

第11回 数理科学ⅢA

Universal arrow

7/5(K)

$S: D \rightarrow C$ a functor

c : an object of C

a universal arrow from c to S

a pair $\langle r, u \rangle$

r : an object of D

$u: C \rightarrow S_r$ an arrow of C

Such that to every pair $\langle d, f \rangle$ with d : an object of D

$f: C \rightarrow S_d$ an arrow of C

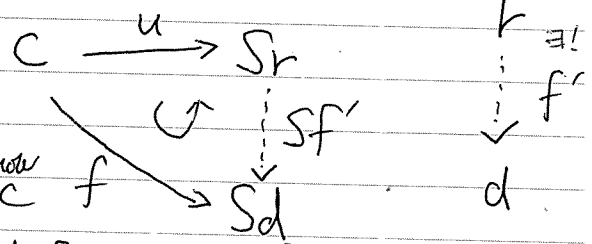
with $(Sf') \circ u = f$

there is a unique arrow $f': r \rightarrow d$ of D

universal arrow from S to c

a pair $\langle r, v \rangle$ r : an object of D

$v: S_r \rightarrow c$ an arrow of C



Such that to every pair $\langle d, f \rangle$ with $f: S_d \rightarrow c$

there is a unique $f': d \rightarrow r$ with $f = v \circ (Sf')$

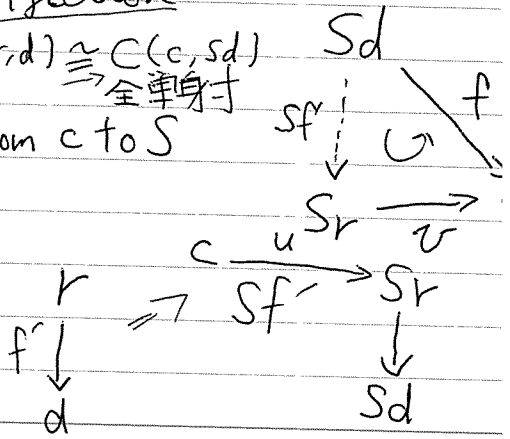
命題 $S: D \rightarrow C$

bijection

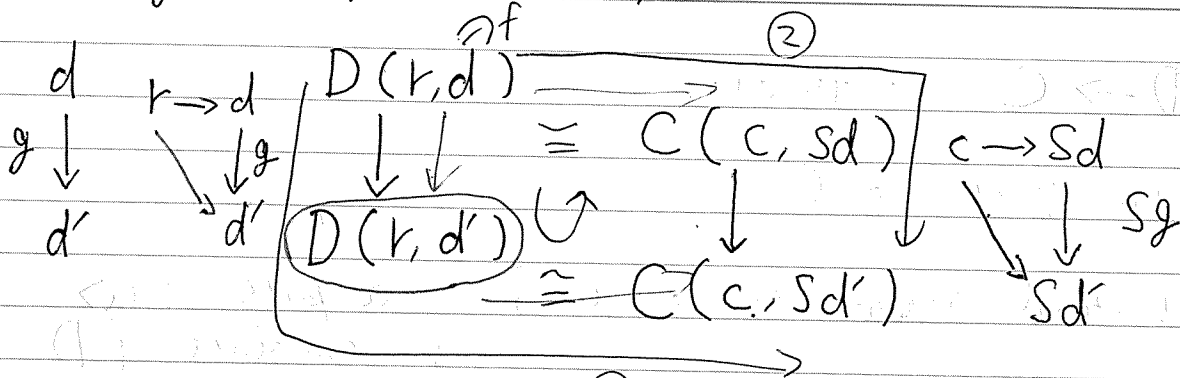
$D(r, d) \cong C(c, Sd)$
 \cong 全射

$\langle r, u = c \rightarrow S_r \rangle$ is a universal from c to S

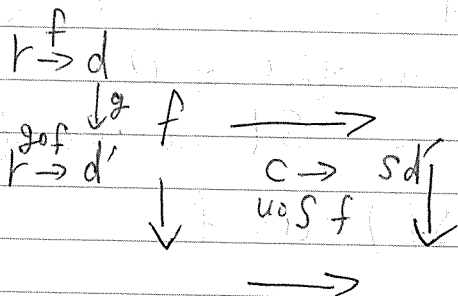
function



The bijection is natural in d



- ① ~~$c \circ g \circ f$~~
- ② ~~$g \circ c \circ f$~~



$$c \xrightarrow{u} Sr \xrightarrow{sf} Sd'$$

