p. 40), or perhaps at a different frequency.

It seems clear that Bozzi is here making the typical assumption of multiple realizability and thus one may be tempted to attribute to him the functionalist and non-reductive physicalist position that typically goes hand in hand with it, once substance dualism has been ruled out. On the other hand, contrary to what the typical physicalist nowadays may perhaps be ready to grant, Bozzi seems to admit mental properties of a relational nature involving as *relata* percepts characterized by appealing to Mach, who is typically classified as a "neutral monist" (Stubenberg 2010) for viewing percepts as intrinsically neither mental nor physical: they are the latter or the former depending on whether we look at them from the point of view of the laws of psychology or physics. Bozzi buys this idea (pp. 4, 11, 13) and presumably this is why he views phenomenology as a science of the external world.

In line with common sense, Bozzi decidedly grants mental causation (p. 11). Now, notoriously, the price that non-reductive physicalism risks to pay is an acquiescence to *epiphenomenalism*, the thesis that mental events as such are unable to cause other events, whether mental or physical (Kim 1998, Ch. 9). A lot of contemporary discussion has focused on this problem and, among many theoretical options on offer, there is Chalmers' attempt (1996, Ch. 4, §4) to complement his non-reductionist and functionalist view with neutral monism, in a effort to avoid epiphenomenalism. We cannot explore here the complicated issue of whether this strategy ultimately works. Be this as it may, in the light of all we have noted about Bozzi's view of the mind, we may perhaps say that he somehow anticipates Chalmers' combination of doctrines and

surmise that he would be sympathetic with Chalmers' detailed exploration of it. But of course this is pure speculation for which we have no clear evidence.

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