Intuitions / Anschauungen

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1 Abstract

The common translation of the German term *Anschauung*, as used in philosophy and mathematics, into both French and English is *intutition*.[1] The semantic shift introduced by this translation seems to deserve some attention, especially since the term *intuition* has had rather serious consequences within theoretical controversies, especially in the early 20th century. I shall touch upon this issue briefly here.

2 Anschauung - Intuition

In the German discourses of the 19th century, the term *Anschauung* occupies an important role. The philosophical tradition, esp. Thomas Aquinas, translates the the Artistotelian term *phantasma* to *intuition*, from where Baumgarten and Kant replace it by the term *Anschauung*.[2] This term had and still has a clearly visual connotation — it implies the observation by a receptive subject, which has a significant, immediate connection to the presence of some sort of object (*Gegenstand*). Kant emphasizes the *formal* aspects of this concept when he describes pure intuition (reine Anschauung), but it is by no means something vague or fleeting.

In the theoretical discourses on mathematics, the term became important especially together with the algebraisation of geometry. The foundational question is here: Should the geometric shape, that can be grasped by (an

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[1] Thanks to Jean-Michel Rabaté and Michael Cuntz who helped to confirm my observation. At the dinner after the conference *Just Not In Time* (30th June 2007) we discussed this for a little while with Alex Marčić, Ilka Becker, Michael Wetzel. Alex Marčić told me that he was amazed how clear for him the similarities between Bergson's *Zeit und Freiheit*, Bergson (2006 (1889) (*Time and Free Will*) with Kant's philosophy were.

[2] see e.g. Eisler (1904)

inner or outer) vision be considered the last authority that decides on existence or credibility of a formally described mathematical entity, or is the eye too easily deceived to take this role? The alternative, to give this authority to the algebraic formulation itself, on the other hand, resulted in objects far beyond what can be intuited.[3]

In the early 20th century, the term *Intuition* — as a translation from the German *Anschauung* became the center of controversy in both contexts, philosophy and mathematics. It is fairly obvious that the two fields have been connected to a certain degree, so that the discussions are not necessarily isolated;[4] I only want to briefly mention the controversies here:

In philosophy it was Bergson who reread both Kant's philosophy and Riemann's mathematics of the manifold and gave the term *intuition* a central place in his reasoning — which resulted in both a wave of delight (the wave of *bergsonisme*) as well as declination by many contemporary philosophers (such as Russell[5]). The rejection, which was part of a bigger scientific controversy, was to a certain degree a reaction to the *term* 'intuition' which immediately was associated with metaphysics. It is quite possible that the scientific credibility of Bergsons work suffered not only from the greater contemporary debate on scientific realism (in which he took a rather ambivalent position), but also from this choice of terminology.

The torsion between continuous and the discrete aspects of being that was so central in Bergson's œvre was also in the center of the debate on *intuitionism* in mathematics, as brought into discussion by Brouwer, to whom the discrete discourse of form operated on a temporal continuum as a source of constructive freedom of a mathematician-subject. Mediated by the famous debate between Hilbert and Poincaré in the 1920s, the dichotomy *formalism/intuitionism* became canonical for metamathematical considerations. Note that also here the formal is *opposed* to intuition.

If I were to choose a word in for the German term *Anschauung*, I would probably try to use a term like *presentation* or *representation*, derived from the property of being *anschaulich* — *presentable*, or *representable*. Whether this would be a good choice for the usage of the term in the aforementioned controversies, I do not know — all that I can say for now is that the difference between *Anschauung* and *Intuition* in today's German language is considerable, so that they seem like two opposite movements of thought.[6]

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[3]Bourbaki (1971)

[4]Such as in the French dispute on realism, including Édouard Le Roy, Gaston Milhaud, Pierre-Maurice Duhem who had a dissent with Henri Poincaré, who, in turn was later famously involved in the debate on Brouwer's mathematical Intuitionism.

[5]see e.g. Russell (1912)

[6]This seems not to be confined to German. The definition of the term 'intuition' given in New Oxford American Dictionary is: *the ability to understand something immediately,*

Without doubt, within philosophy, the terms are more related than everyday use suggests; Nevertheless this thin difference may be the surface on which deeper controversies in the conflict on scientificality have been projected on.

Literatur

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without the need for conscious reasoning. The difference at least to the Kantian, but also to the Bergsonian use is considerable.