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“That sounds Greek to me!” Primary children’s additive and proportional responses to unreadable word problems.

Nicol, Cynthia (ed.) et al., Proceedings of the 38th conference of the International Group for the Psychology of Mathematics Education “Mathematics education at the edge”, PME 38 held jointly with the 36th conference of PME-NA, Vancouver, Canada, July 15–20, 2014, Vol. 2. [s. 1.]: International Group for the Psychology of Mathematics Education (ISBN 978-0-86491-360-9/set; 978-0-86491-362-3/v.2). 361-368 (2014).

Summary: Both additive and proportional reasoning are types of quantitative analogical (QA) reasoning. We investigated the development and nature of primary school children’s QA reasoning by offering two missing-value word problems to 3rd to 6th graders. In one problem, ratios between given numbers were integer, in the other ratios were non-integer. These word problems were written in the Greek alphabet, and thus totally incomprehensible to the children. QA answers considerably increased with age. Younger children more frequently chose additive relations, whereas older children chose more proportional relations. The nature of the ratios between the given numbers also affected the answers, particularly in 5th grade.

Classification: F92 F93 F82 F83 F32 F33

Keywords: word problems; additive reasoning; proportional reasoning