**On Some Impossibility Theorems in Population Ethics**

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*Abstract.* Since Derek Parfit presented his “mere addition paradox”, the difficulties of formulating a viable population axiology have been widely recognized. Building on Parfit’s work, a number of philosophers have proved impossibility theorems, showing that certain plausible adequacy conditions are mutually inconsistent. To the best of my knowledge, the most important such results are due to Gustaf Arrhenius. His theorems involve more compelling adequacy conditions and weaker assumptions of measurement than earlier work in this area. On the basis of these theorems, Arrhenius is inclined to deny the existence of a satisfactory population axiology.

 The aim of this paper is to show that Arrhenius’s impossibility results are not inescapable. I shall mainly focus on his “sixth” theorem, which he considers to be his strongest result. Arrhenius’s proof of this theorem requires a certain assumption, as regards the order of welfare levels, which is more contentious than he recognizes. This assumption rules out “non-Archimedean” theories of welfare. If such theories are not excluded, there are, as I shall show, population axiologies that satisfy all the adequacy conditions of Arrhenius’s sixth theorem. In the penultimate section of the paper I shall argue, moreover, that my objection pertains to all of Arrhenius’s axiological impossibility theorems. Since non-Archimedean theories of welfare are far from obviously false, Arrhenius’s results fail to show that there is no acceptable population axiology.