Feb 23

Friday, February 23, 2018 11:24 AM

My notes about last meeting:

My understanding: we know that code(f(a),b)=code(g(a),b). We have different definitions for decode(Code(b,b)) and decode(Code(c,b)). So, we need to show that these two definitions agree on code(f(a),b) and code(g(a),b).

We have been trying to understand code(f(a),b) again so that we can understand what decode does to it and make sure it agrees.

I think we may have started re-proving code(f(a,b)=c(g(a),b) again. (I think this has happened before)

We were trying to simplify the PO for code(f(a),b) so that we can better describe what's in it. Think that for this case, we can treat alpha=a. The whole f(alpha)=f(a) thing is an artifact of the Code(b',b) definition.

$$\cancel{\sum_{\alpha:A}} \cancel{(f(a)=f(\alpha))}^{\alpha=a} \times (b=f(\cancel{\alpha}^{a})) \longrightarrow (f(a)=b)$$

$$\downarrow$$

$$\cancel{\sum_{\alpha,\alpha':A}} \underbrace{\cancel{(f(a)=f(\alpha))}}_{a=\alpha} \times (b=f(\alpha')) \times (g(\cancel{\alpha}^{a}) = g(\alpha')) \longrightarrow code(f(a),b)$$

becomes (note, A is a set and fin! so $\sum_{\alpha:A}(f(a)=f(\alpha))$ has only one element)

$$(b=f(a)) \longrightarrow (f(a)=b)$$

$$\downarrow \qquad\qquad \downarrow$$

$$\sum_{\alpha':A}(b=f(\alpha'))\times(g(a)=g(\alpha')) \longrightarrow Code(f(a),b)$$

This p.o. is empty if b not in image of f.
If it is in image of f, then what?

There's cases, but I couldn't follow my notes

If b is in image of f,
then this P.O. is equivalent to
just the corner $\sum_{\alpha,\alpha':A} \overset{(f(a)=f(\alpha))}{\downarrow} (b=f(\alpha'))\times(g(a)=g(\alpha'))$

We are not sure how to argue this formally
(Kept getting hung up on "am I allowed to say this"?)
↳ talk to Mike about this?

So, the next thing would be apply decode

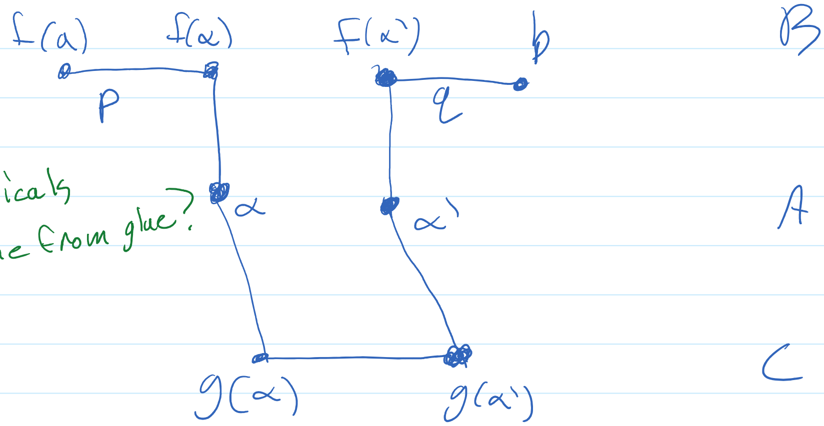
decode: of $\sum_{\alpha, \alpha' : A} (f(a) = f(\alpha)) \times (b = f(\alpha')) \times (g(\alpha) = g(\alpha'))$

must just be refl_a b.c. inj + set

$(p \;,\; q \;,\; r)$

$p \overset{\text{must}}{=} \text{refl}_a$, $q : (b = f(\alpha'))$, $r : (g(\alpha) = g(\alpha'))$

definition:



verticals come from glue?

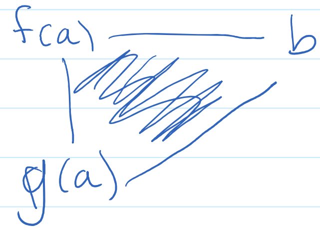
this concatenation give us path $f(a) = b$

the next thing (I think)

In the P.O. we get an equiv $f(a) = g(a)$

the other decode(code) gives a path $g(a) = b$

need to make a filling-in-squares type argument that shows



not getting a circle so we have a set?

Me wondering after meeting: I thought we were

Checking our definitions were natural on something....
Something different from checking that the P.O. is a set.
Where did I lose track of the goal? Or are these the same?