Nathan E Bloomfield* (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)