

## The World as a Line – Some Remarks on Plato’s Engagement with Mathematical Modeling

Plato’s image of the divided line has been thoroughly discussed since antiquity (cf. Lafrance 1987 and 1994). Nonetheless, there is no *communis opinio* as to its overall interpretation yet. One of the main reasons for this unsatisfactory situation may be – as it is often claimed – that the image is ill-construed and philosophically flawed. What disturbs most is the impression 1) that the image hardly connects to the two other images in the middle of the *Republic*, the image of the sun and the image of the cave (cf. e.g. Robinson 1953, 181–190); 2) that the *mathematika* like triangles or circles are put between the ideas and the things in the empirical world so that that „the scheme of the Line breaks down“ (Annas 1981, 251–252); and 3) that the two inner segments of the line are of exactly the same length; instead, it should have been expected that the nearer you are to the ideas, the clearer your understanding shall be (cf. e.g. Ross 1951, 45–48).

This paper tries to put forward a new interpretation of the image of the divided line. It shall be shown that the image not only is devised not carelessly, but – to the contrary – that it does reveal an essential, hitherto not yet adequately recognized aspect of Plato’s philosophy: that mathematical models play an essential role in describing and understanding the world.

The basis for this interpretation is the insight that the equal length of the two inner line segments philosophically is of the utmost importance: as this implies that the number of the objects represented by these two segments is exactly the same and, in addition, that there is a one-to-one correspondence between these two sets, the objects of the one set can be regarded as intelligible counterparts to the empirical objects of other set. Against the background of the current discussion in the philosophy of science, these intelligible entities can be regarded as mathematical models, as they seem to be qualitatively relational descriptions of the corresponding

objects of the empirical world. If this is right, Plato provides for a link between the world of being and the world of becoming and in particular between the ideas and the objects of the empirical world as they appear – and so for the unity of the world as a whole which is in turn represented by the one line itself.

This interpretation of the divided line solves several problems that have puzzled Plato research ever since antiquity. In particular, it allows to recognize that the image of the divided line is well-composed and philosophically meaningful and that it forms an integral part in the sequence of the three images in the *Republic* – which taken together consistently represent the heart of Plato's epistemological theory.

But what is most intriguing, the divided line reveals what it reveals in exactly the same way it advertises as indispensable for gaining true knowledge: being a mathematical object – obviously –, the divided line itself is a mathematical model of the very stage in the process of gaining knowledge it represents. Thus, the divided line not only makes a statement about Plato's epistemological theory, but at the same time it also directly *shows* the inner structure of the world and its accessibility by the human mind – and so demonstrates effectively what role mathematical models in general have to play in order to acquire true knowledge.

## References

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