

Comp105-HW4 - M

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$(o((currymap)f)((currymap)g)) == ((currymap)(ofg))$

$(o((currymap)f)((currymap)g)xs) ==$ where xs is some list
 $((currymap)(f)(currymap)gxs)) ==$ by the definition of "o"
 $((currymap)(f)(cons(g(carx)((currymap)g(cdrxs)))))) ==$ by the definition of
map
 $((currymap)(f)xs')) ==$ where xs' is a new list whose values are the values of xs
when function g is applied to them. $(cons(f(carxs))((currymap)(f)(cdrxs')))) ==$
by the definition of map
 (xs'') where xs'' is a new list whose values are the values as xs' when the func-
tion f is applied to them.

xs'' is thus a list whos values are those of xs after function g then f are ap-
plied to them.

$((currymap)(ofg))$
 $((currymap)(ofg)xs) ==$
 $(map(ofg)xs) ==$ by the definition of curry
 $(cons((ofg)(carxs))(map(ofg)(cdrxs)))$ by the definition of map
 $(consf(g(carxs))(map(ofg)(cdrxs)))$ by definition of 'o'
 (xs') where xs' is a new list whose values are those of xs after the functions g
then f are applied to them.

As the functions both produce a new list whose are those of the original after
the functions g then f are applied to them, they are equivalent.