Perception of an intentional subject: An enactive approach

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Classical approaches in the philosophy of mind consider that the recognition of intentionality is the problem of the adoption of an intentional stance: identifying the behavioural criteria, which trigger the representation of the perceived object by an internal system of naive psychology (Premack, 1990; Cisbra et al., 1999; Meltzoff & Decety, 2004). This naive psychology poses many problems, in particular, how to account for the mutual recognition without falling into the aporias of the inclusion of representations: I have to have the representation of his representation of my representation of… his perception. Furthermore, in this approach, the recognition of another subject is only hypothetical, resulting from an inference based on well-defined perceptions.

However, in our everyday experience as well as in many phenomenological descriptions (e.g., Merleau-Ponty, 1945; Sartre, 1943) the lived experience of the presence of others seems certain and directly perceptive. How in everyday life or through technical devices (such as Internet), can we have the impression of the presence of another subject, and under which conditions can we differenciate another person from an object or a program?

Within the alternate framework of ecological or enactive theories of perception (Gibson, 1966; Varela, 1979; O'Regan & Noë, 2001) the question is not much more advanced since the recognition of the presence of an intentional subject remains a decision which occurs after the perception of determined form and movements (Gibson & Pick, 1963). But how to give an account of a direct perception of the presence of others? How to account for the enaction of the presence of an intentional subject? Our hypothesis is that it is only possible in a situation of mutual recognition, a situation in which two subjects perceive themselves mutually.

For example, when we catch someone else's eyes, it seems that we do not only perceive particular movements; rather, we see directly that an intentional presence is looking at us. In order to give an empirical content to this intuition, we conducted an experiment in the framework of enactives interfaces. In order to do that, we built a technical mediation allowing to control strictly the perceptive actions and the sensory input received by each subject. Sensory stimulation was reduced to the bare minimum (one bit of information at each moment) and the perceptive actions were reduced to the right-left movements in an unidimensional space. This minimalist experimental paradigm not only facilitates the identification of sufficient conditions for perception; above all, by reducing the sensory input to just one bit of information at any given moment, it forces the subjects to externalize their perceptive activity in the form of a trajectory that can easily be recorded, thus providing good data for analysis.

Pairs of blindfolded participants, placed in separate rooms, interacted through a network of two minimalist devices. Each participant moved a receptor field along a line via the displacement of a computer mouse. Two additional objects were introduced in this one-dimensional space: a fixed object and a mobile object with movements strictly similar to the partner's receptor field. Each time one of the subjects encountered an object or the partner's receptor field, he received an all-or-none tactile stimulation on his free hand. The task was to click when they judged that the tactile sensations were due to having met the receptor field of the other participant. Results shows that, despite the absence of any difference in the sensory stimulation in itself, participants were able to recognize when the succession of all-or-none tactile stimuli they experienced was due to the active exploration of another participant rather than the fixed and mobile object.

Table 1. Mean percentage (and standard deviation) of clicks, stimulation, and ratio between clicks and stimulation obtained for the receptor field, mobile object, and fixed object.

	Receptor field		Mobile object		Fixed object	
Percentage of clicks	65.9 %	± 3.9	23.0 %	± 10.4	11.0 %	± 8.9
Percentage of stimulation	52.2 %	± 15.2	15.2 %	± 6.2	32.7 %	± 11.8
Ratio clicks / stimulations	1.26		1.51		0.33	

Within the alternate framework of enactive theories of perception our experimental study makes it possible to understand the recognition of another intentional subject as a characteristic pattern in the sensorimotor dynamics of the perception. These dynamics are essentially conjoint, the situation of mutual perception forming an attractor which has no spatial stability. Thus, while maintaining their presence, the other's glance resists spatial localization. I perceive another intentional subject not thanks to determined patterns of movements, but rather directly as a perceptive activity; as something that has the power to affect my own perceptual activity. In this elementary form of interaction, we see that the collective dynamics constrain the perceptive *activities* directly, without having to pass through a preliminary sharing of a common perceptual content.

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