

Johan Blok could not attend the Symposium. We suggested a discussion of his abstract in the time slot available. This was led by Steve Russ using the following outline of questions based on the abstract. The session was chaired by Arianna Betti.

Some Questions for Discussion on the abstract from Johan Blok.

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The abstract was in three paragraphs.

Para 1:

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"The manner in which problematic entities ... should become part of mathematics"

1. What are the 'problematic entities'? Or what might they be?

In the *Beyträge* (1810) I, §18

"The best procedure might well be to count as higher mathesis only that in which the concept of an infinity (whether infinitely great or small), or of a differential, appears. At the present time this concept has not yet been sufficiently explained. If, in the future, it should be decided that the infinite or the differential are nothing but symbolic expressions just like,  $\sqrt{-1}$  and similar expressions, and if it also turns out that the method of proving truths using purely symbolic inventions is a method of proof which is indeed quite special, but is always correct and logically admissible, then I believe it would be most appropriate to continue to refer the concept of infinity, and any other equally symbolic concept, to the domain of higher mathematics."

Para 2:

2. What is his 'much wider conception of mathematics'? (1810) I, §8

"I therefore think that mathematics could best be defined as a science which deals with the general laws (forms) to which things must conform [sich richten nach] in their existence [Dasein]."

2a. Where are the 'notes and mss of 1811, 1812'? *Miscellanea Mathematica* Bde ?

3. In what way (if any) did the idea of 'objectless ideas' offer a solution to problematic entities?

4. What was his 'slightly broader conception of quantity' that 'allows objectless ideas to be meaningful under certain conditions'?

5. More questions?

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The discussion was wide-ranging and (in my, SBR's, opinion) difficult now to summarise, we do not attempt it. Reference was made later in the symposium to the fact that the PhD thesis of Johan Blok was downloadable from the link for the 2017 meeting on the website [www.bernardbolzano.org](http://www.bernardbolzano.org).

Steve Russ  
11/08/19