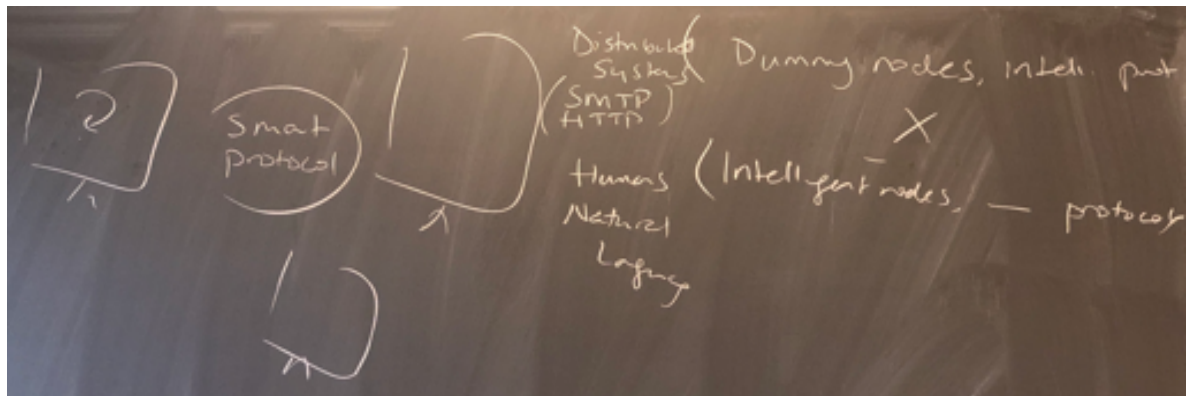
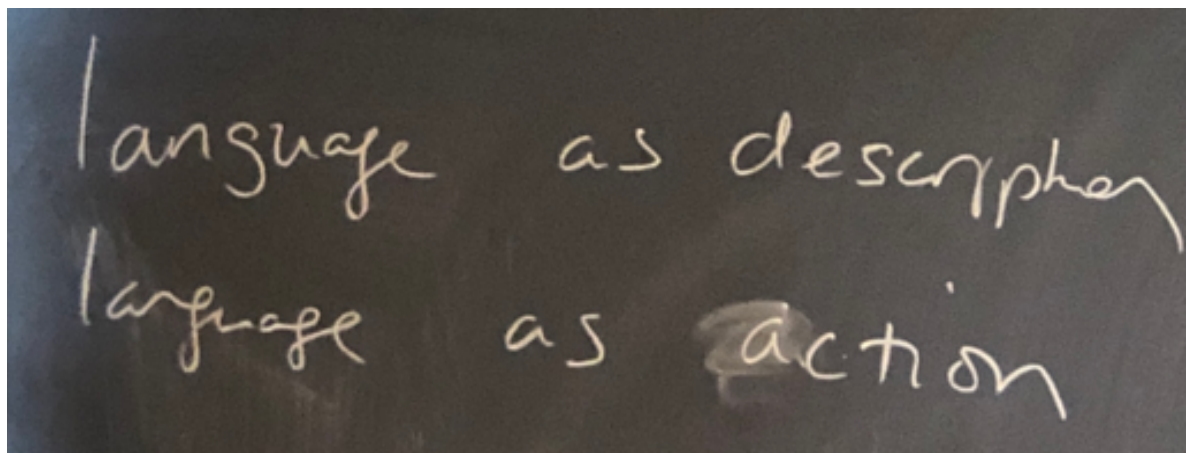


L9 Agent Communication

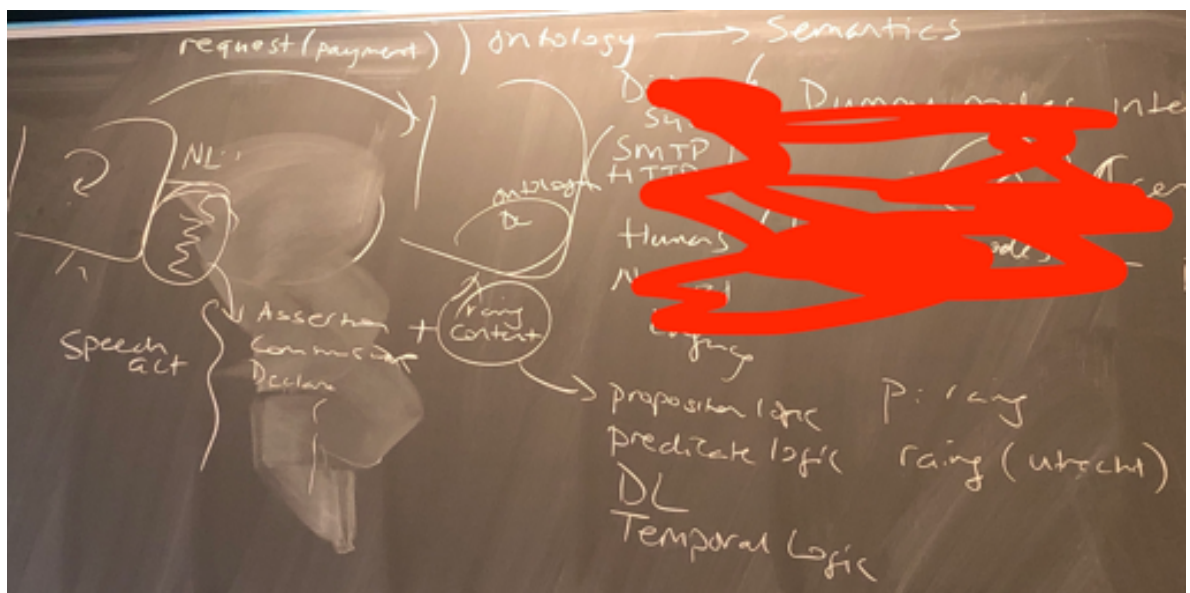


- smart nodes / protocols VS dummy nodes / intelligent protocol
- we want to be somewhere in between of those two

Two paradigms in language research



Speech acts determination + logic for content



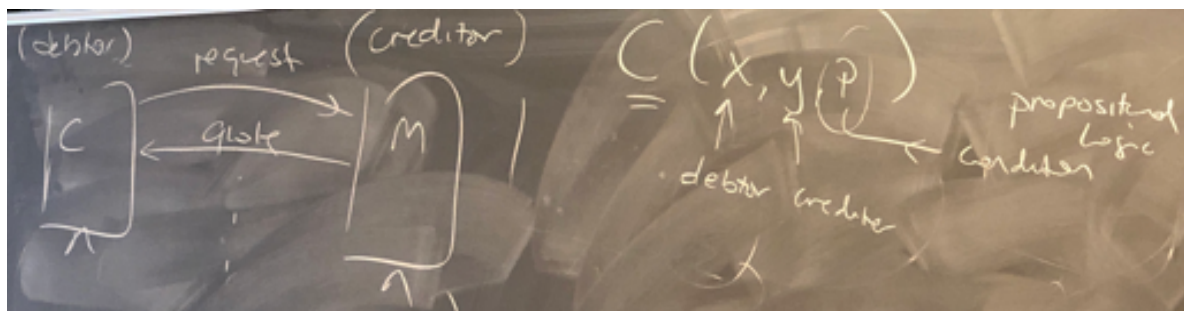
Q: How do we ensure commitment on both sides? Who is responsible for it?
One thinks its commitment, other something else.

A: Agent can state its own commitment, the commitment can not be assigned to others. In case of breach of commitment (detected by the other agent), the transaction is flagged and usually escalated to another party (e.g legal department)

Debtor and Creditor

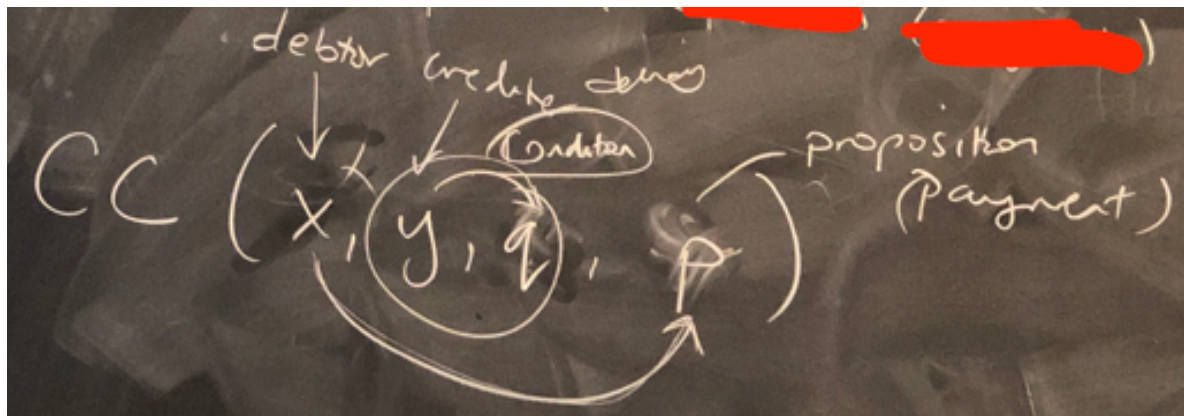
agent 'x' is creating the commitments

Commitment:

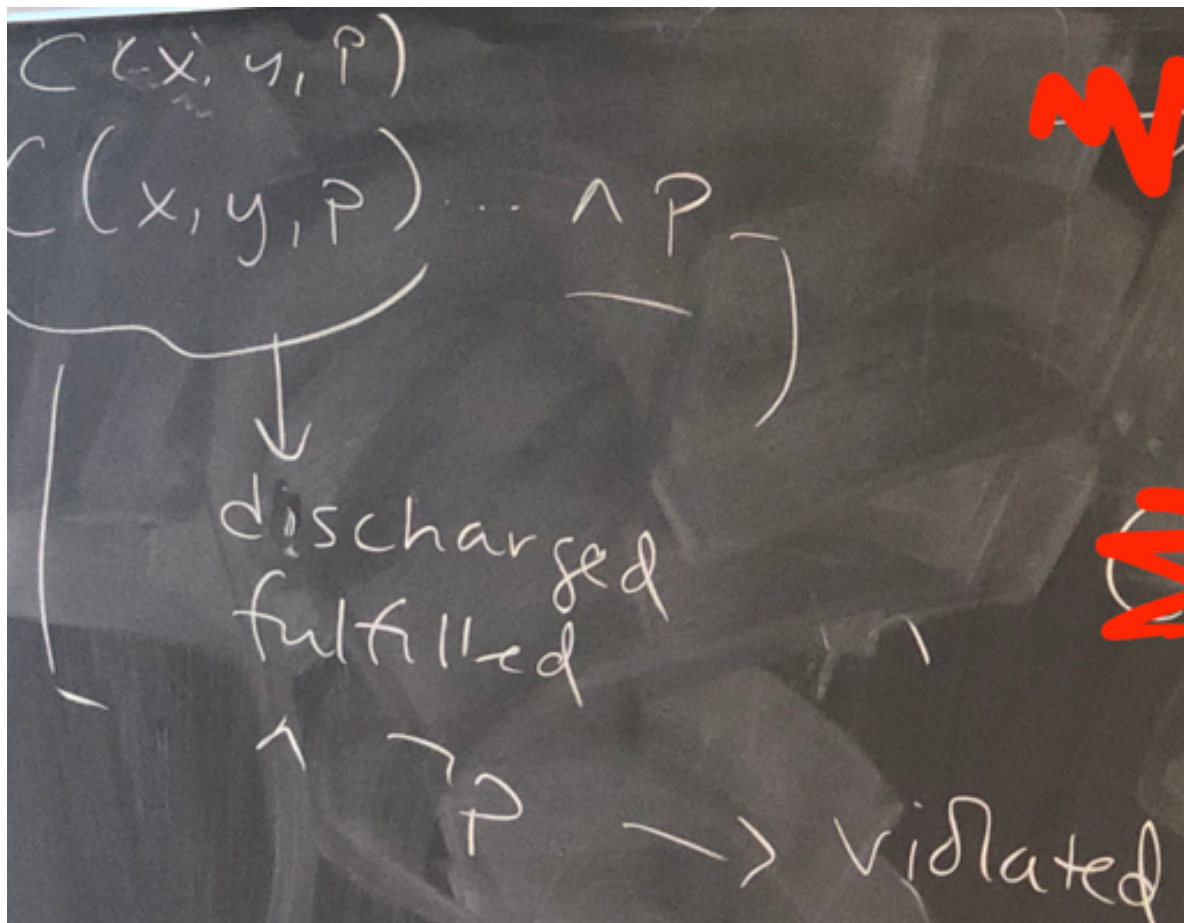


Conditional commitment:

(condition has to be done first - y,q)

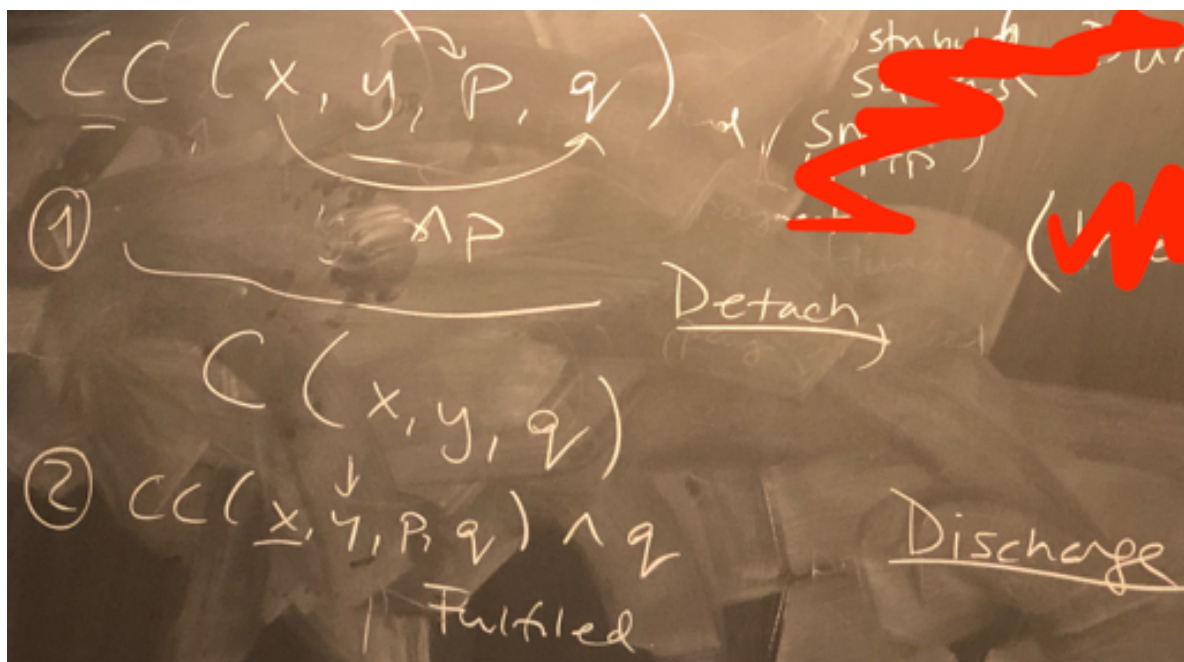


Satisfied/Violated commitments



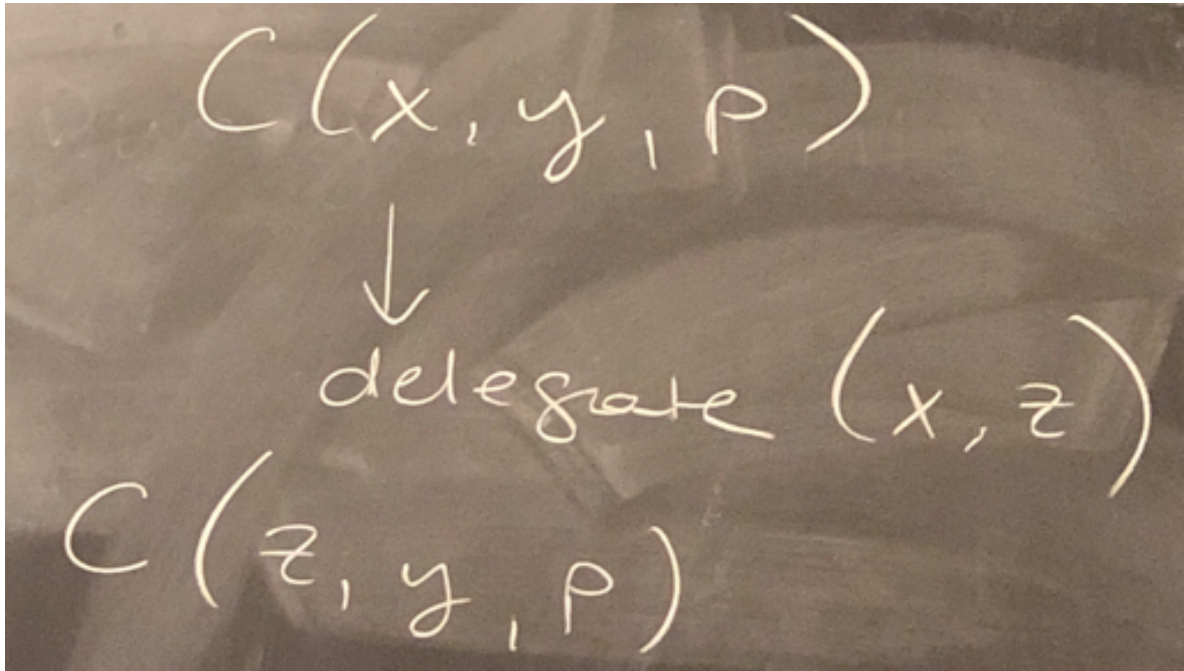
Look below for conditional commitment

1. first option detach = if x do 'p', y is committing to do 'q' = 'p', thus 'q'
2. second option discharge = x can do whatever it wants

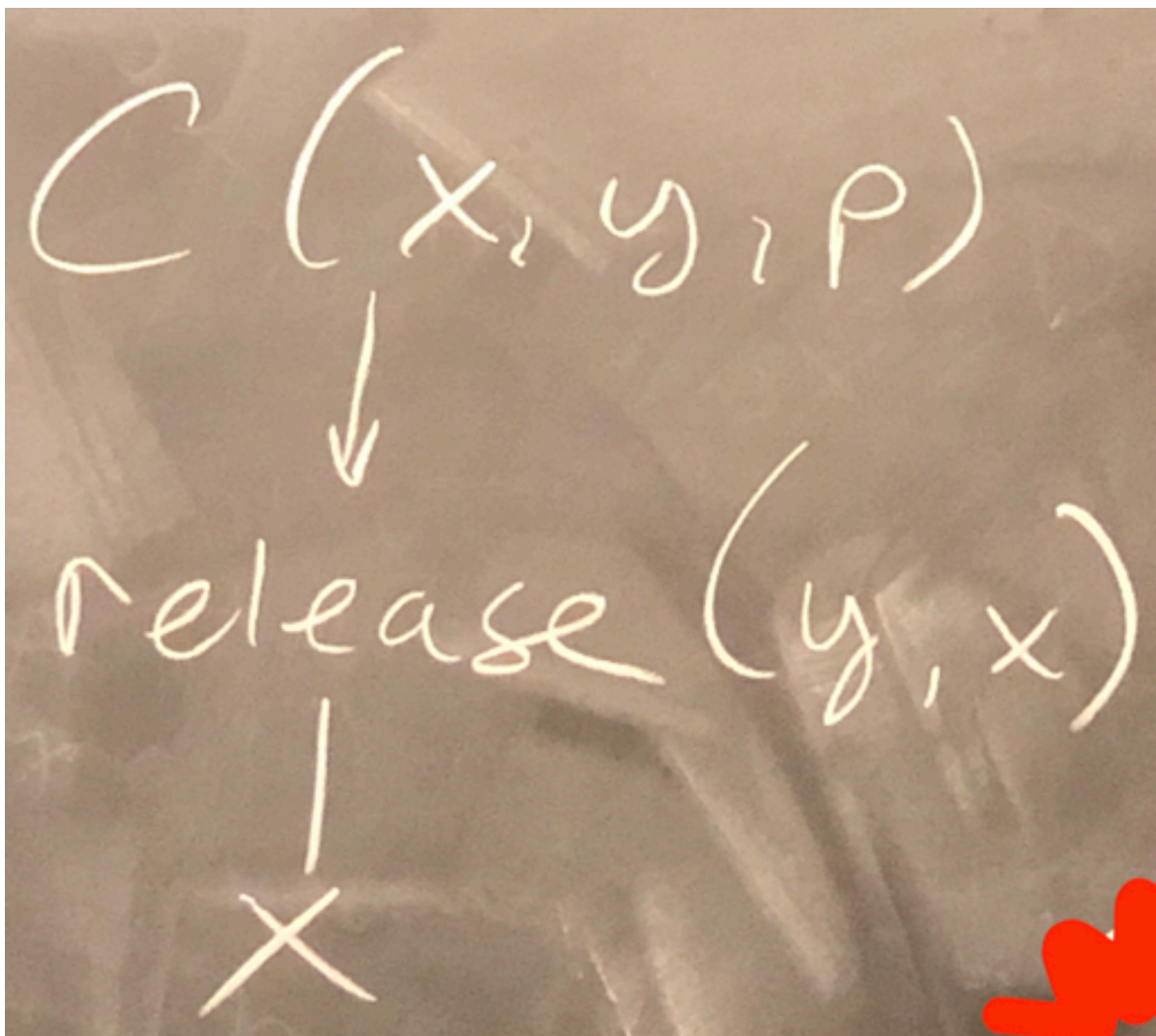


There are other actions next to the two above.

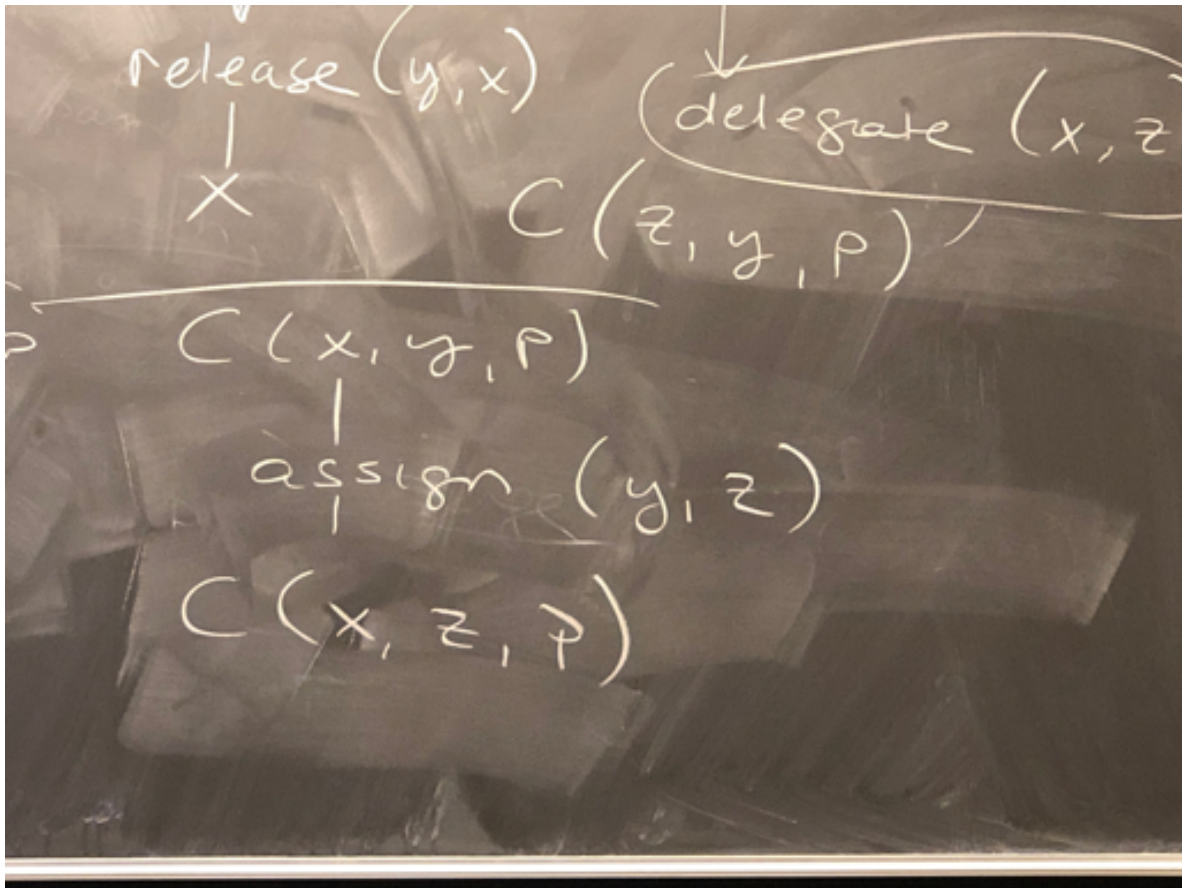
Delegate:



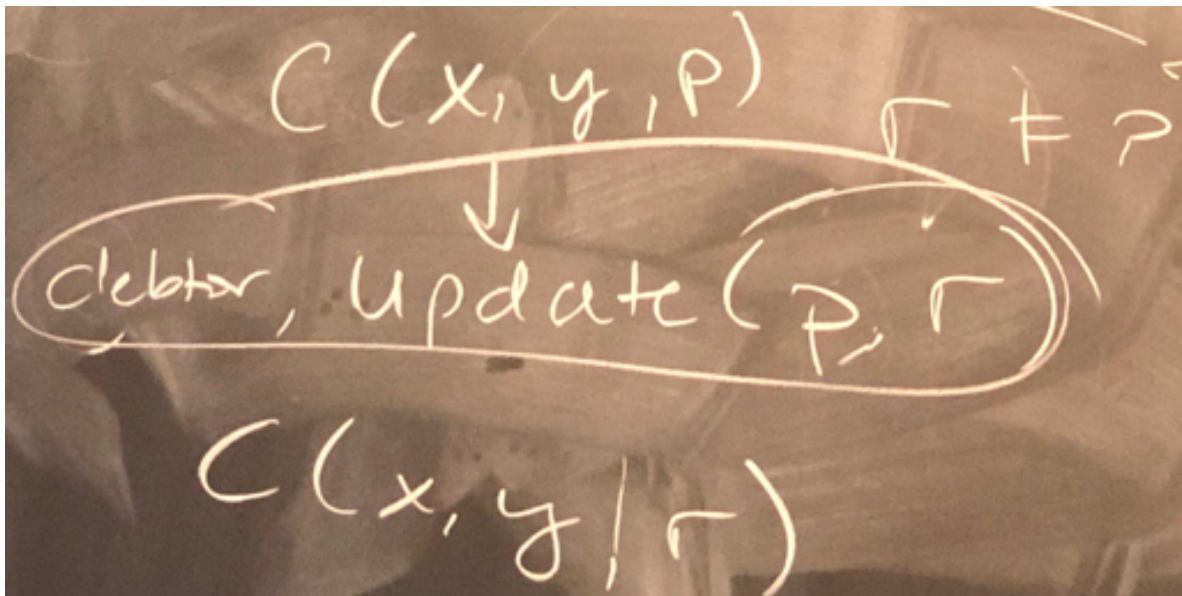
Release:



Assign ('y' says to assign it to their peer 'z'):

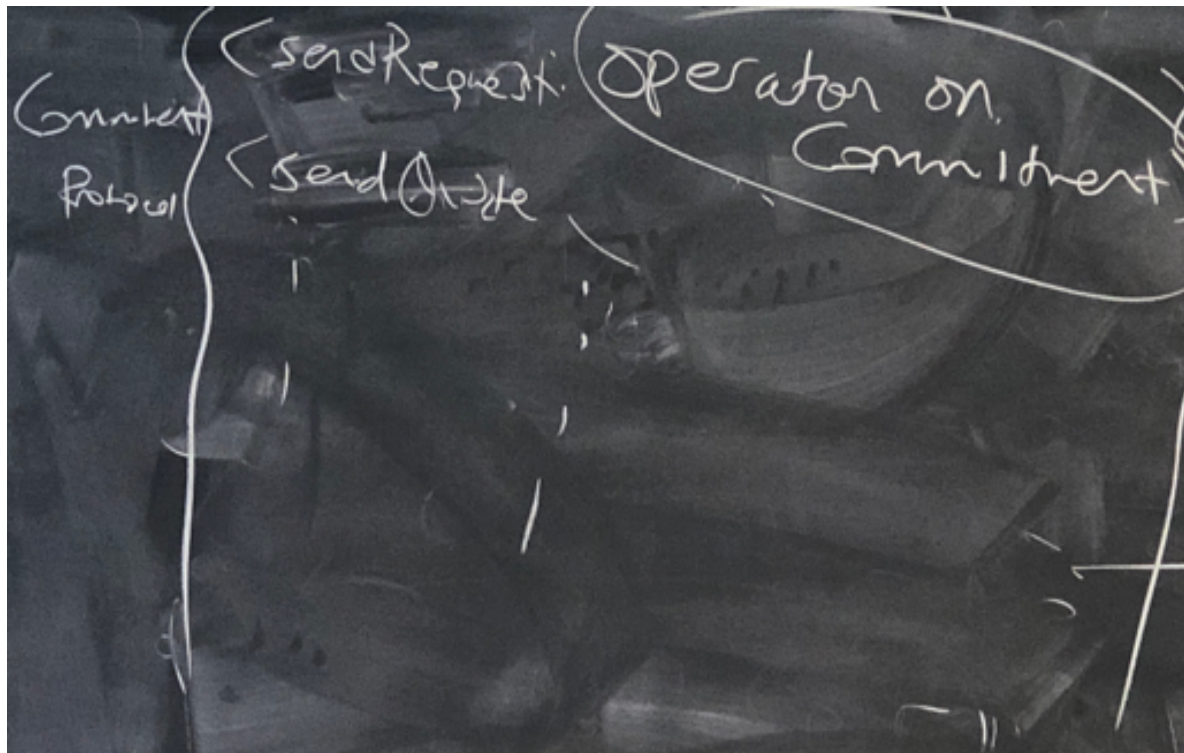


Update ('r' entails the 'p'; debtor is the updater):



Commitment protocols

consists of {action:operation} pairings



Example from slide

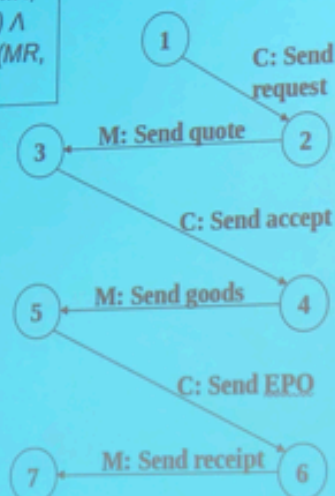
- six types of messages
- every message holds the meaning of the action

States in terms of commitments

$\text{promiseGoods}(i, m): \text{CC}(\text{MR}, \text{CT}, \text{accept}(i, m), \text{goods}(i)) \wedge$
 $\text{promiseReceipt}(i, m): \text{CC}(\text{MR}, \text{CT}, \text{pay}(m), \text{receipt}(i))$

$\text{promiseReceipt}(i, m): \text{CC}(\text{MR}, \text{CT}, \text{pay}(m), \text{receipt}(i))$

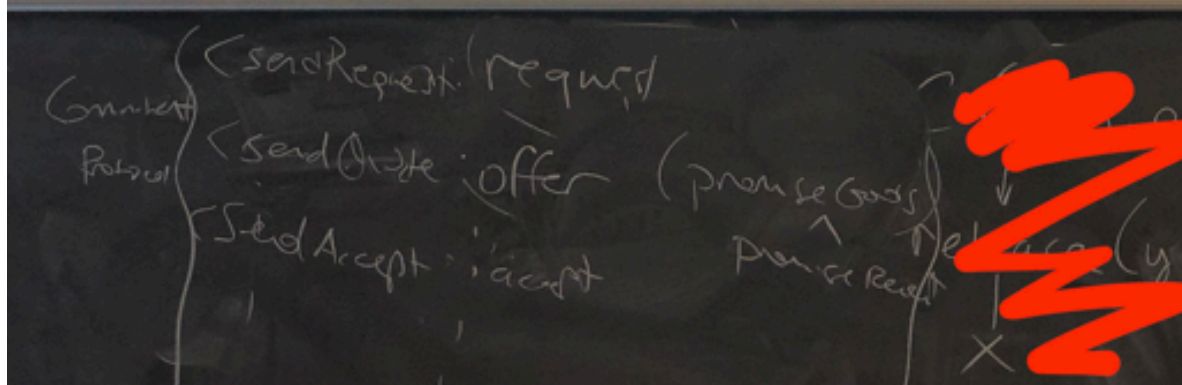
$\text{receipt}(i):$ the merchant has delivered the receipt.



$\text{request}(i):$ the customer has requested a quote.

$\text{accept}(i, m): \text{CC}(\text{CT}, \text{MR}, \text{goods}(i), \text{pay}(m))$

$\text{pay}(m):$ the customer has paid the agreed amount.



the example from above, describing the content between states:

- State 2 - request - still holds
- State 3 - request - I received the offer from the agent, how shall I continue?
- State 4 - accept - leads to a commitment to deliver the goods
- State 5 - send good - state 4 will be affected (fulfilled as the goods are being delivered)
- State 6 - pay - it will come to a base level commitment C after pay is discharged in State 5
- State 7 - send receipt

- ② request
- ③ request \wedge promise Goods \wedge promise Receipt
- ④ accept \wedge receipt \wedge promise Goods \wedge promise R $\rightarrow C(MR, CT, goods)$
 request \wedge $C(MR, CT, goods) \wedge$ promise receipt
 $\wedge C(CT, MR, pay)$ \downarrow goods
- ⑤ request \wedge goods \wedge $C(MR, CT, pay, receipt)$
 pay \wedge pay
- ⑥ request \wedge goods \wedge $C(MR, CT, receipt)$
- ⑦ pay \wedge request \wedge receipt \wedge goods