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titolo:Coherence by Normalization for Linear Multicategories

abstract:
We establish a formal correspondence between resource calculi an appropriate linear multicategories. We consider the cases of (symmetric) representable, symmetric closed and autonomous multicategories. For all these structures, we prove that morphisms of the corresponding free constructions can be presented by means of typed resource terms, up to a reduction relation and a structural equivalence. Thanks to the linearity of the calculi, we can prove strong normalization of the reduction by combinatorial methods, defining appropriate decreasing measures. From this, we achieve a general coherence result: morphisms that live in the free multicategorical structures are the same whenever the normal forms of the associated terms are equal. As further application, we obtain syntactic proofs of Mac Lane's coherence theorems for (symmetric) monoidal categories