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Incidence bicomodules, Möbius inversion and a Rota formula for infinity adjunctions. (English) Zbl 1451.18039

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Author's abstract: In the same way decomposition spaces, also known as unital 2-Segal spaces, have incidence (co)algebras, and certain relative decomposition spaces have incidence (co)modules, we identify the structures that have incidence bi(co)modules: they are certain augmented double Segal spaces subject to some exactness conditions. We establish a Möbius inversion principle for (co)modules and a Rota formula for certain more involved structures called Möbius bicomodule configurations. The most important instance of the latter notion arises as mapping cylinders of infinity adjunctions, or more generally of adjunctions between Möbius decomposition spaces, in the spirit of Rota's original formula.

Reviewer: Ramón González Rodríguez (Vigo)

MSC:

18N10	2-categories, bicategories, double categories
18N50	Simplicial sets, simplicial objects
55U10	Simplicial sets and complexes in algebraic topology
06A07	Combinatorics of partially ordered sets
06A15	Galois correspondences, closure operators (in relation to ordered sets)
06A75	Generalizations of ordered sets
16D20	Bimodules in associative algebras
16T15	Coalgebras and comodules; corings

Keywords:

2-Segal spaces; decomposition spaces; bisimplicial infinity-groupoids; bicomodules; infinity-adjunctions; Möbius inversion

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