

Descent cospans for the fibration of points

Alan Cigoli

May 16, 2017

A cospan $A \xrightarrow{f} B \xleftarrow{g} C$ in a category \mathcal{C} is of (effective) descent for a fibration $\Pi: \mathcal{E} \rightarrow \mathcal{C}$ if the fibre over B admits a fully faithful comparison with (is equivalent to) a suitably defined category of Π -descent data associated with the pair (f, g) .

I will focus my attention on the case where Π is the fibration of points $\text{Pt}(\mathcal{C}) \rightarrow \mathcal{C}$ over a semi-abelian category \mathcal{C} and (f, g) a regularly epimorphic cospan. The property of (f, g) being of (effective) descent amounts, in this case, to the fact that a B -action on an object is uniquely determined (built from) “compatible” actions of A and C on the same object.

I will provide examples of situations where the (effective) descent property for regularly epimorphic cospans is satisfied or not, and establish connections with other categorical-algebraic conditions.