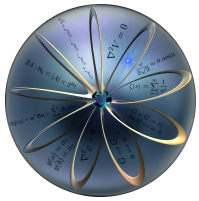

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groupoid homomorphism

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Defines	morphism of groupoids

Definition 0.1. Let $\mathcal{G}_1$ and $\mathcal{G}_2$ be two groupoids considered as two distinct categories with all invertible morphisms between their objects (or 'elements'), respectively, $x \in Ob(\mathcal{G}_1) = {\mathcal{G}_0}^1$ and $y \in Ob(\mathcal{G}_2) = {\mathcal{G}_0}^2$. A *groupoid homomorphism* is then defined as a functor $h : \mathcal{G}_1 \longrightarrow \mathcal{G}_2$.

A composition of groupoid homomorphisms is naturally a homomorphism, and natural transformations of groupoid homomorphisms (as defined above by groupoid functors) preserve groupoid structure(s), i.e., both the algebraic and the topological structure of groupoids. Thus, in the case of topological groupoids, G, one also has the associated topological space *homeomorphisms* that naturally preserve topological structure.

Remark 0.1. Note that the morphisms in the category of groupoids, *Grpd*, are, of course, groupoid homomorphisms, and that groupoid homomorphisms also form (groupoid) functor categories defined in the standard manner for categories.