

1096-20-837

**Nathan E Bloomfield\*** ([nathan.e.bloomfield@gmail.com](mailto:nathan.e.bloomfield@gmail.com)). *On partial algebras of full difunctional relations and dual symmetry.*

The set  $\text{Dif}(X)$  of all full and difunctional relations on a set  $X$  essentially consists of the bijections among the quotients of  $X$ , and so generalizes the symmetric group on  $X$  and dualizes the symmetric inverse semigroup on  $X$ . However,  $\text{Dif}(X)$  is only a partial algebra under relation composition. We exhibit an axiomatic class of partial algebras to which  $\text{Dif}(X)$  belongs and having the Cayley-like property that every instance  $M$  of this class embeds weakly in some  $\text{Dif}(X_M)$ . This class of algebras simultaneously generalizes the classes of inverse semigroups, groupoids, and partially ordered sets under meet. (Received September 10, 2013)