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**Conceptual and procedural distinctions between fractions and decimals: a cross-national comparison.**

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Summary: Previous work has shown that adults in the United States process fractions and decimals in distinctly different ways, both in tasks requiring magnitude judgments and in tasks requiring mathematical reasoning. In particular, fractions and decimals are preferentially used to model discrete and continuous entities, respectively. The current study tested whether similar alignments between the format of rational numbers and quantitative ontology hold for Korean college students, who differ from American students in educational background, overall mathematical proficiency, language, and measurement conventions. A textbook analysis and the results of five experiments revealed that the alignments found in the United States were replicated in South Korea. The present study provides strong evidence for the existence of a natural alignment between entity type and the format of rational numbers. This alignment, and other processing differences between fractions and decimals, cannot be attributed to the specifics of education, language, and measurement units, which differ greatly between the United States and South Korea.

*Classification:* F40 C30

*Keywords:* cross-national comparison; magnitude; semantic alignment; continuous and discrete quantities; fractions; decimals

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