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Left-right orientation in images: aesthetic preference and cognitive processes

Art historian Heinrich Wölfflin was among the firsts to remark that it is not possible to mirror an image without altering its visual effect (in Semiotics we would say: “without altering its plastic meaning”). He was later followed by other scholars and artists, such as Wassily Kandinsky (1926) and Rudolf Arnheim (1954).

More specifically, we should distinguish between at least two different questions. First: visual elements are perceived as having different “weights” or importance if they are in the left part or in the right part of an image. Second: visual vectors produce different effects depending on their being leftward or rightward. According to Arnheim there is a tendency that leads us to prefer rightward pictorial movements and to feel leftward ones as “unnatural”.

This is a very interesting theme for Cognitive semiotics, because it lies at the intersection between perception and aesthetic effects and, perhaps, between bottom-up and top-down processes.

In the last decades these phenomena have been studied above all in Psychology of perception and Neurosciences. Some of these studies (Levy 1976; Beaumont 1985; Mead and McLaughlin 1992) try to explain (or at least correlate) these phenomena with brain lateralization: they would be caused by functional differences between right and left cerebral hemispheres (concerning for instance visuo-spatial tasks, cognitive attention, face recognition, handedness).

A second group of explanations is based on cultural factors, i.e. reading and writing habits (Nachson, Argaman and Luria 1999; Chokron and De Agostini 2000; Dobel, Diesenbruck and Bölte 2007). In this case left-right tendency would not be due to an innate cerebral predisposition, but to acquired schemata that derive from cultural conventions.

Experimental results do not offer clear evidences for either hypothesis. For instance, Treiman and Allaith (2013) report data contrasting with those of a similar experiment by Chokron and De Agostini (2000); Friedrich and Elias (2016) list a series of contrasting studies in literature.

Data interpretation is complicated by the possible influence of top-down cultural mechanisms, as Freimuth and Wapner (1979) showed, modifying exposure time to the stimulus.

In recent years mixed hypotheses have often been proposed. According to Ishii *et al.* (2011), for instance, cultural habits may reinforce or reduce a natural bias towards rightward images.

In my talk I will discuss, from a semiotic point of view, some aspects of this topic, such as the importance of semantic features and cultural and historical variations in these biases.

I will also propose an hypothesis on the cultural origin of left-right tendency of visual vectors (Polidoro 2004). This hypothesis is not based on new or experimental data, but on a comparative analysis of existing literature and it should be considered a theoretical suggestion of a research direction. In addition, it is inspired by a conception (Meyer 1956; Eco 1962) according to which aesthetic effects may have (also) an inferential basis (Polidoro 2015). This hypothesis consists in relating rightward bias and its “aesthetic” effect not to a generic “reading habit”, but to the expectancies deriving from this habit. These expectancies would produce inferential activity in the subject and consequent verification processes. The dynamic of inference production/verification (and its possible influence on single saccadic movements) could be at the basis of the aesthetic aspects of this bias.

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