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Skew monoidality

For various reasons many people have looked at abstract tensor products on categories where the constraints for associativity and unity are not invertible. Several have even considered skew-monoidal categories. The term “skew” and the renewed interest came through Kornel Szlachányi’s recent work relating them to bialgebroids. In this context, the associativity constraint embodies a fusion (or Galois) map; its invertibility means we have a Hopf algebroid. My talk will explain some on-going work with Steve Lack in which we have:

- (a) examined the relationship between skew-monoidal structures and quantum categories,
- (b) shown why in the cartesian context quantum categories are just categories, and
- (c) proved a skew-monoidal coherence theorem featuring the simplicial category.

To some extent the orientals were used in (c) as an organizing tool.