geometrically defined double groupoid with connection

Canonical name	GeometricallyDefinedDoubleGroupoidWithConnection
Date of creation	2013-03-22 18:14:45
Last modified on	2013-03-22 18:14:45
Owner	bci1 (20947)
Last modified by	bci1 (20947)
Numerical id	33
Author	bci1 (20947)
Entry type	Topic
Classification	msc 18D05
Classification	msc 55N33
Classification	msc 55N20
Classification	msc 55U40
Synonym	PWL map
Related topic	HomotopyGroupoidsAndCrossComplexesAsNonCommutativeStructuresInHig
Related topic	ThinDoubleTracks
Defines	PWL map of simplicial complexes
Defines	piecewise linear map of simplicial complexes

0.1 Introduction

In the setting of a geometrically defined double groupoid with connection, as in [?], (resp. [?]), there is an appropriate notion of *geometrically thin* square. It was proven in [?], (Theorem 5.2 (resp. [?], Proposition 4)), that in the cases there specified *geometrically and algebraically thin squares coincide*.

0.2 Geometrically defined double groupoid with connection

0.2.1 Basic definitions

Definition 0.1. A map $\Phi : |K| \longrightarrow |L|$ where K and L are (finite) simplicial complexes is PWL (*piecewise linear*) if there exist subdivisions of K and L relative to which Φ is simplicial.

0.2.2 Remarks

We briefly recall here the related concepts involved:

Definition 0.2. A *square* $u : I^2 \longrightarrow X$ in a topological space X is *thin* if there is a factorisation of u,

$$u : I^2 \xrightarrow{\Phi_u} J_u \xrightarrow{p_u} X,$$

where J_u is a *tree* and Φ_u is piecewise linear (PWL, as defined next) on the boundary ∂I^2 of I^2.

Definition 0.3. A *tree*, is defined here as the underlying space $|K|$ of a finite 1-connected 1-dimensional simplicial complex K boundary ∂I^2 of I^2.

References

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