Moving On With Constructivism

Alex Riegler, 25 May 2000

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INTRODUCTION

In this commentary I want to stress two issues: My appreciation for the overview of MIR-related theories (it can be considered a challenging first step toward an even more comprehensive overview) and the need to move on with constructivist issues. I am writing from a pragmatic perspective. The sophisticated formulation of radical constructivism (RC) seems to be the result of a long historical line of argumentation. Now the interesting questions arise: how can we use it? Will it provide insights and mechanisms which can actually be used to alter the way we approach (everyday and scientific) problems?

RELAPSES INTO MIR-BELIEF

To me it seems that most of the work cited in Muller's survey suffers from a common deficiency: The obvious need for a firm and solid foundation of (common-sense and scientific) knowledge. Apparently, it is very difficult to give up the idea of an independent reality. From a philosophy of science perspective, this problem entails at least two challenges:

(a) Do we need the concept of reality in order to be able to explain scientific phenomena? Osiander added an instrumentally written preface to Copernicus' work in order to prevent the Catholic church from considering Copernicus a threat to the established world-view of that time. This is a nice illustration of the fact that there are (at least psychologically motivated) criteria that will let people more easily tolerate a theory if it is deeply rooted in MIR. How can we actually challenge this obvious need for a stable foundation? As Muller points out, even for constructivism-minded people "a relapse into MIR-belief of one type or another" (39) is tempting.

(b) The wide spectrum of theories exhibits the primary shortcoming of a purely philosophical treatise: lack of coherence. This is common amongst theories built on narrative argumentation. Each theory certainly strives for a high degree of internal consistency, but it seems as if each philosopher cited in Muller's collection of spot-checks worked alone. The most common way to relate one's work to the work of a predecessor, if at all, is to emphasize the differences. (Evidently, Ernst von Glasersfeld swims against the tide as he is at great pains to outline common constructivist ideas among philosophers in order to convince the reader of the coherent history of constructivism.)

In the following paragraphs, let us sketch the relationship between (a) and (b) in a little more detail.

I am inclined to say that giving up any claims on the solid foundation of an objective world is kind of a "psychological problem". For many people, this is equivalent to saying to their friends "I am sorry, but I don't know whether you exist". Evidently, their friends "exist" *for* them, so negating their existence isn't something you want to do. However, they exist in the realm of experiences rather than in the metaphysical category of an ontological reality. For many concerns, such as most everyday situations, this distinction doesn't make a difference.

I am tempted to compare this situation with the relationship between Newtonian physics and relativist theory. Most "common" problems can be solved (calculated) within the Newtonian realm. Only when it comes to certain phenomena (boundary cases) is Einstein's theory correct and Newton's wrong (defined as matching between prediction and observation). The crucial difference, however, between Einstein vs. Newton and radical constructivism vs. "common-sense" realism is the operational nature of the former: an assertion in relativity theory can be expressed in mathematics and computed, whereas a constructivist argument is mainly put forward in a philosophical manner. I do not want to advocate mathematics here as the tool which per se defines the success or failure of a scientific discipline. There is a much more important aspect that makes mathematics and increasingly more computational techniques superior to other methods of the scientific discourse: formalized statements (or statements transformed into an algorithm) are not only crisp (avoiding ambiguities), but they can also be automatically processed and hierarchically ordered. In a narrative discipline such as philosophy (ambiguous) words must carry the entire burden of the argumentation. To proceed in argumentation means to add several pages of text. Natural language is a very powerful tool, yet it is clumsy and, due to its redundancy, requires much space. Of course, books and papers can be summarized to any degree, and these summaries can be used to write another book by quoting sentences and paragraphs. But can a book be represented by a few sentences? Certainly not. The author uses the text body of a publication to make the reader think in his/her way in order to understand the arguments presented. You cannot achieve the same goal with a single sentence. In mathematics, by contrast, this is exactly what you can do. Once a theorem is proved others can start working with it without returning to the details of the proof. Mathematics lends itself to modular development; discourse in natural language does not. Why is this so? Mathematics, as compared to, say, philosophy, does not include the interpretation of the symbols beyond their semantic content. That is, you have to know how to use symbols like '+' and 't' in an equation, but you don't need to care what 't' stands for and whether '+' means the same as adding apples and pears. A philosophical argument, on the other hand, heavily relies on the act of interpretation; thus it is not carried out in a formal way. The formal structure beneath mathematics is for mathematics what metaphysics is believed to be for epistemology since metaphysics provides a simple "external" selection criteria to tell a good argument from a bad one. Unfortunately, it is metaphysics we are trying to get rid off in RC.

Given this somewhat fundamental difference between the mathematical discourse in, say, physics and the philosophical discourse in RC, it is thus not surprising that much of the ongoing discussion at the periphery of RC (towards other disciplines) and also within RC is still concerned with the basics of RC. Appealing to reality as the ultimate arbiter of scientific disputes gives rise to relapses into MIR-belief. This compares to a situation in mathematics in which people are still discussing the definition of how to add two numbers. In the RC camp we obviously still need to fill (paper and virtual) pages with discussions about MIR.

The view of science as modular system is related to Latour's notion of "black-boxing" (1987) which says that successful experiments, procedures, devices etc. are taken for granted and treated as an unquestionable fact. There is usually no need to look inside the black box again. I cannot provide a solution here to this problem of how to "compress" (as I would like to put it) philosophical discourses and thus accelerate progress in RC. For science in general, I tried to sketch a perspective in Riegler (1998) in which I argue in favor of computational devices carrying out scientific reasoning that transcend the cognitive horizon of humans. At least I want to draw attention to an issue which seems to me important and central: the "nature" of experiences.

EXPERIENCE AND CONCEPT

I believe that the distinction between "experience" and "concept" creates an unnecessary dichotomy. Here are the reasons.

(a) Concepts are "experienced" in the same way as "normal" experiences. I can't imagine how else we could be aware of a concept. Are experiences "raw data" which have to be processed properly in order to become concepts (and thus transcending the experiences)? This places experiences "dangerously" close to a realist's notion of perceptions. Knowledge is a self-referential process. You can only know what your cognitive apparatus has constructed. Therefore, both experiences and concepts are constructions and hence experienced. (In this context, I am not quite sure whether I understood the statement about the "hic-et-nunc meaning" (2) of a concept.)

(b) Concepts do not encompass experiences (61) (using the verb "encompass" in its common-sense meaning). Of course, one can argue that a concept is settled on a more abstract level and thus, by definition, encompasses single instances. But let's look what happens when we build concepts. We observe a red ball, and then a green one. This could make us create the generic concept of a ball, i.e., an object that is round. How can such a colorless concept of a ball encompass a red ball? Let us assume we have a set of criteria, such as color and shape, by which we recognize an object. The perception of a red ball sets our color receptor to "red", and the shape receptor to "round". Compare this to the perception of the concept "ball": The color receptor is empty, thus the perception is "poorer". Therefore it seems difficult to understand in what ways a concept encompasses experiences.

DEFINING MIR

Another comment addresses the characterization of MIR as given in (5). "MIR-belief is the opinion that reality and truth are pre-assembled outside the mind". This doesn't appear to be a sufficient definition to me because the negation of it still includes the idea of hypothetical realism. You can argue in favor of internal constructions of the mind and nevertheless assume an external "authority" that proves the internal constructions right or wrong. Therefore, a more strict definition seems to be: MIR-belief is maintaining that we can prove statements about an external reality.

TRUTH

Finally, let me make a remark about "truth". Muller argued, "Gödel later showed [...] that truth is not contained within such systems but has to be imported into them from outside" (24). Mathematical truth is defined as whether a postulated statement can be derived from other true statements and has as such nothing to do with the common-sense understanding of truth as correspondence between statement and observable fact. What Gödel simply showed is that in any non-trivial axiomatic system you can never prove the mathematical truth of *all* possible statements. Thus one cannot decide whether a statement is mathematically true. To speak of "importing truth from the outside" (24) refers to the fact that we interpret mathematical statements as being true or false in the sense that we postulate a correspondence between mathematical variables and some external entities *before* the calculation. We carry out the calculations and apply the inverse mapping on the result. If we find that the correspondence still fulfills our needs we say that the mathematical result is true. Much has been discussed on this topic. In my opinion, it is irrelevant to the basic issue of constructivism since it does not contribute anything to whether we can talk about an external world or not.

Gödel and Turing might come into play if we follow the idea of constructivism that one's constructed reality is comparable with an axiomatic system. A situation is then imaginable in which one cannot decide whether a given experience (analogous to a postulated statement) is actually "true", as it is impossible to derive it from other components of the construction. However, I am inclined to assume that such exceptional situations play only a marginal role if any.

CONCLUSION

Once you are infected with the idea of RC, especially learning about the Archimedian point of being not able to say anything about reality, it seems so hard to imagine that others are still chasing Eternal Truth. Knocking on a desk and maintaining that this confirms MIR is still an argument for realists. In my opinion, we can only arrive at an agreement between the conclusive line of argumentation of RC and our common-sense understanding of reality if we transcend pure philosophical arguments and prove the usefulness of RC with working applications.

REFERENCES

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