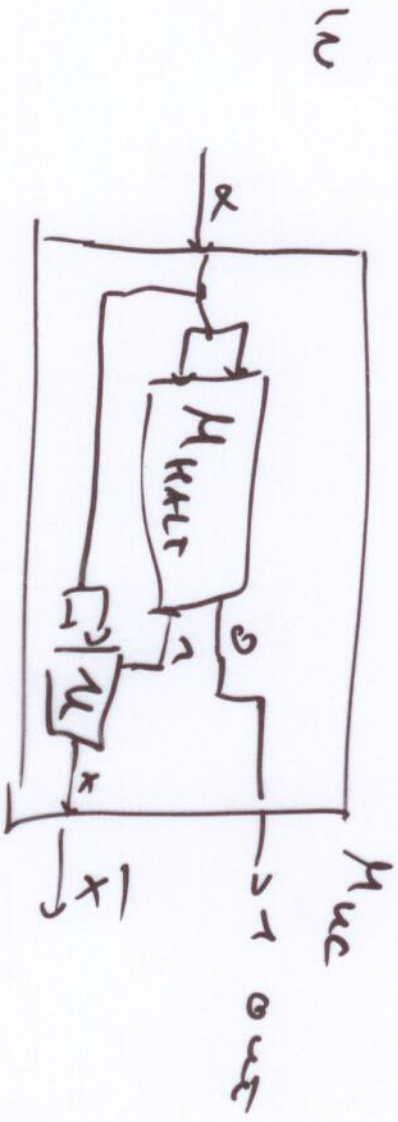


# Reduction

Suppose  $M_{HKT}$ , reduce UC to  $H_{KT}$



# Diagonalization

$x/\alpha$	$u$	0	1	00	01	10	11	...
0	0	0	0	0	0	0	0	...
1	1	0	1	0	1	0	1	...
00	00	0	0	1	0	0	0	...
01	01	0	1	0	1	0	0	...
10	10	1	0	0	0	1	0	...
11	11	1	1	0	0	0	1	...

input

$M_\alpha(u)$

$T_M$

Suppose  $\exists T_M$   $M$  with repr  $\alpha$  ss.  
 $M$  computes UC  
 $\Rightarrow M(u) = UC(x)$  &

$$UC(u) = \begin{cases} 0 & M_\alpha(u) = 1 \\ 1 & \text{otherwise} \end{cases}$$