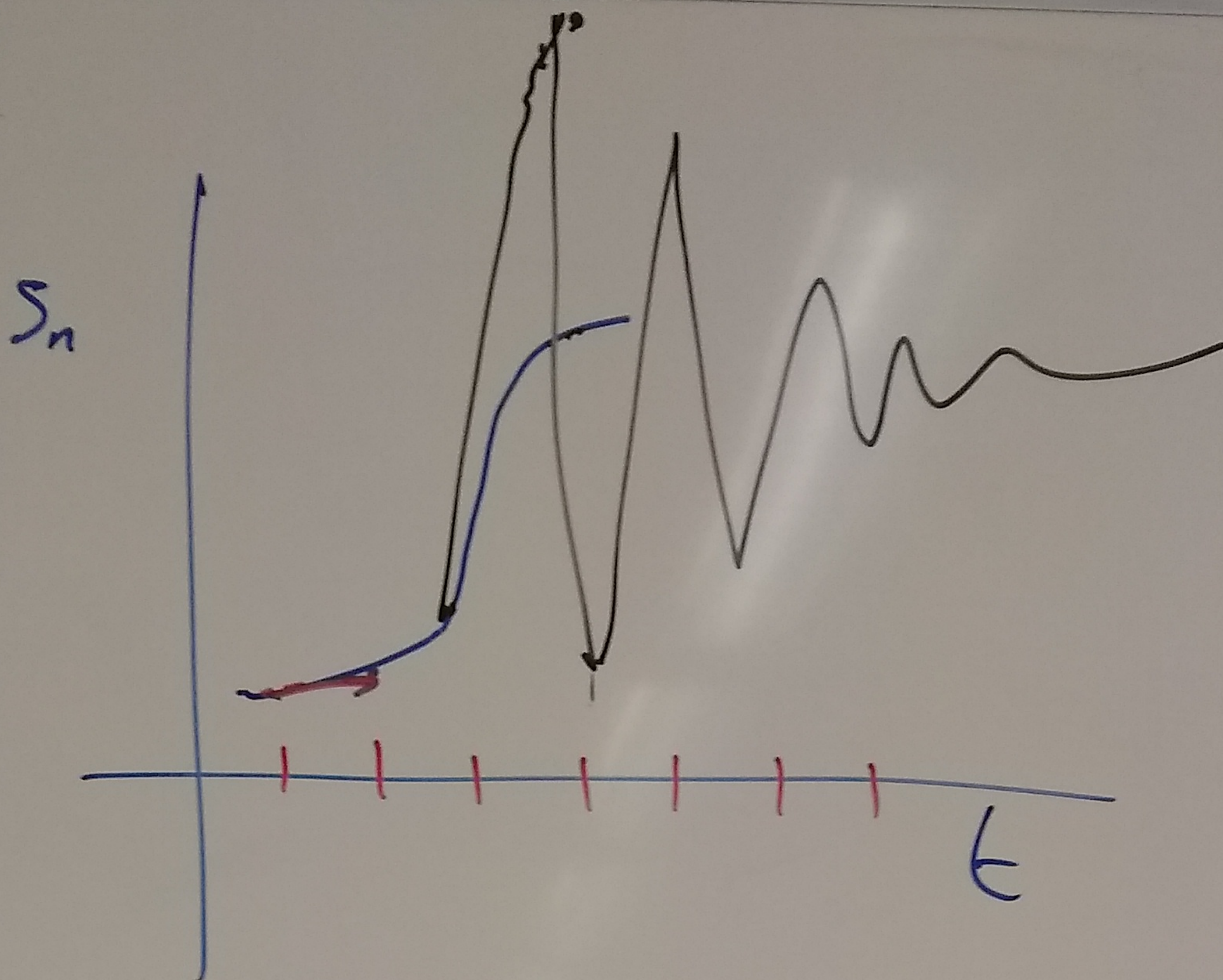
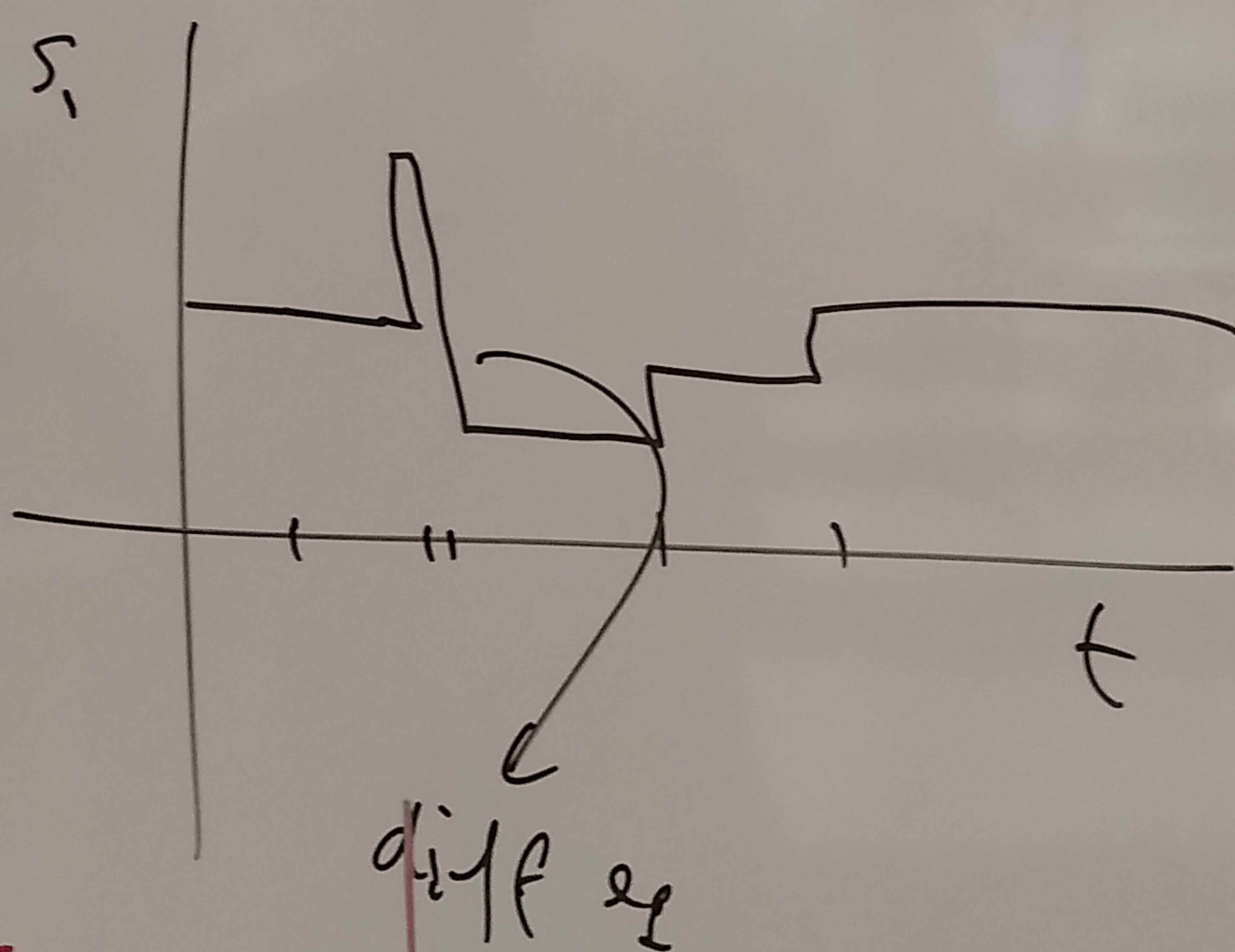


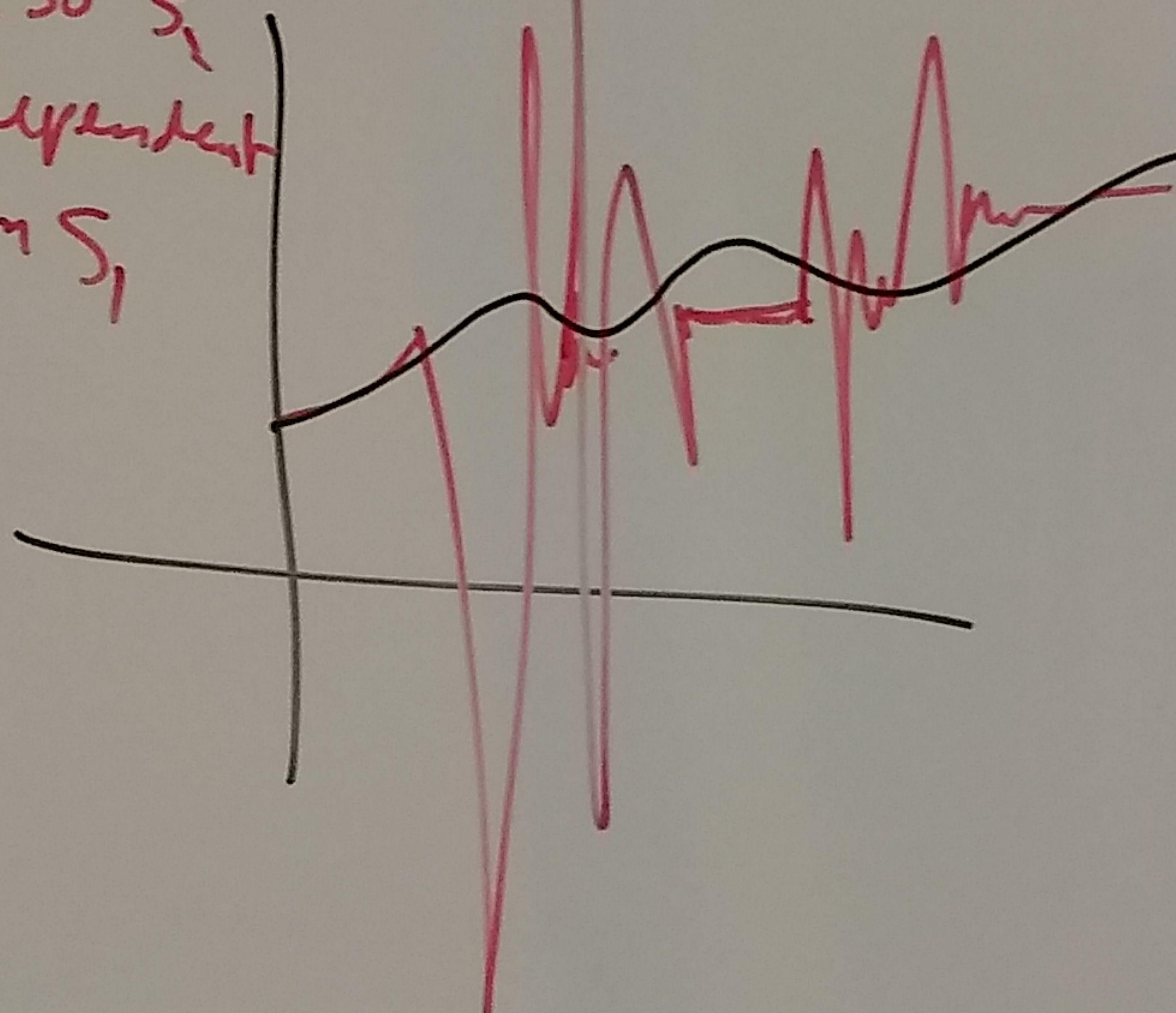


DES + DESS

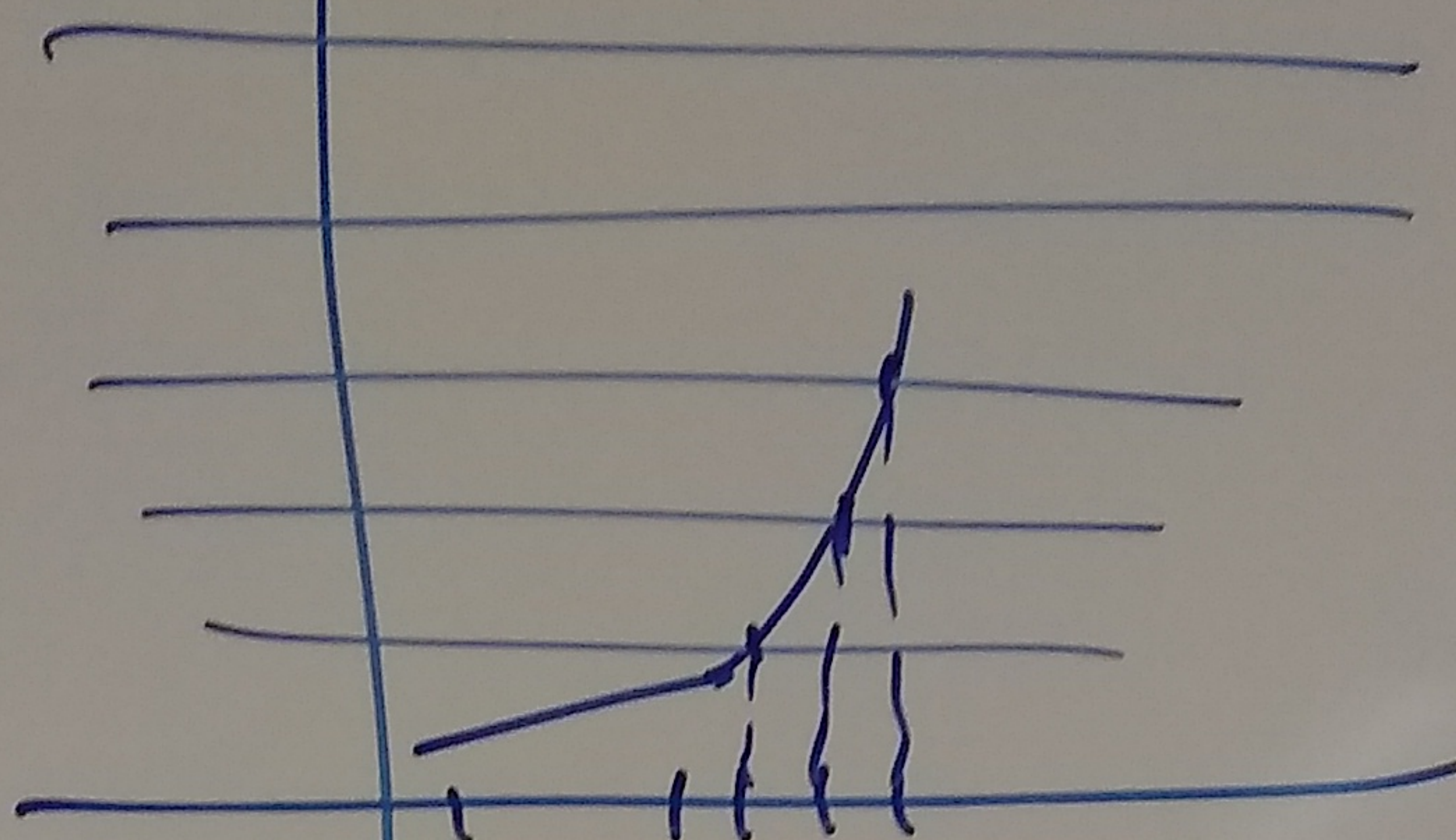
DES S_1



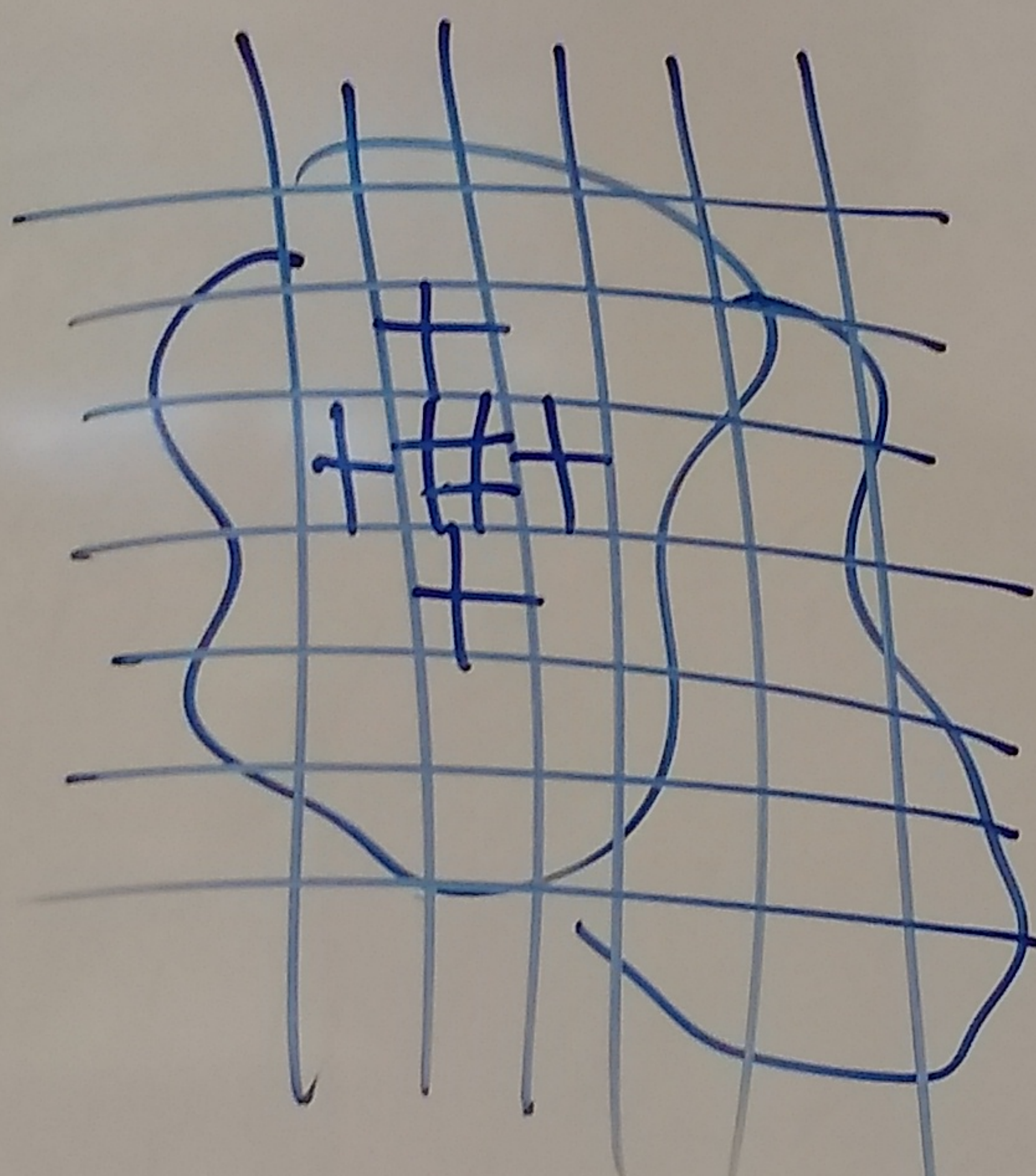
DESS S_1
dependent
on S_1



Quantization state-space



Quantized ~~dens~~ discretized time

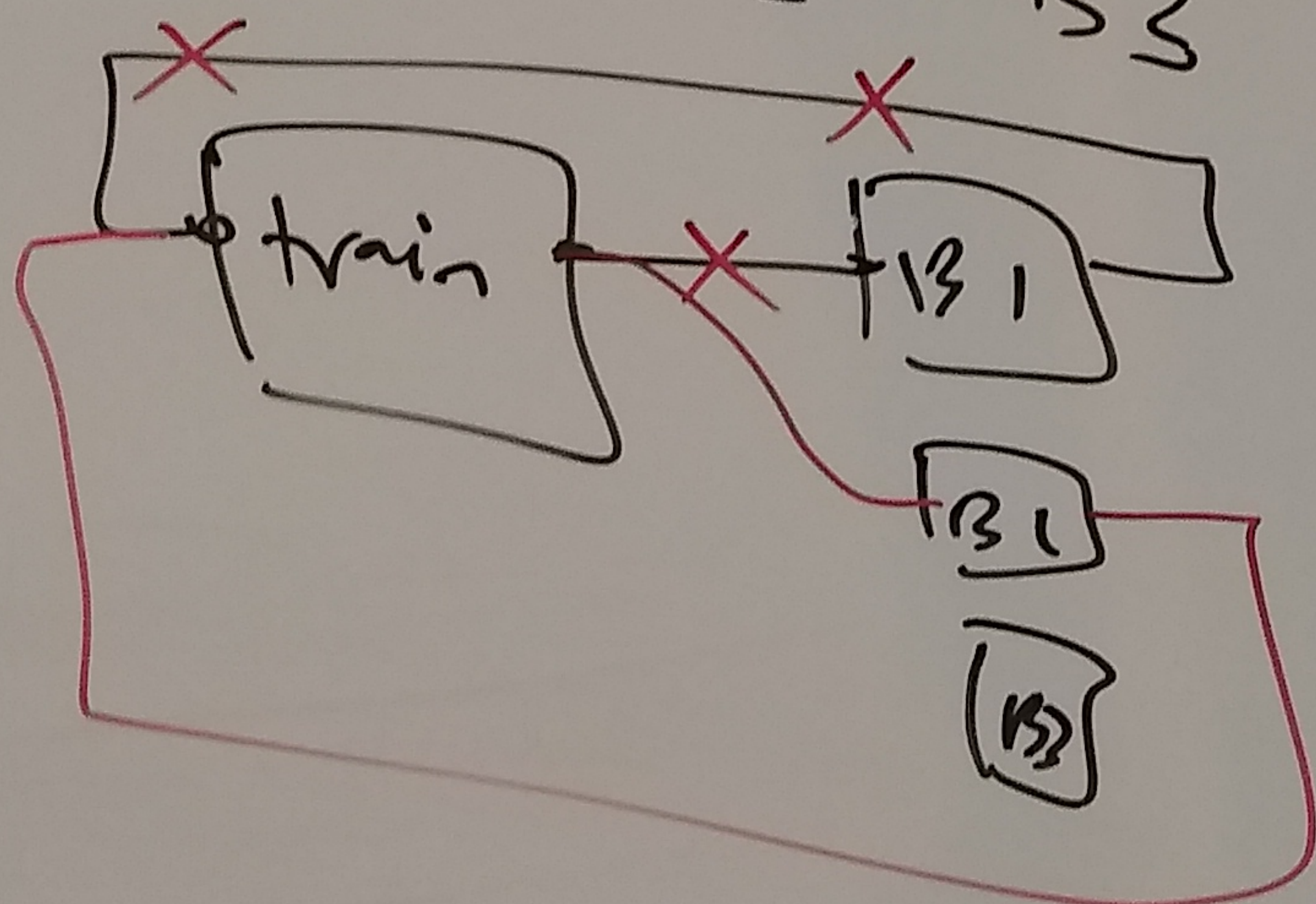
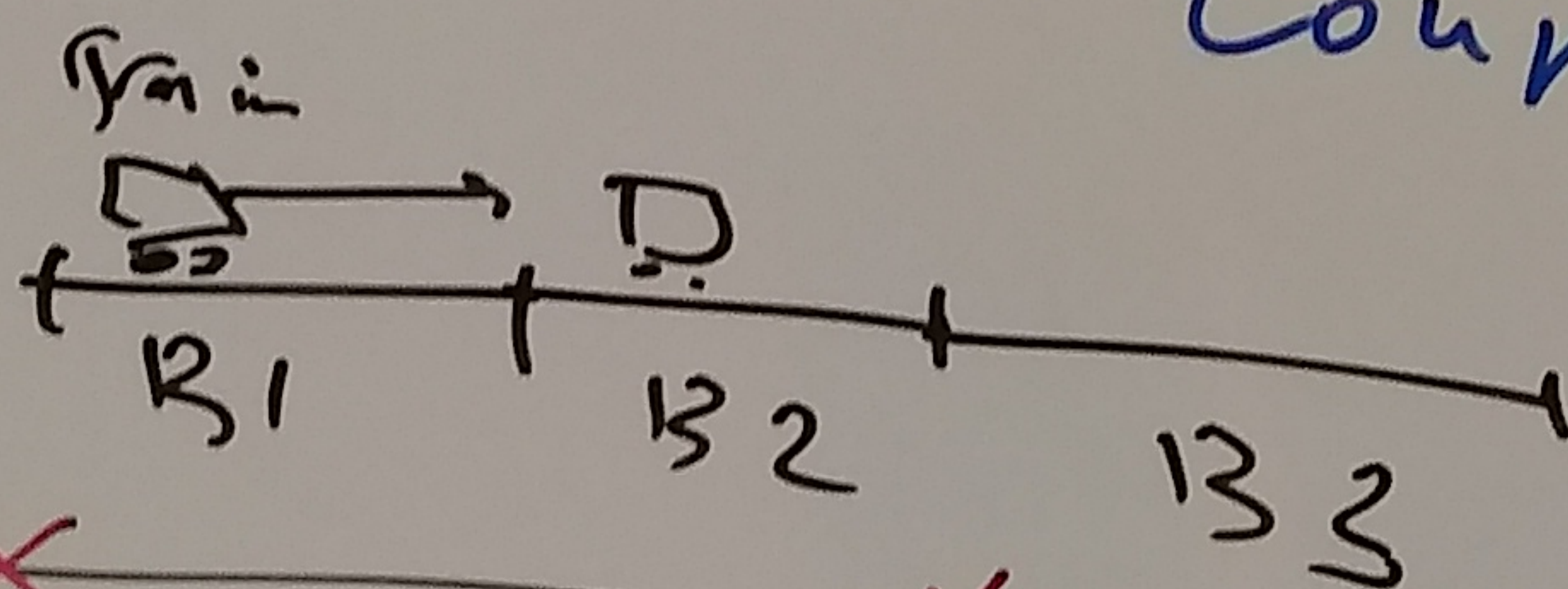


cell dens

quantized 2d-map

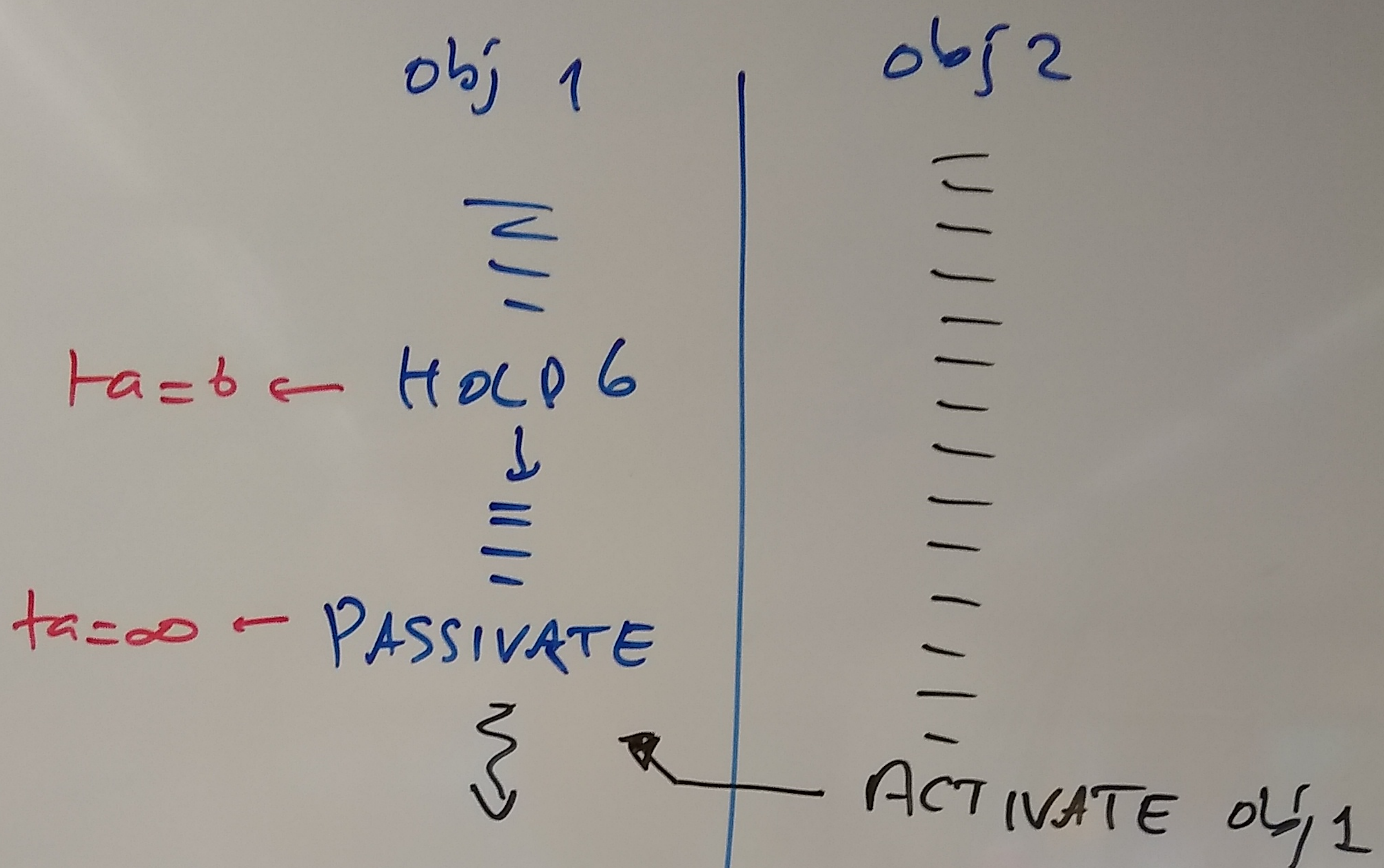
DESS s_1

DSDEVS Closed under Coupling



DESS s_1 dependent on s_1

proc interaction loc of object



Event scheduling

obj 1

method A {

 {

self.schedule(b, B)

}

method B

end {

method C

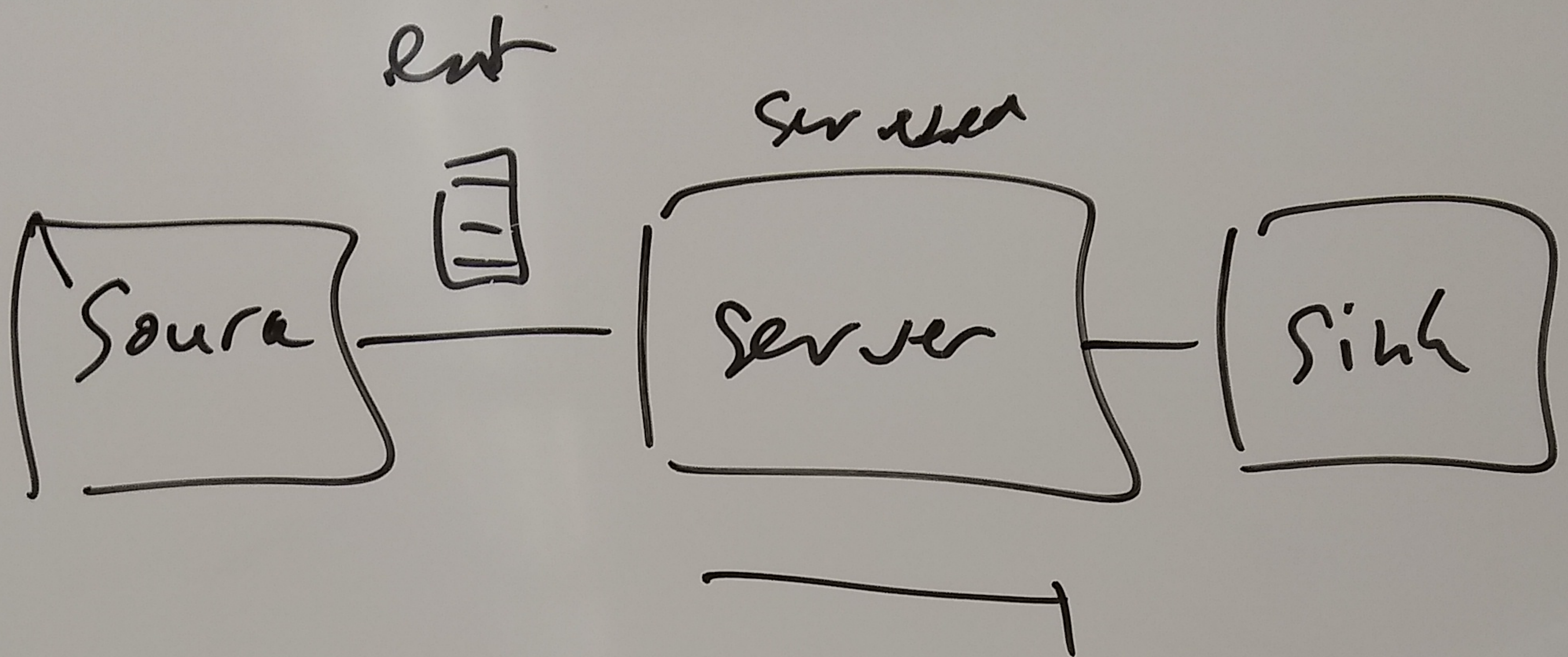
}

obj 2

{

obj 1 schedule

(o, obj1.c)



flow

based on
event scheduling

Arena

Plant

ED

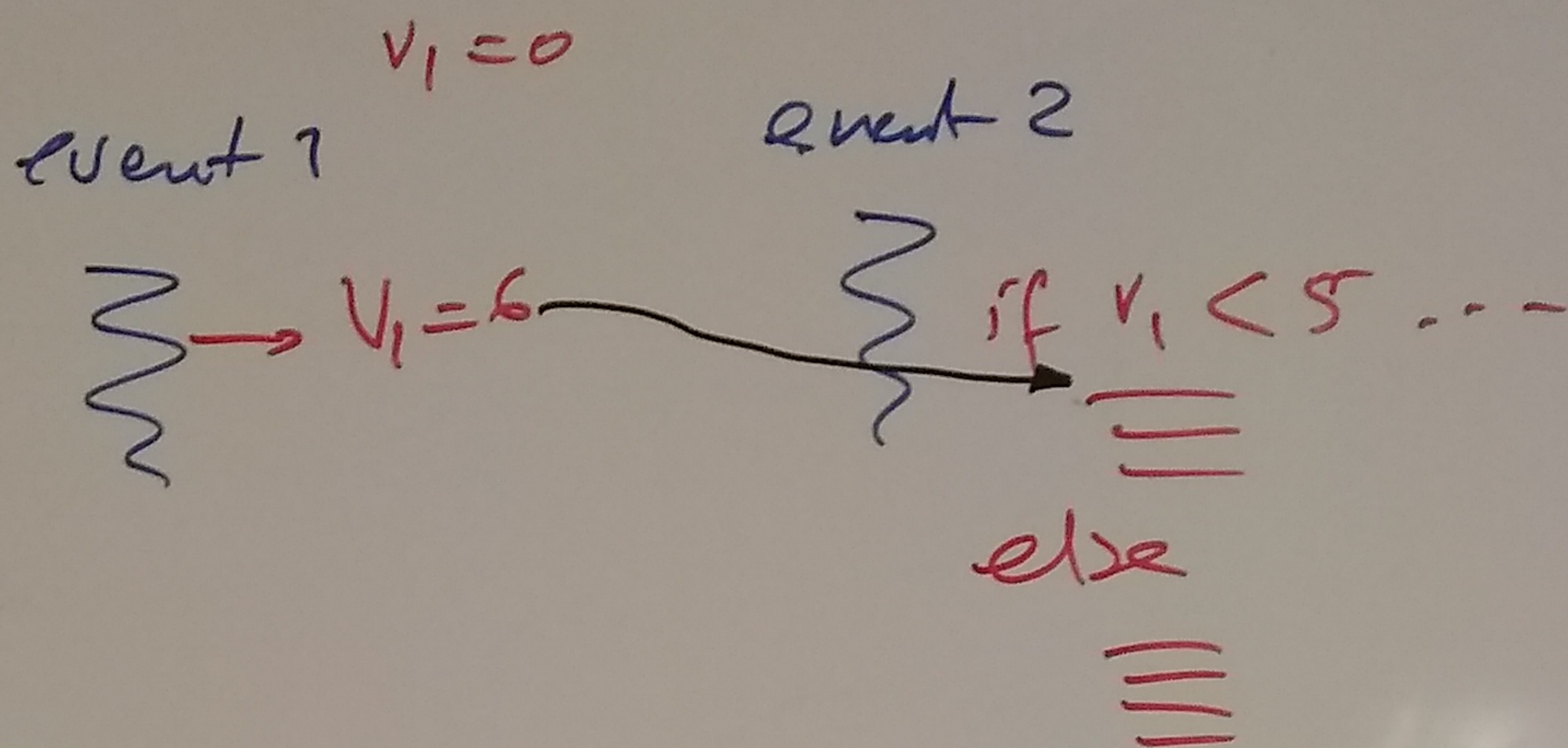
Anylogic

Simio

Jaasim

⋮

parallel



event
list

①

if pers = 0
close sup.

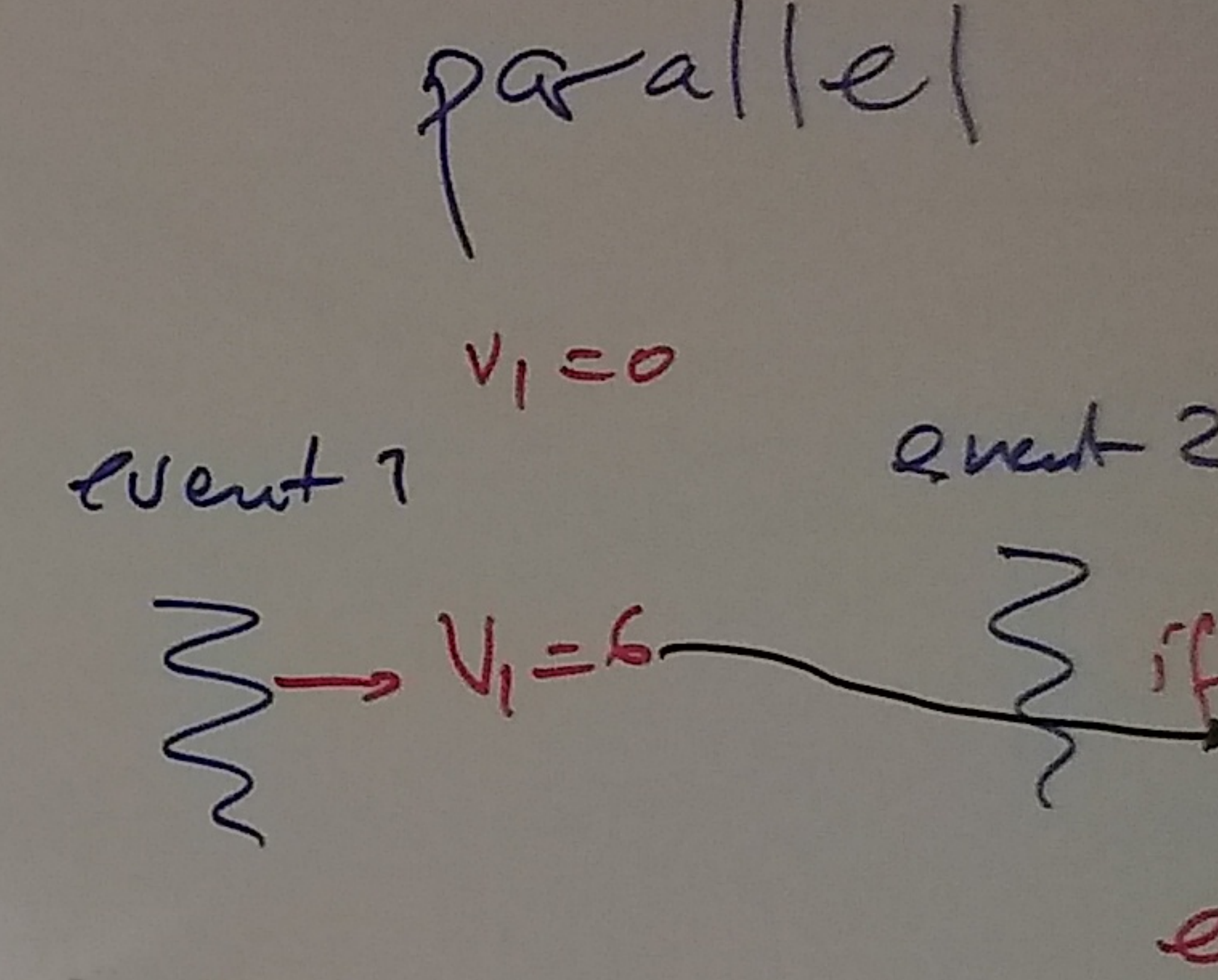
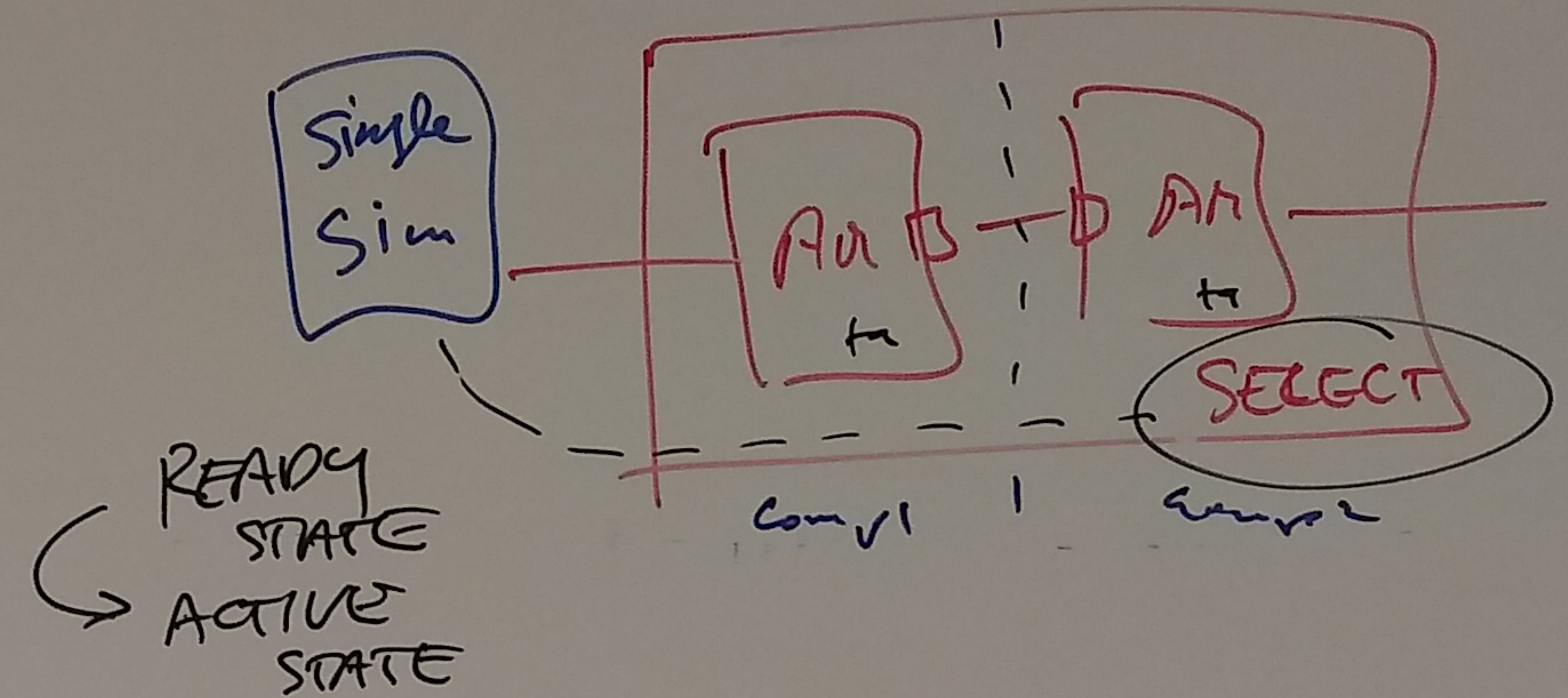
if open
enter

ABM $\rightarrow$ always

RACE CONDITION

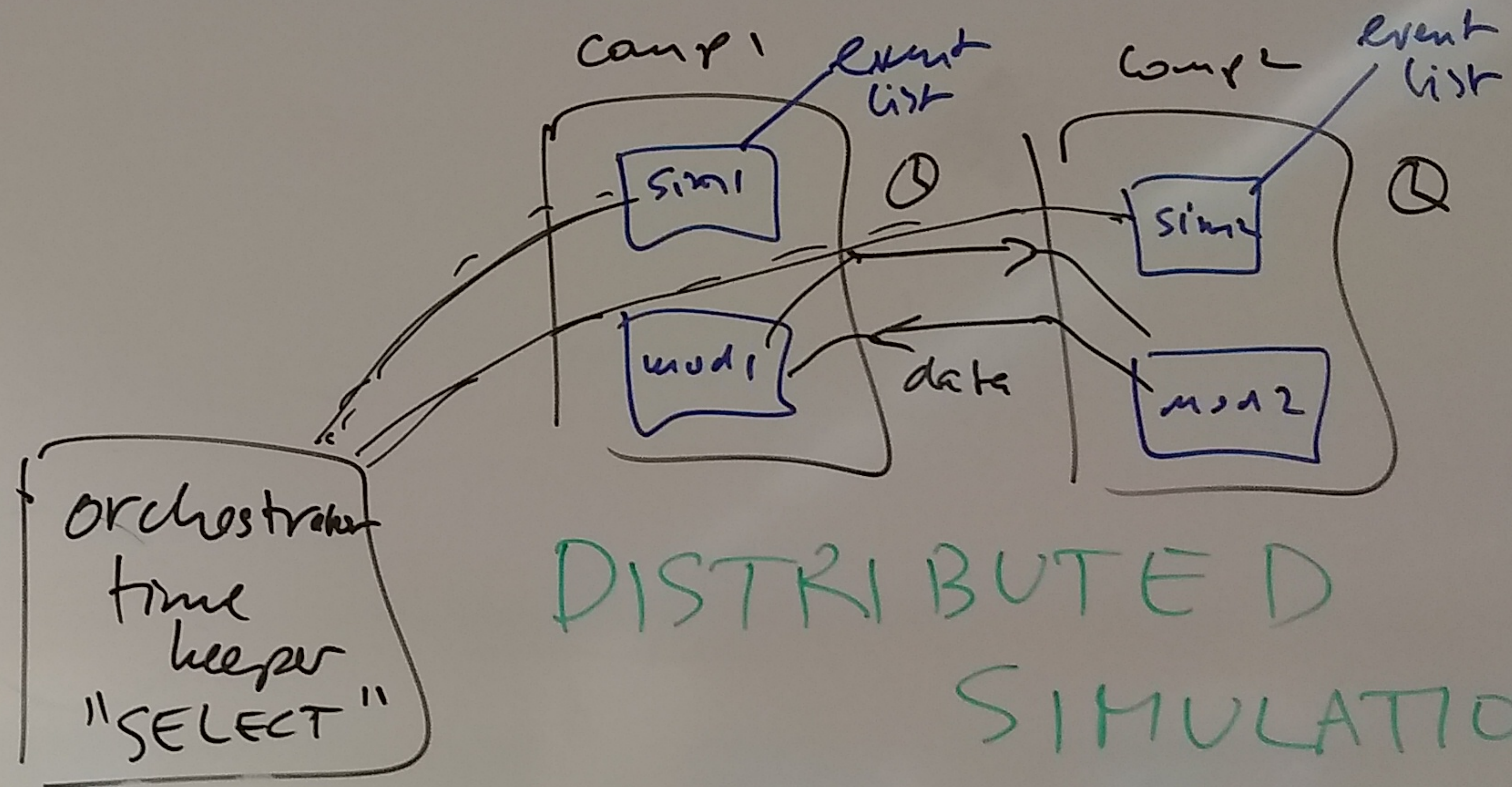
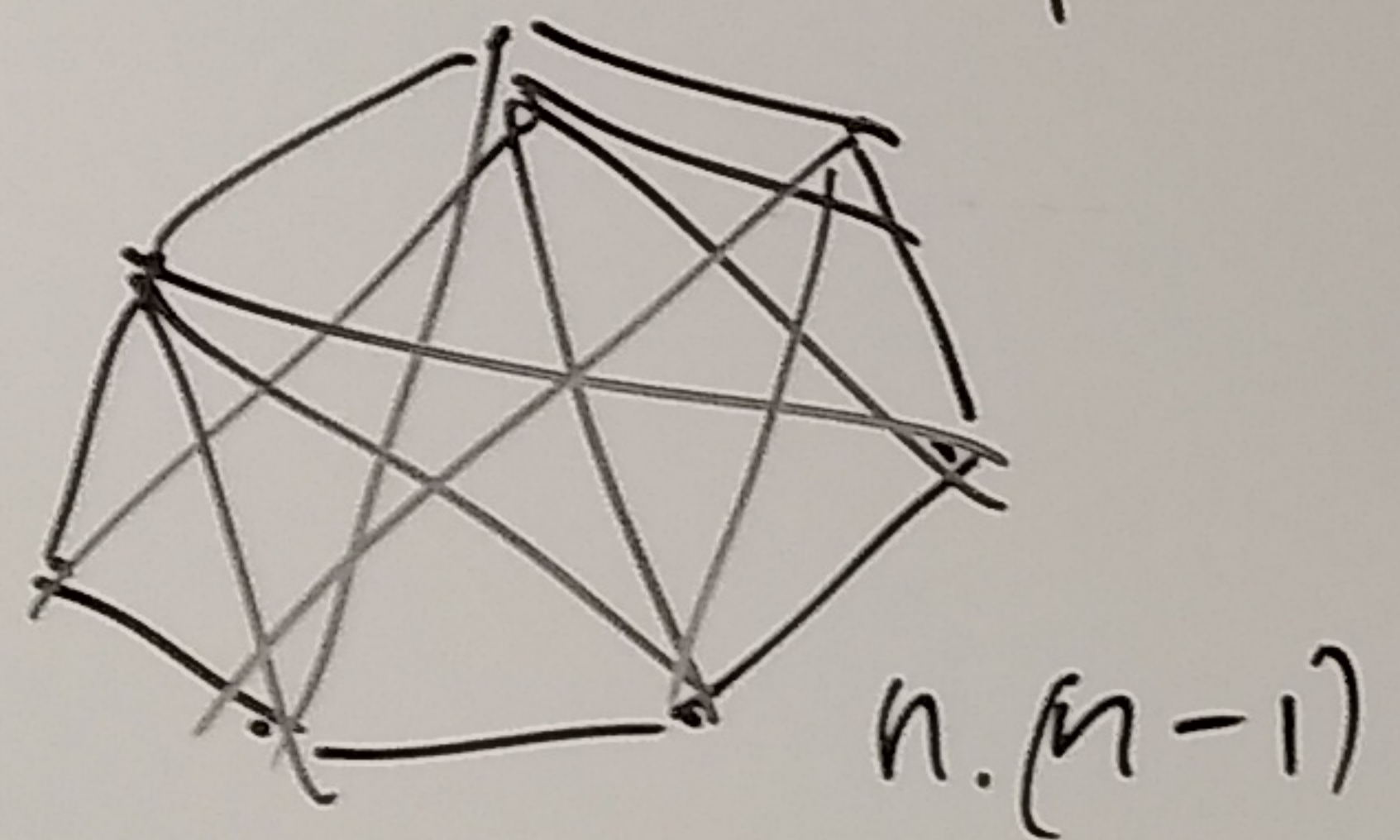
70N

PARALLEL REPLICATIONS



Synchronous events
"SELECT"

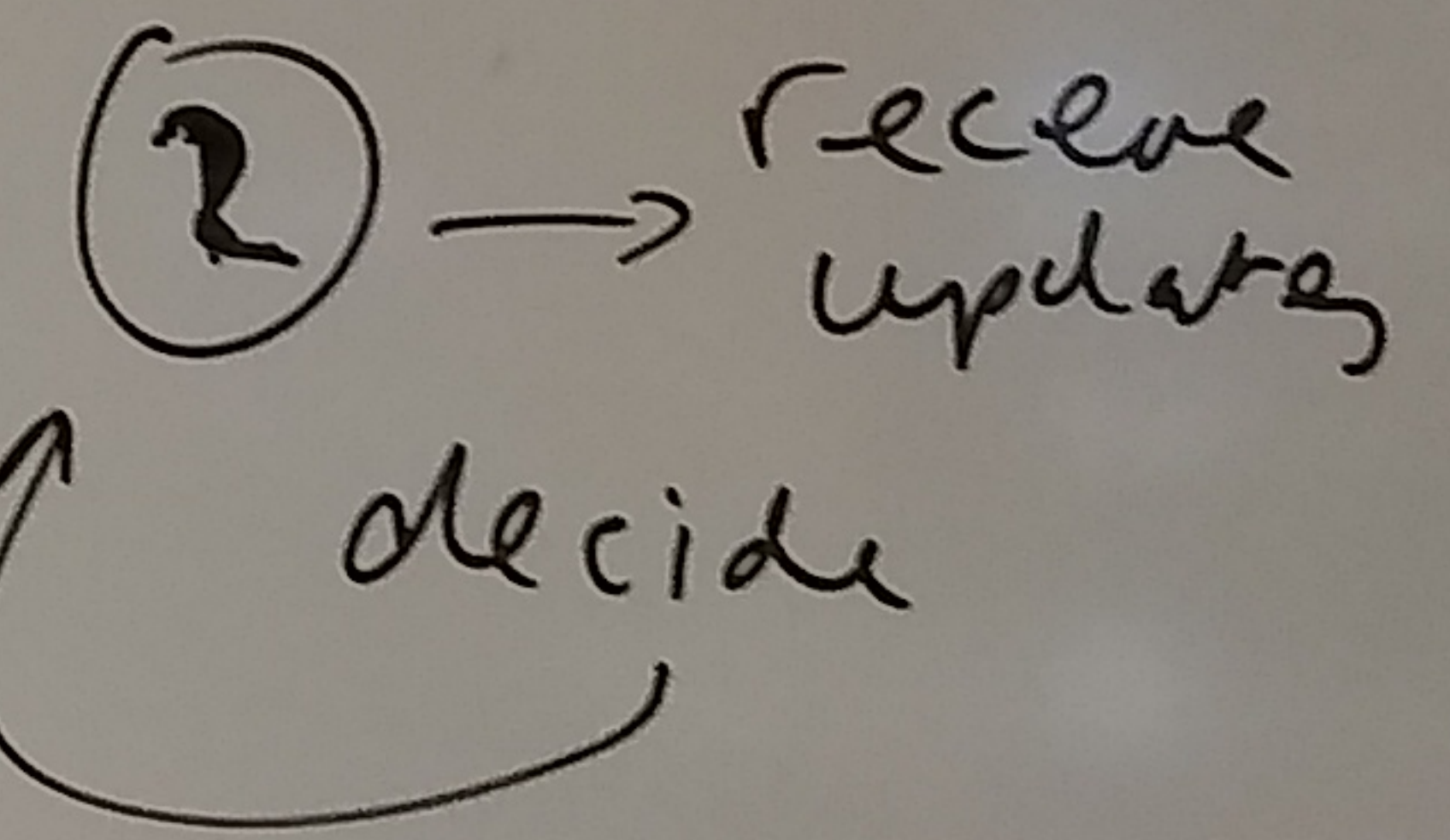
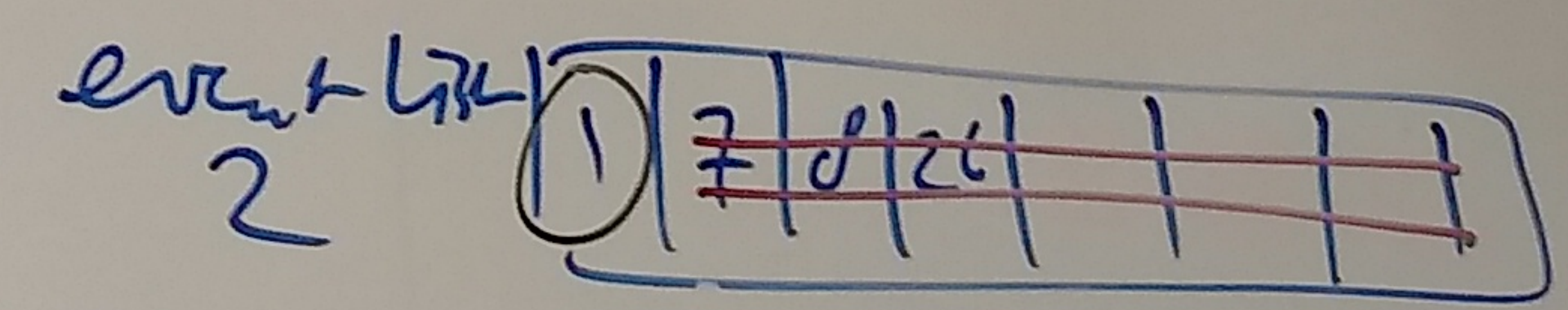
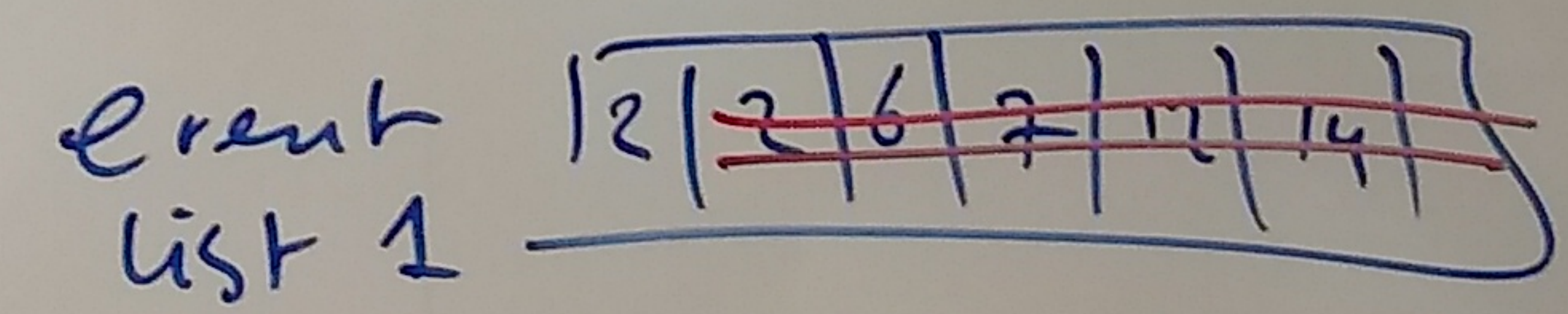
P2P



DISTRIBUTED SIMULATION

if pers = 0
close sup.

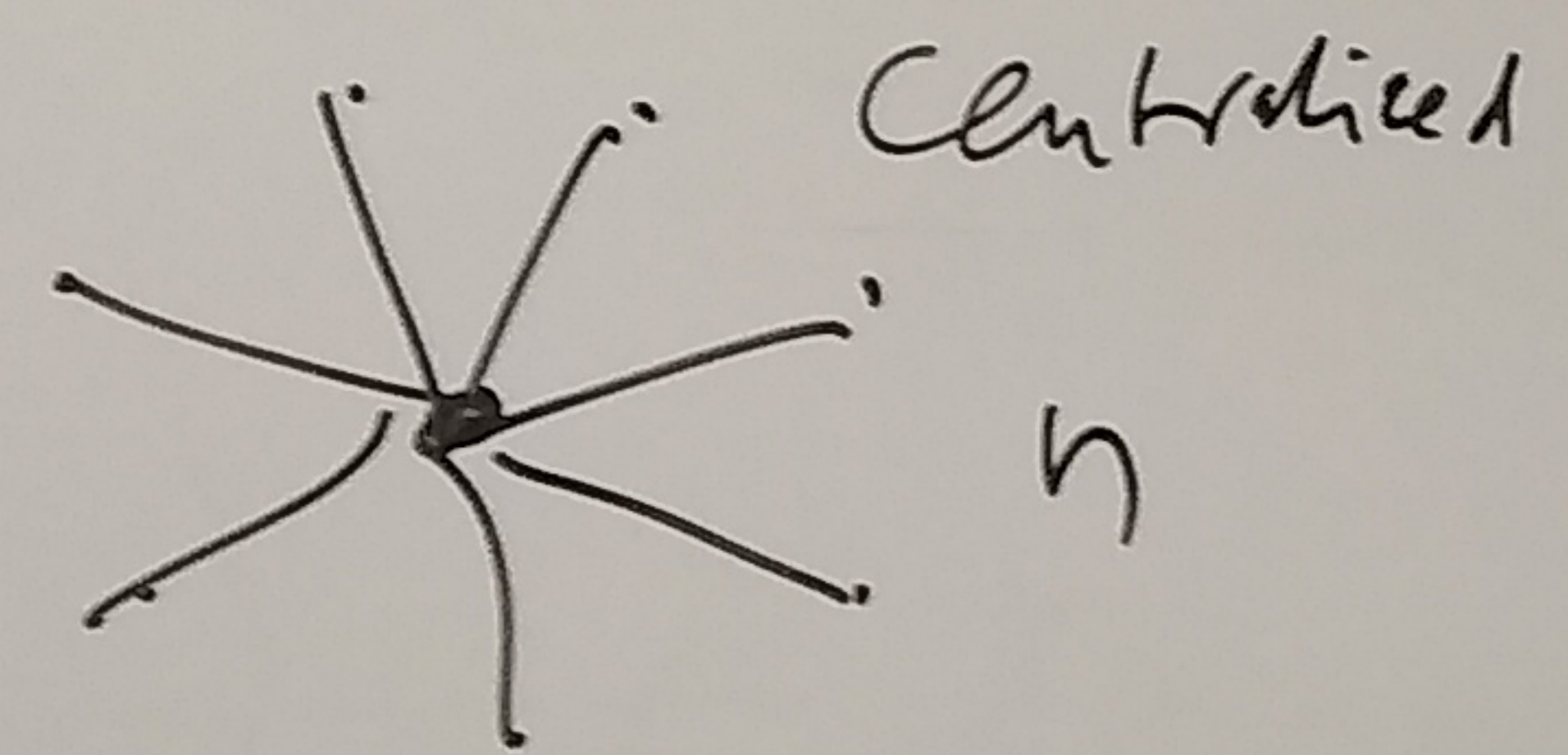
ABM
RACE

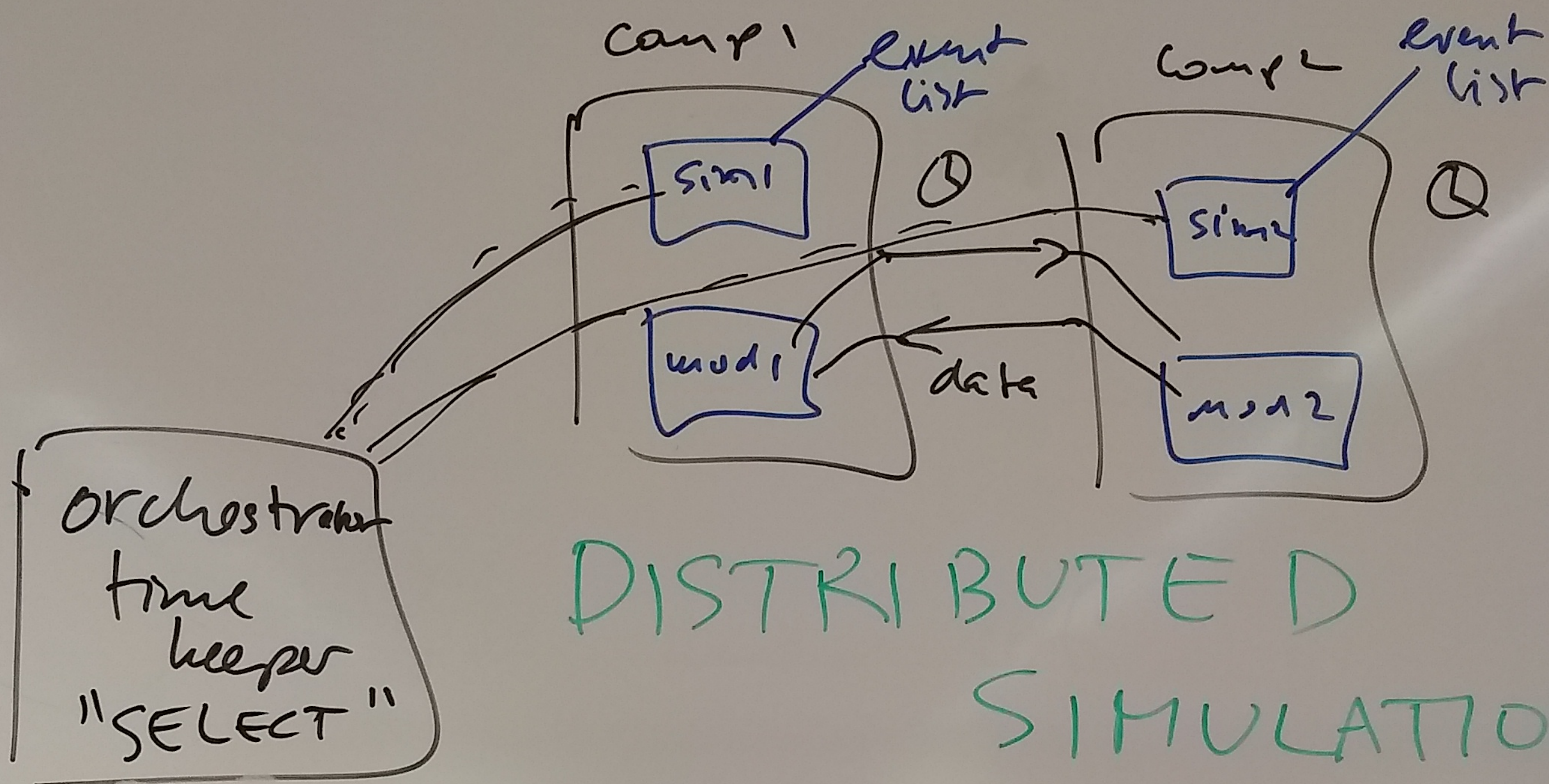
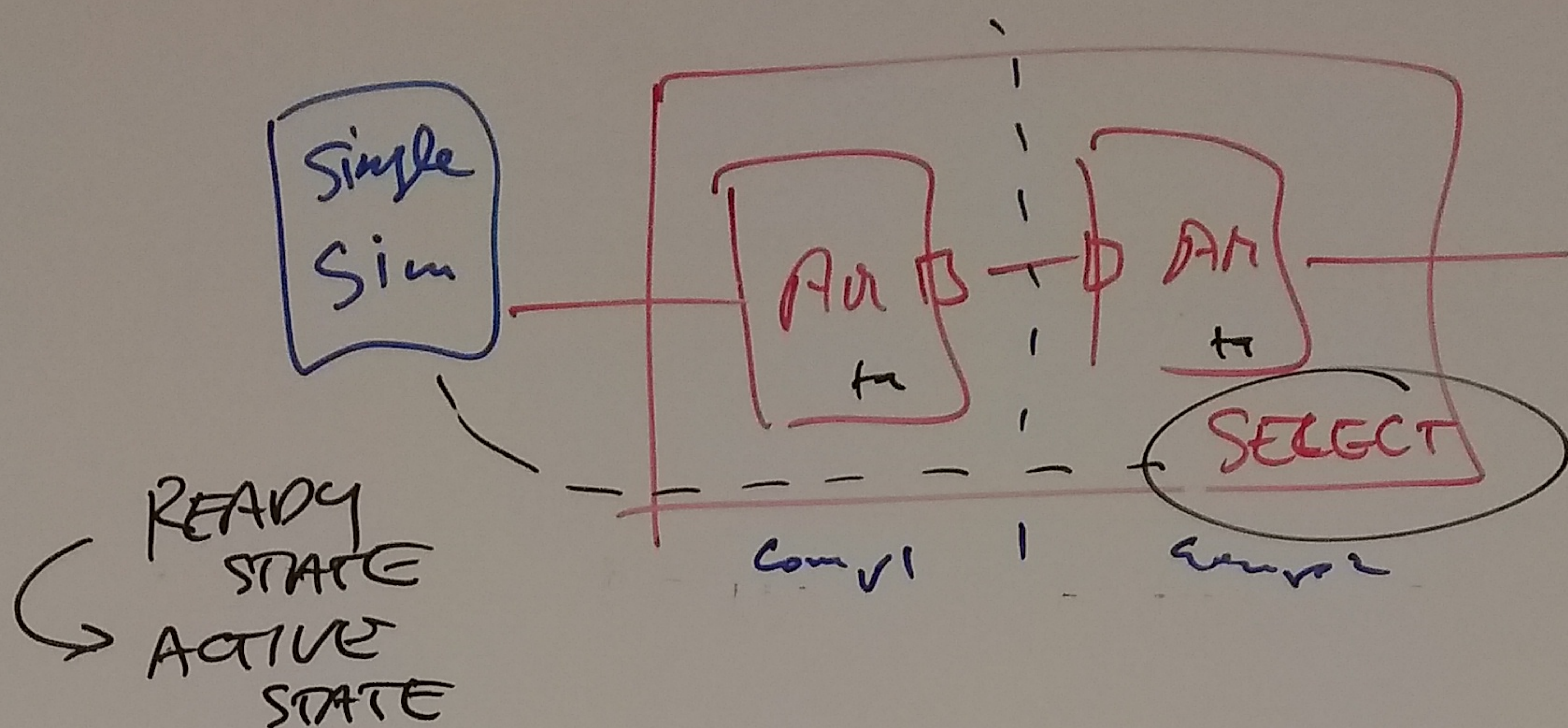


$t = \phi$

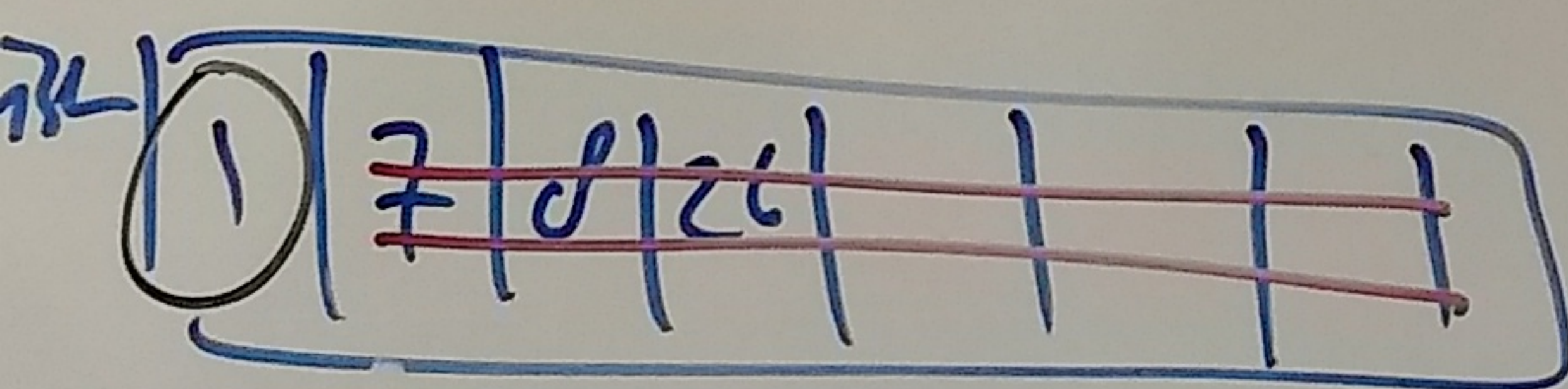
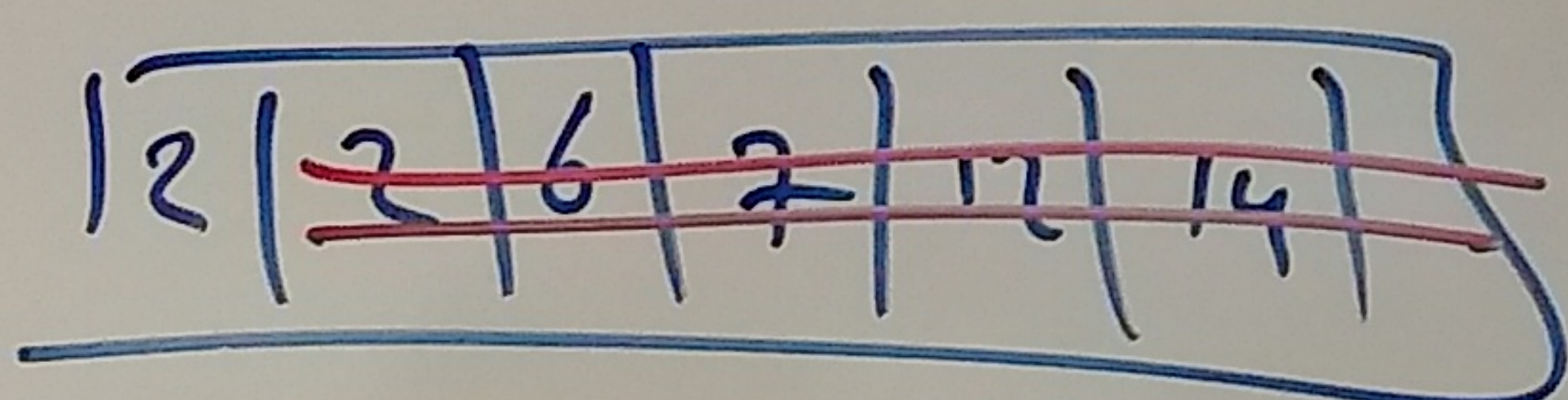
CONSERVATIVE SCHEDULING

action?
no
ok!

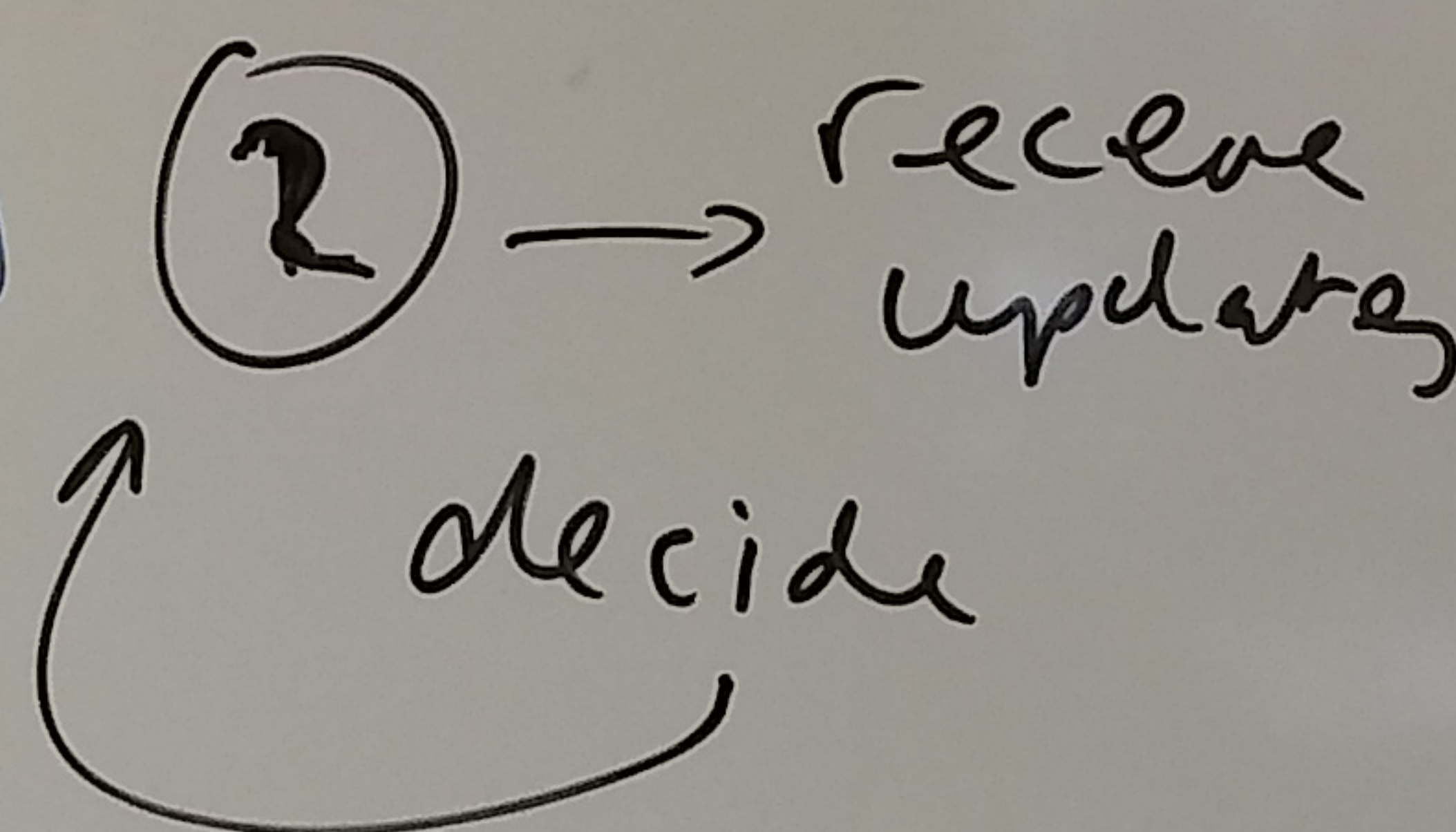




DISTRIBUTED SIMULATION



$$t = \phi$$



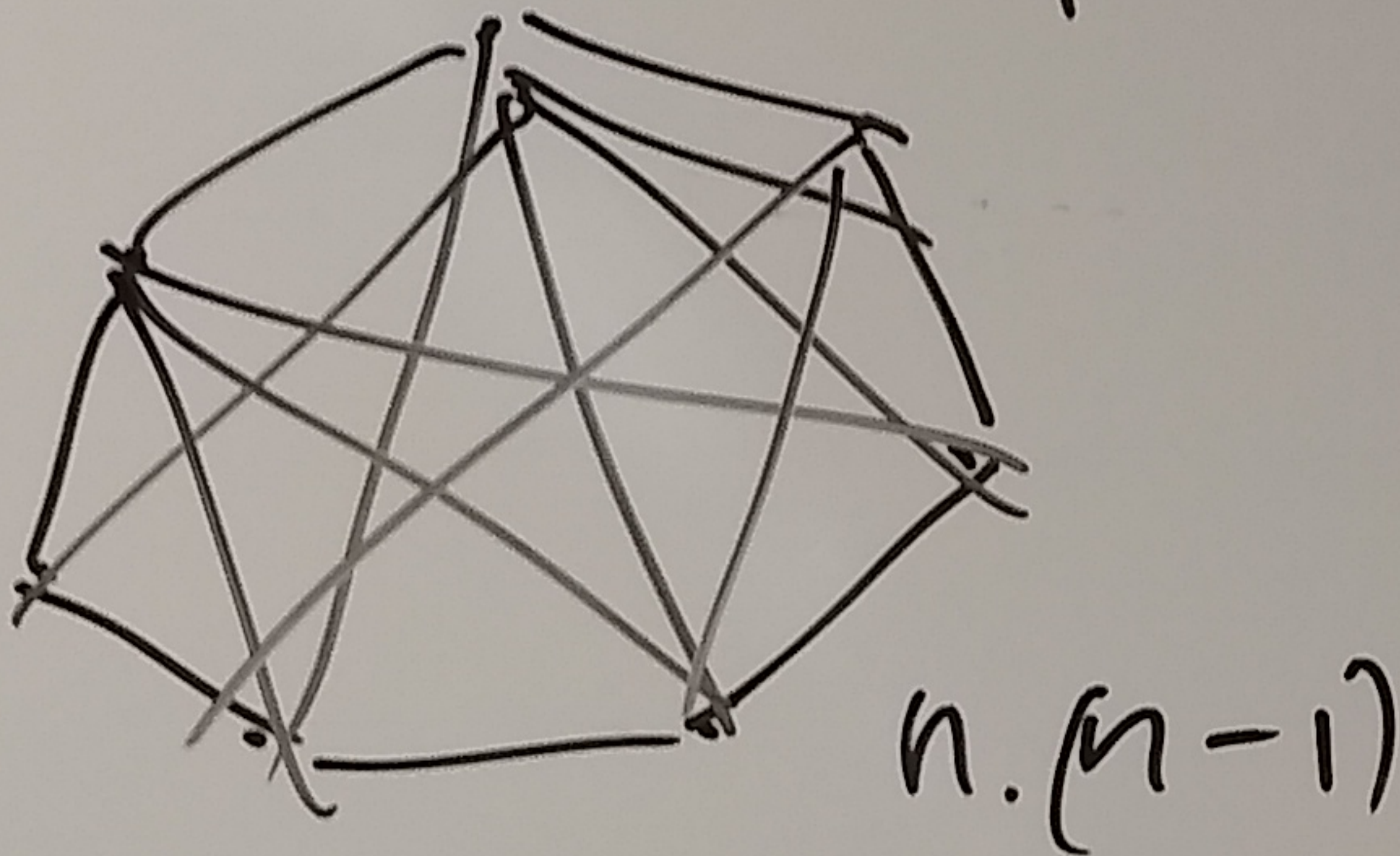
tion

quantization
state space

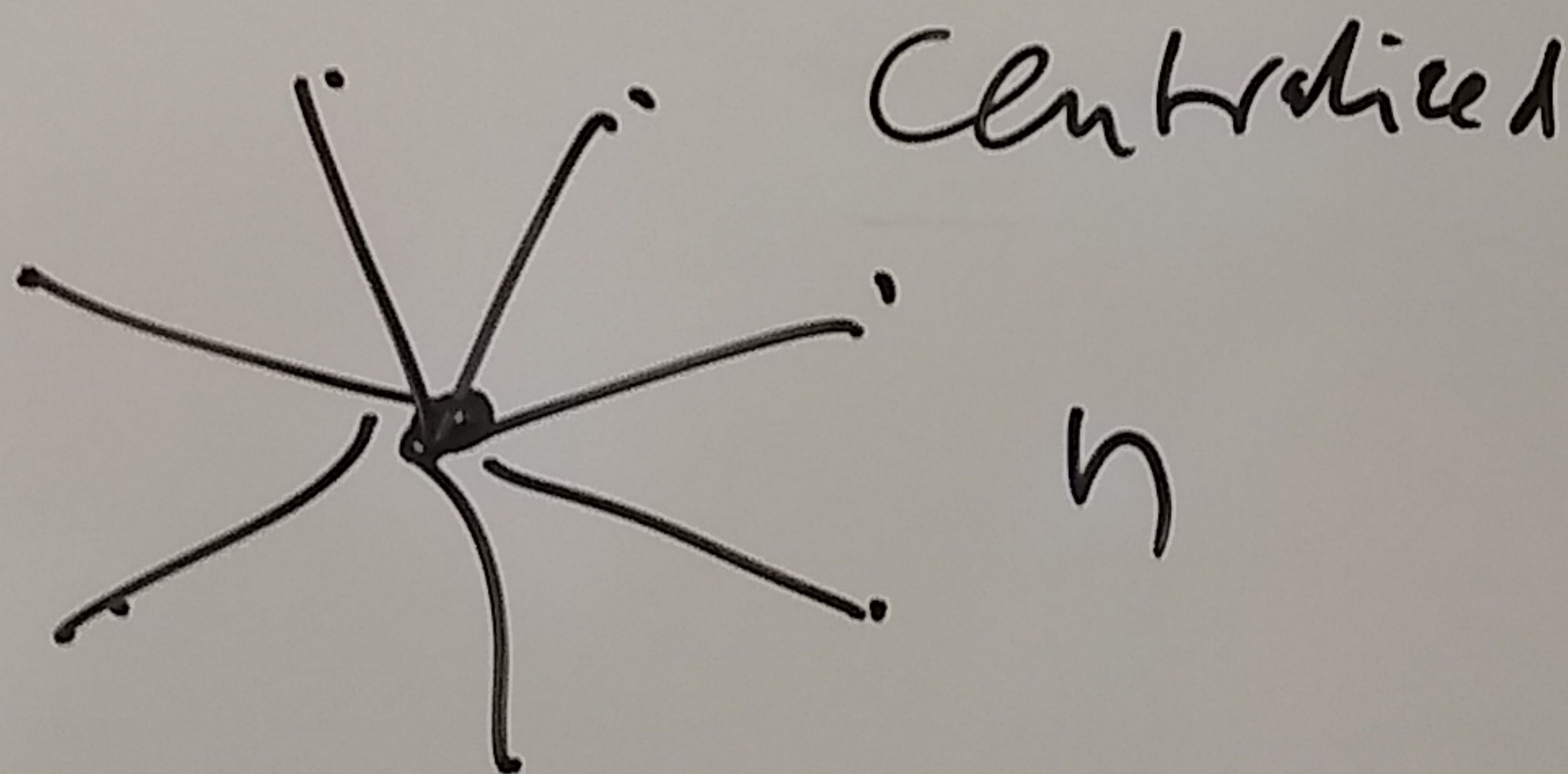
PARALLEL ✓ REPLICATIONS

Synchronous events
"SELECT"

P2P



orchos
time
lee
"SELE"



event
list 1

12	2	6
----	--------------	--------------

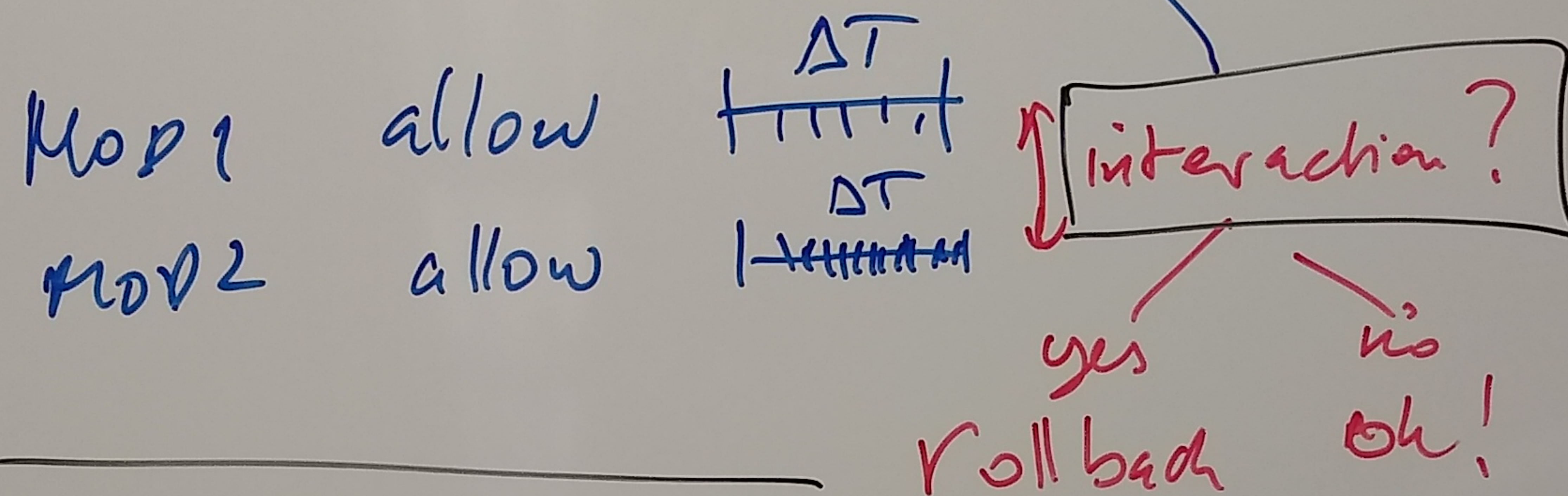
event list
2

①	7	8
---	--------------	--------------

$t = \phi$

CONSERVATIVE SCHEDULING

all data comm
through the orchestrator



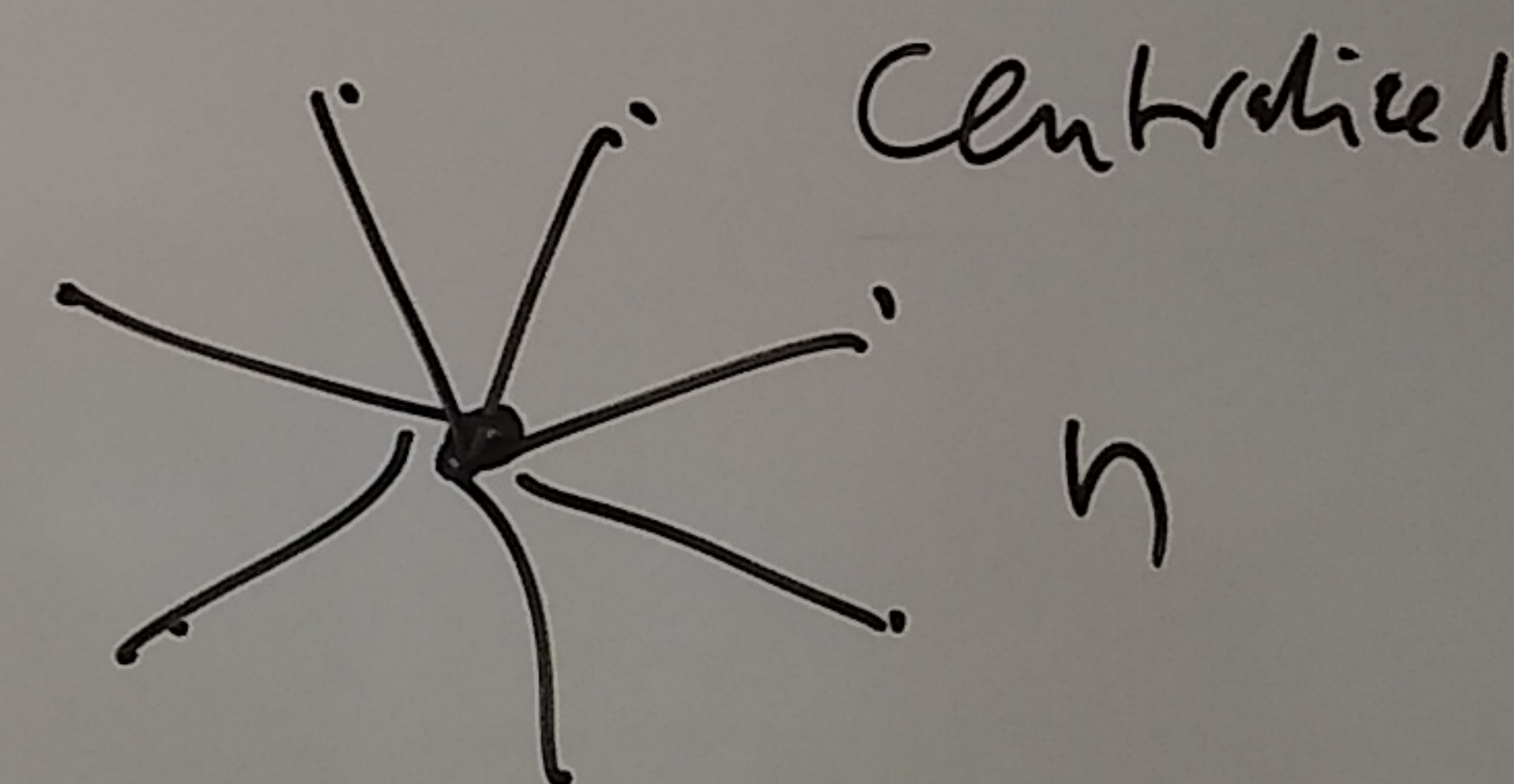
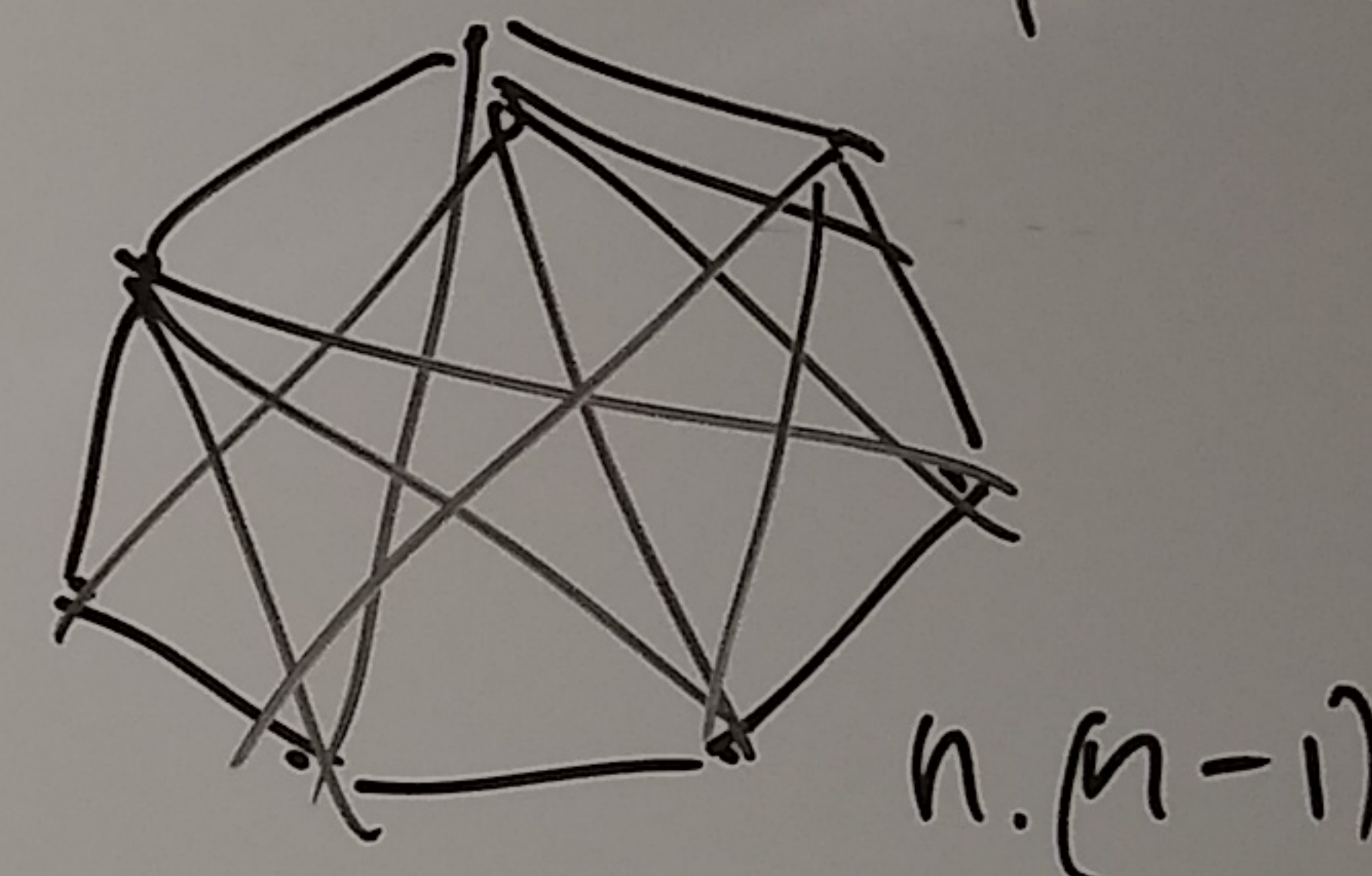
anti events
state save
⋮

high
interaction low

OPTIMISTIC
SCHEDULING

Synchronous events
"SELECT"

P2P



even
list
even
2

CONSERVATIVE
SCHEDULING