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An Alternate Construction of Numbers as Games

The standard way to construct numbers in a combinatorial game ruleset is as strings in BLUE-RED HACKENBUSH, which is equivalent to an ordinal sum with positive and negative integer summands. We provide another method of constructing all numbers as an ordinal sum in a natural rule set. Unlike in Hackenbush, our method constructs every $x \geq 0$ with only non-negative integer summands. In doing so we explore some novel results regarding ordinal sums of numbers which have broader implications to games with number valued positions.

Joint work with Neil McKay (University of New Brunswick St.John).