Chapter 1 - Just enough category theory to be dangerous

Flandre

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1 Categories and functors

Exercise 1.1.A

(a) Since there's only one object, namely e, in the category, all the morphisms in such category will send e to e.

- The combinations of mrophisms are always associative.
- There must exist an identity morphism, which'll be the identity in the group.
- Since it's a groupoid, every morphism has a inverse.

(b) We consider a category $\mathscr{C}$ whose objects are A, B. Consider

$$\mathrm{Mor}(A, B) = \{id_A, id_B\}.$$

and we can see that is's a groupiod without being associative, therefore not a group.

Exercise 1.1.B

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