

Two Constants in Carnap's View on Scientific Theories

—Summary—

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The received view on the development of the correspondence rules in Carnap's philosophy of science is that Carnap first assumed that all terms can be explicitly defined in observational terms, and later weakened this assumption until he finally conjectured that all observational terms can be explicitly defined in theoretical terms, but not vice versa. I argue that from the very beginning, Carnap held this last view, albeit at times in contradiction to his professed position. To establish this point I argue that Carnap's 'Über die Aufgabe der Physik' (1923) is a contribution to the philosophy of science of logical empiricism, contrary to Thomas Mohrmann and in agreement with Herbert Feigl. It forms a coherent whole with Carnap's other early works 'Dreidimensionalität des Raumes und Kausalität. Eine Untersuchung über den logischen Zusammenhang zweier Fiktionen' (1924), *Physikalische Begriffsbildung* (1926), and *Der logische Aufbau der Welt* (1928). In all of these works, Carnap claims that the physical state of the world completely determines its observational state, but not vice versa. This claim can be phrased as a translatability claim or a claim about the possible expansions of physical and observational models. In both cases, results from the theory of definition establish Carnap's later claim about the definability of observational terms and the indefinability of theoretical ones.

Michael Friedman argues in 'Epistemology in the *Aufbau*' (1992, 21f) that in the 'Aufgabe', Carnap describes a method to uniquely determine the physical state of the world from its observational state, and that the *Aufbau* relies on this method. I agree with the latter, but not the former claim. Rather, the passage to which Friedman refers describes a method to uniquely predict future *observational* states of the world from current ones. The passage also contains an explicit repudiation of Friedman's claim.

Another received view on Carnap's philosophy of science is that it was eventually widely disavowed in favor of the semantic view as, for example, developed by van Fraassen. However, in the 'Dreidimensionalität', the *Begriffsbildung*, and the *Aufbau*, Carnap proposes a formalization of physical theories as restrictions on phase space that not only resurfaces in his own later works, but also in Bas van Fraassen's. While Carnap considers his formalization as given in the object language of predicate logic, van Fraassen considers his to be given in the metalanguage of predicate logic. However, since both the early Carnap and the later van Fraassen work in only one language, the distinction is spurious. Therefore van Fraassen's conception of scientific theories is not a radical break with Carnap's philosophy of science, but rather its continuation.