Epistemic infinitism is the view that infinite series of inferential relations are productive of epistemic justification. Peirce is explicitly infinitist in his early work, namely his 1868 series of articles. Further, Peirce's semiotic categories of firsts, seconds, and thirds favors a mixed theory of justification. The conclusion is that Peirce was an infinitist, and particularly, what I will term an impure infinitist. However, the prospects for Peirce's infinitism depend entirely on the prospects for Peirce's early semantics, which are not good. Peirce himself revised the semantic theory later, and in so doing, it seems also his epistemic infinitism.