

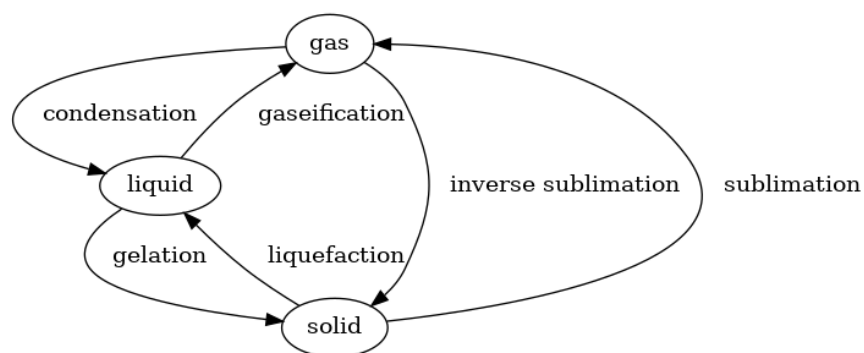
Teoria das Categorias

Gustavo Mello

<2020-10-11 Sun>

1 Simple Category Example

1.1 Water Physical States



1.2 The Category \mathcal{W} for the water physical states

1.2.1 Objects:

- $G :=$ Gas state
- $L :=$ Liquid state
- $S :=$ Solid state

1.2.2 Morphisms

- $c :=$ condensation
- $e :=$ evaporation
- $g :=$ gelation

- $l :=$ liquefaction
- $s :=$ sublimation
- $i :=$ inverse sublimation

1.2.3 Typings

- $c: G \rightarrow L$
- $e: L \rightarrow G$
- $g: L \rightarrow S$
- $l: S \rightarrow L$
- $s: S \rightarrow G$
- $i: G \rightarrow S]$

1.2.4 Composition

- $g \circ f := f$ then g

1.2.5 Identity

- $\text{id}_A := \text{keep } A$