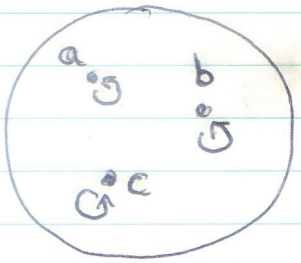
Chapter 15

2) **Discrete category**



$C(a,-)$ objects

$= C(a,a), C(a,b), C(a,c)$

$= \{Id_a, \{\}\}$

$C(a,-)$ morphisms

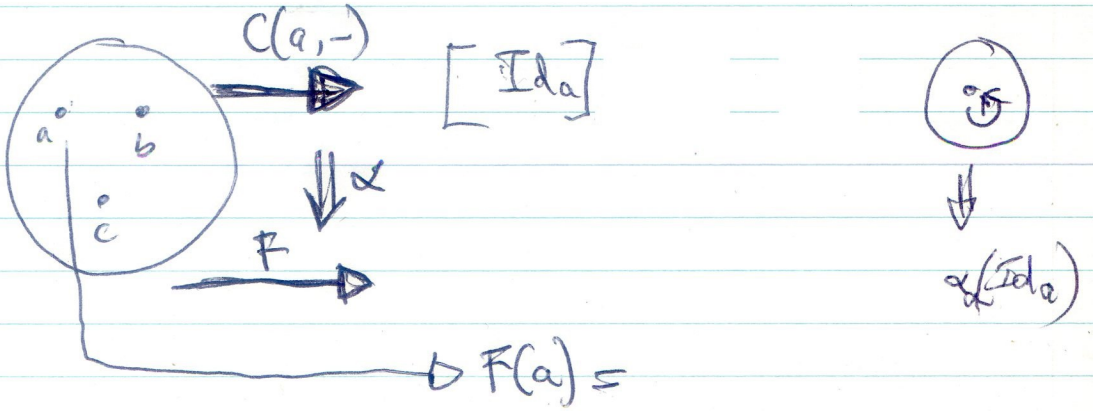
$= C(a, Id_a), C(a, Id_b), C(a, Id_c)$

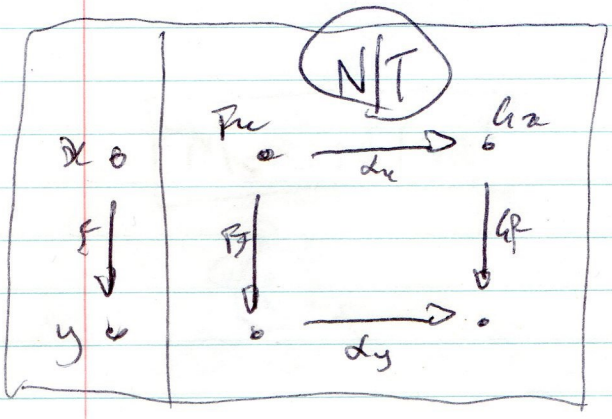
$C(a, Id_a) = \{ Id_a \circ f : C(a,a) \to C(a,a) \}$ such that $f \in C(a,a)\}$

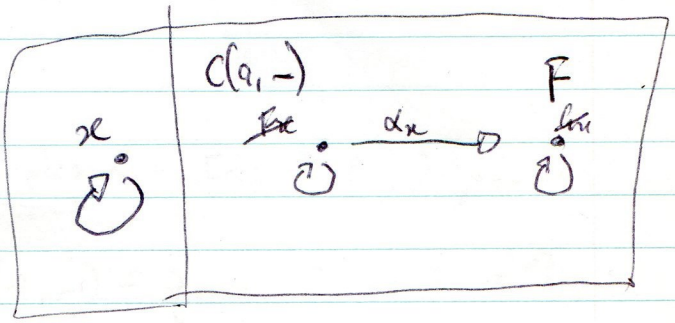
$= Id_a : C(a,a) \to C(a,a)$

$C(a, Id_b) = \{\}$

$C(a, Id_c) = \{\}$





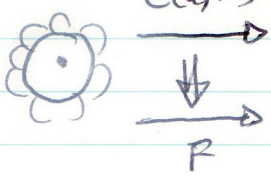


$F(a) \cong \alpha_a(Id_a)$

Monoid(Int)

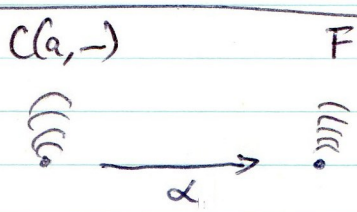
Morphisms = $Id_a, f, f^2, f^3, \ldots$

$C(a,-) = \{ \downarrow \} = S$



$S \cong \mathbb{N}$

N/T



$F(a) \cong \{\alpha(f^n)\}$