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Numbers in context: Cardinals, ordinals, and nominals

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Abstract

Numbers are not only used for quantification (cardinals), but also for sequencing (ordinals), and identifying entities (nominals). For example, the sentence “Player number 23 took 2nd place by scoring 3 goals” features nominal, ordinal, and cardinal uses of numbers, in that order. Claims about the relative prevalence of these uses (Wiese, 2004, Niederer 2005) have never been tested. We present the first large-scale analysis of 3,600 numbers in context, showing that cardinal uses are dominant (83.4%), followed by ordinals (11.8%), and then nominals (4.8%). Round numbers, which are associated with approximation, dominate for cardinals (76.4%) but not ordinals (31.1%) or nominals (23.3%). The prevalence of round numbers increases with magnitude only for the cardinals. We discuss implications for the logarithmic scaling of the mental number line (Dehaene & Mehler, 1992), the approximate number system (e.g., Rinaldi & Marelli, 2020), and children’s acquisition of number concepts (e.g., Colomé & Noël, 2012).