

Categories in Algebra, Geometry and Mathematical Physics

Conference in honour of Ross Street's sixtieth birthday

July 11-16 2005, Macquarie University, Sydney

Well-supported compact closed categories of processes

R.F.C. Walters

Abstract

In [1],[3] the notion of well-supported compact closed categories was introduced - symmetric monoidal categories for which every object has a separable algebra structure.

More recently it was shown in [2] that the category whose arrows are cospans of A-labelled graphs between finite sets is the generic symmetric monoidal category with a separable algebra which has an A-family of actions. Such a category we regard as being a simple example of a category of processes with sequential operations.

In this lecture we would like to describe other examples, both syntactic and semantic, with behaviour functors between them. We will describe also parallel operations and distributive laws on such categories of processes.

References

- [1] A. Carboni, Matrices, relations and group representations, J. Algebra, 138: 497-529, 1991.
- [2] R. Rosebrugh, N. Sabadini, R.F.C. Walters, Symmetric separable algebras in monoidal categories and Cospan(Graph), Abstracts of the International Category Theory Conference, CT'04, Vancouver 2004.
- [3] R.F.C. Walters, The tensor product of matrices, Lecture, International Conference on Category Theory, Louvain-la-Neuve, 1987.