C
H
$($
$($
$I \to$
C
$I \to$
hC
co-
her-
ent
ho-
mo-
topy
∞
C, D
(C, D)
$_{sSet}(C, D)$
$C \to D$
C, D
D
C
∞
(C, D)
$C \to D$
func-
tor
di-
a-
gram
(C, D)
nat-
u-
ral
trans-
for-
ma-
tion
(C, D)
nat-
u-
ral
equiv-
a-
lence
K
(K, c)
∞
C
$C \to D$
∞
$(K, C) \to$
(K, D)
$K' \to K$
$(K, C) \to$
(K', C)
K
∞
(K, C)
(K, C)
K
f :
$C \to D$
∞
g :
$D \to C$
$1_C \to$
gf
$fg \to$
1_D
?
S, S'
join
$S\star$
S'
$(S\star S')_n = S_n \sqcup S_{n'} \sqcup \coprod_{i+j=n-1} S_i \times S_j$

S
S'
S
S'
ϕ_{ij} :
$\Delta^{i-1}*$
$\Delta^{j-1} \to$
Δ^{i+j-1}
$i, j \geq$
0
$\Delta^{-1} =$
$\emptyset$
T
$-\star$
T
$T\star$
$-$
$sSet \to$
$sSet_{T/}$
$T \to$
$T\star$
S
$\star$
S, S'
∞