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Cognitive Development



The psychological development of semiotic competence: From the window to the movie by way of the mirror



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ABSTRACT

Psychologists have been interested in the mirror image chiefly as a device permitting the subject to discover his/her self-representation, and semioticians have denied that the mirror image could be a kind of sign. In the present paper, our intention is to develop a framework for realising a detailed comparison between perceptual reality, as seen in a peephole, and mirror images, as well as streaming video and pre-recorded video. In the first section, we introduce the semiotic notion of sign, using precise criteria to assure that the mirror image, as used by adults, functions as a sign. In the second section, experimental studies comparing some constellations of perceptual reality, mirror images, and video strips are scrutinized, and we report briefly the results of a study which we ourselves set up to investigate the capacities of 2 year old children to understand an object choice task conveyed by means in those four kinds of media. The result suggests that continuity, which is the opposite of differentiation defining the sign, is still important for enabling the understanding of the task in children at this age.

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1. Introduction

In developmental psychology, there have been very few empirical studies comparing pictures, movies, and videos, on the one hand, and direct perception of reality, on the other. It has been more common, until recently, to take for granted, in the very design of the studies, that pictures, even in this wide sense, convey the same information as direct perception, and thus can be used in experiments to draw conclusions about the latter. With few exceptions, empirical studies of mirror images have been exclusively concerned with the idea of self-identification, neglecting to compare the mirror image to other kinds of pictures or direct perceptions. In terms of semiotics, however, pictures, mirrors and direct perception may be regarded as vehicles containing to some extent the same information, but being conveyed in different ways. The goal of the present article is to present a new research framework as well as referring to some on-going research within this frame, which takes semiotic questions seriously, but tries to prove deeper into their background in evolution and development, by means of empirical studies of children and apes, as well as by having recourse to more basic concepts derived from psychology and evolutionary theory.

Cognitive semiotics is a label having been used repeatedly in recent decades for the attempt to integrate the stock of knowledge, the theories and the methods existing in cognitive science and semiotics, with the long-term ambition of unifying the human and social sciences and bringing them into contact with biology (Sonesson, 2007a, 2007b, 2009a, 2009b, 2013;

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Zlatev, 2011). In the particular case of the study of pictures, this means articulating ideas from the psychology of perception, philosophy, and structuralist semiotics, more concretely the theories of picture perception first outlined by James Gibson and others, the phenomenology of Edmund Husserl, and pictorial semiotics as elaborated, notably, by the French structuralists Jean-Marie Floch and Félix Thurlmann, as well as by the Belgian research group known as Groupe μ . At a theoretical level, such an attempt was initiated many years ago by Sonesson (1989a). But another task largely remains to be accomplished: to bring the experimental study of child development as well as of primate behaviour (standing in for the behaviour of early *Homo sapiens*) with reference to pictures to bear on what we know about pictures from semiotics and other theoretical approaches. In recent years, we have made several attempts along these lines (Hribar, Sonesson, & Call, 2014; Lenninger 2012a; Persson, 2008; Zlatev et al., 2013). In the following, we will discuss some results of an on-going project involving the similarities and differences between video clips, mirror images, and reality. But before that, we will consider the interface between cognitive psychology and semiotics and the new questions introduced by a semiotic approach, and we will account for psychological studies involving similar issues.

2. Child development and the semiotic function

The most extensive and elaborate model of children's development is no doubt the one due to Jean Piaget. Arguable, Piaget's most important contribution did not involve the idea of stages, but it is the point on which he has recently been most heavily criticized. Although he did not generally define his stages in terms of semiotic capacities, even downplaying the one semiotic resource often given a part in rival theories, language, he did describe the symbolic (later re-baptized the "semiotic") function accomplished by imitation, pictures, symbolic play, language, etc., as first coming into its own around 18 months of age (e.g., Piaget, 1945). Nevertheless, Gardner and Wolf (1983) criticised what they characterised as Piaget's "semiotic" conception arguing that there is no homogeneous semiotic function, each type of semiotic resource following its own process of development. This is no doubt correct, to some extent, as a criticism of Piaget, but there is nothing intrinsically "semiotic" about the idea that all semiotic resources should follow the same course of development (cf. Sonesson, 1992); indeed, if semiotics is about the differences as well as the similarities between semiotic resources, there is every reason to suppose also their developmental course to be different.

The stages which Donald (1991, 2001) has proposed for (proto-) human evolution come closer to being defined by semiotic resources: whereas the episodic stage may appear to be pre-semiotic, or at least prior to sign use, the mimetic stage already involves imitation and gesture, the mythic stage most obviously introduces language, and pictures and writing arrive with the theoretic stage. In the present essay, we will only be involved with projections of Donald's stages to child development, as suggested by Katherine Nelson (2007) and Zlatev (2013). It will be sufficient for our purpose to acknowledge that changes can be perceived by an observer who notes down the behaviour of a number of children at different time intervals, and that there is a certain regularity in the order of these changes.

One thing that clearly happens at Donald's mimetic stage is the emergence of the sign, for it is needed for gesture, if not for imitation. According to Zlatev's (2013) transposition of the phylogenetic scale to ontogeny, mimesis starts out as neonatal imitation at 0–9 months (proto-mimesis), then develops into deferred imitation and joint attention at 9–14 months (dyadic mimesis) and into communicative intent and declarative pointing at 14–20 months (triadic mimesis), after which Zlatev's sub-stages of mimesis go over into Donald's mythic stage, i.e. language and its immediate precursors. According to Donald, however, the picture only comes of its own, in evolution at least, at the theoretic stage. Donald's reason for claiming this is no doubt that he thinks about pictures as we know them, as independently subsisting objects or, in other terms, as organism-independent artefacts. As pointed out by Sonesson (2007b), the first pictures may well have been sand paintings, skin paintings or depictions on other kinds of perishable materials. Although these are all artefacts with a short life span, they may still be considered as being the first type of organism-independent artefacts (although in the case of skin painting this only applies to the mind, not the body).¹ On the other hand, current studies of children's picture understanding, notably those of Judy DeLoache, suggest that the latter occurs much later than the understanding of language. But just as Donald may be said to include too much into the notion of picture in the sense in which he places it at the theoretic stage, DeLoache could, at least in these particular studies, be suspected of requiring much more than basic picture understanding for the children to succeed on her test (cf. Lenninger, 2012a). This is one of the questions that are fundamental to the experimental semiotics of pictures, as we understand it.

2.1. Criteria for the sign

We want to suggest here that, whatever else they are, video clips and mirror images are pictures, and thus signs, whereas that which you can discover through a peep-hole or a window is simply a stretch of perceptual reality, however restricted by the frame. More exactly, we maintain that they are pictures and thus signs to adult human beings, but that it takes some time for the child to develop this insight, which may never be attained, or only partially, by other animals. That some artworks by René Magritte, as well as many Baroque paintings, have played on this difference, only serves to show its importance in life. Judy DeLoache, who is no doubt the pioneer of the study of pictures from the point of view of child development, says that

¹ cf. Sonesson (2007a, 2007b) for a discussion of this notion of independence.

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