The Adolescence of Relativity:
From Einstein to Minkowski

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Abstract.

An often repeated account of the genesis of special relativity has it that the theory was the fruit of an operationalist philosophy of science. Indeed, Einstein's 1905 paper seems pervaded by an atmosphere of operationalism, emphasizing as it does the importance of rods and clocks for giving physical content to spatial and temporal notions. It would, however, be a mistake to read too much into this. Einstein's "physical approach" should be seen as serving a didactic purpose rather than as an attempt to promulgate a philosophical position --- Einstein has never even come close to operationalism in any of his philosophical writings. By focussing on what could actually be measured with rods and clocks Einstein wanted to take away the sacrosanct status of a number of pre-relativistic concepts, by emphasizing their shaky empirical basis. This has not always been correctly understood in the philosophy of physics. Thus, the influence of operationalist misinterpretations can still be felt in some present-day discussions about the conventionality of simultaneity.
The standard story continues by pointing out that Minkowski in 1908 was able to supplant Einstein's original approach with a realist spacetime account that has no room for a foundational role of rods and clocks. In Minkowski's interpretation relativity theory deals with a four-dimensional 'absolute world'. I argue, however, that it is not at all clear that Minkowski was proposing a substantivalist position with respect to spacetime. On the contrary, it seems to me that Minkowski's position was not very distant from the one Einstein had in mind.
In Minkowski's approach the notion of simultaneity becomes associated with global symmetry properties of physical laws, and the discussion about the conventionality of simultaneity comes to be seen in a different light.