Unifying Math Ontologies: A tale of two standards

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Abstract. One of the fundamental and seemingly simple aims of mathematical knowledge management (MKM) is to develop and standardize formats that allow to "represent the meaning of the objects of mathematics". The open formats OpenMath and MathML address this from a content markup perspective, but subtly differ in syntax, rigor, and structural viewpoints (notably over calculus). To avoid fragmentation and smooth out interoperability obstacles effort is under way to align them into a joint format OpenMath/MathML3. We illustrate the conceptual and practical issues that come up in such an alignment by looking at three main areas: conditions, calculus (which also relates to the previous) and "lifted" n-ary operators.