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Ling Chen* (chenling2013@ucas.ac.cn). *On axiomatic approaches to intertwining operator algebras.*

We study intertwining operator algebras which are direct sums of modules (not necessarily irreducible) for vertex operator algebras equipped with intertwining operators among these modules satisfying some basic properties for intertwining operators. In the case that the intertwining operator algebras involve only irreducible modules for the vertex operator algebras, a number of results were given by Huang. We formulate and prove the generalizations of these results in the general case. In particular, we construct fusing and braiding isomorphisms for intertwining operator algebras in the general case and prove that they satisfy the genus-zero Moore-Seiberg equations. Moreover, we study the duality properties of intertwining operator algebras and prove various equivalence results between axioms and properties. Furthermore, using the skew-symmetry property and the genus-zero Moore-Seiberg equations, we prove an S_3 -symmetry of the Jacobi identity for intertwining operator algebras. (Received January 31, 2016)