On Weyl's predicative concept of set

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Hermann Weyl's book *Das Kontinuum* [2] presents a coherent and sophisticated approach to analysis from a predicativist perspective. In the first chapter of [2], Weyl introduces a predicative concept of set, according to which sets are built "from the bottom up" starting from the natural numbers. Weyl's concept of set is a variant of the traditional "logical" concept of set, for which a set is the extension of some concept. Weyl clearly contrasts this predicative concept of set with the concept of "arbitrary set", which he finds wanting, especially when working with infinite sets. In the second chapter of [2] he goes on to show that large portions of 19th century analysis can be developed on the basis of his predicative concept of set.

Das Kontinuum anticipated and inspired fundamental ideas in mathematical logic, especially the "logical analysis of predicativity" of the 1950-60's, Solomon Feferman's work on predicativity and Errett Bishop's constructive mathematics. The seeds of *Das Kontinuum* are already visible in the early [1], where Weyl, among other things, offers a clarification of Zermelo's axiom schema of Separation.

In this talk, I examine Weyl's predicative concept of set in [2] and discuss its origins in [1]. Time permitting, I consider its legacy today.

References

[1] Weyl, H., 1910, *Über die Definitionen der mathematischen Grundbegriffe*, Mathematisch-naturwissenschaftliche Blätter, 7, pp. 93–95 and pp. 109–113.

[2] Weyl, H., 1918, *Das Kontinuum. Kritische Untersuchungen über die Grundlagen der Analysis*, Veit, Leipzig. Translated in English, Dover Books on Mathematics, 2003.