NC STATE UNIVERSITY

ENGINEERING ONLINE

# Lecture Notes

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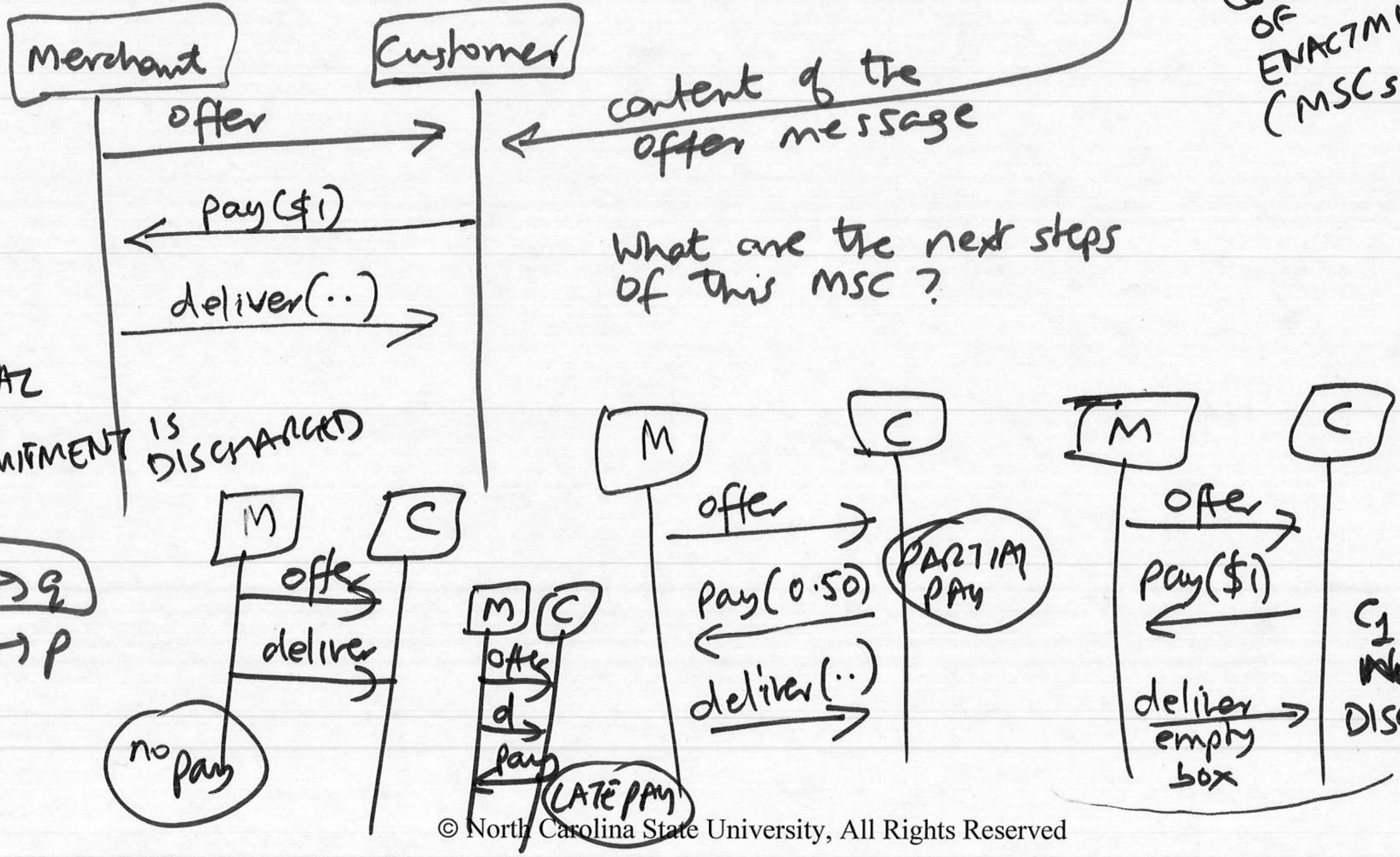
|---|---|
| **Course Number:** | CSC 513 |
| **Instructor:** | Dr. Singh |
| **Lecture Number:** | 12 |

$C_1 = C($ MERCHANT, CUSTOMER, pay($1), deliver(marker) $)$

Principals
agents
entities that can
enter into
business relationships

propositions : true or false
expressions

BASIS
FOR
JUDGING
CORRECTNESS
OF
ENACTMENTS
(MSCs)



content of the offer message

What are the next steps of this MSC ?

IDEAL

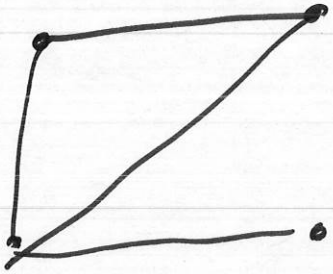
THE COMMITMENT IS DISCHARGED

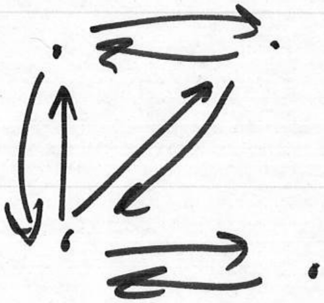
$\boxed{p \to q}$

$q \to p$

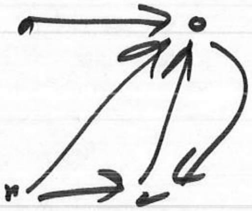
$C_1$ is NOT DISCHARGED

Facebook



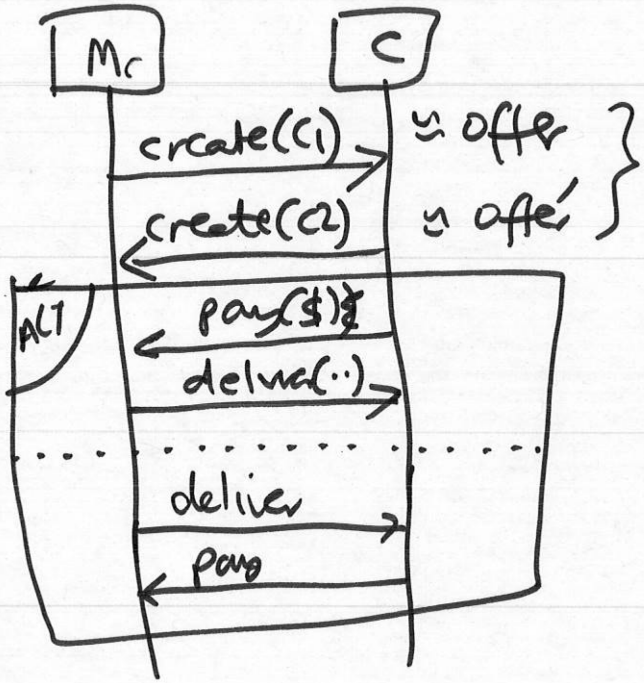


Twitter



$C_1 = C(\text{Mer}, \text{Cust}, \text{pay}(\$1), \text{deliver}(\text{marker}))$

$\wedge\ C_2 = C(\text{Cust}, \text{Mer}, \text{deliver}(\text{marker}), \text{pay}(\$1))$



should also allow the reverse order

# Example: Commitment Progression

via Logic
via Explicit actions

C(Buyer, Seller, goods, pay) is ACTIVE (AND CONDITIONAL)

- If *goods* ∧ C(Buyer, Seller, goods, pay) Then
  - C(Buyer, Seller, T, pay)

ACTIVE, UNCONDITIONAL & ≡ DETACHED ≡ BASE

- If *pay* ∧ C(Buyer, Seller, T, pay) Then
  - Satisfied
- If *pay* ∧ C(Buyer, Seller, goods, pay) Then
  - Satisfied

NEVER A PAYMENT

(i) Goods (and no pay)
VIOLATION

(ii) no goods (and no pay)
NOT A VIOLATION
NOT SATISFACTION
≅ EXPIRATION

Can be nested:

C(Seller, Buyer, pay, C(Shipper, Buyer, T, deliverGoods))

(SWAP 107)

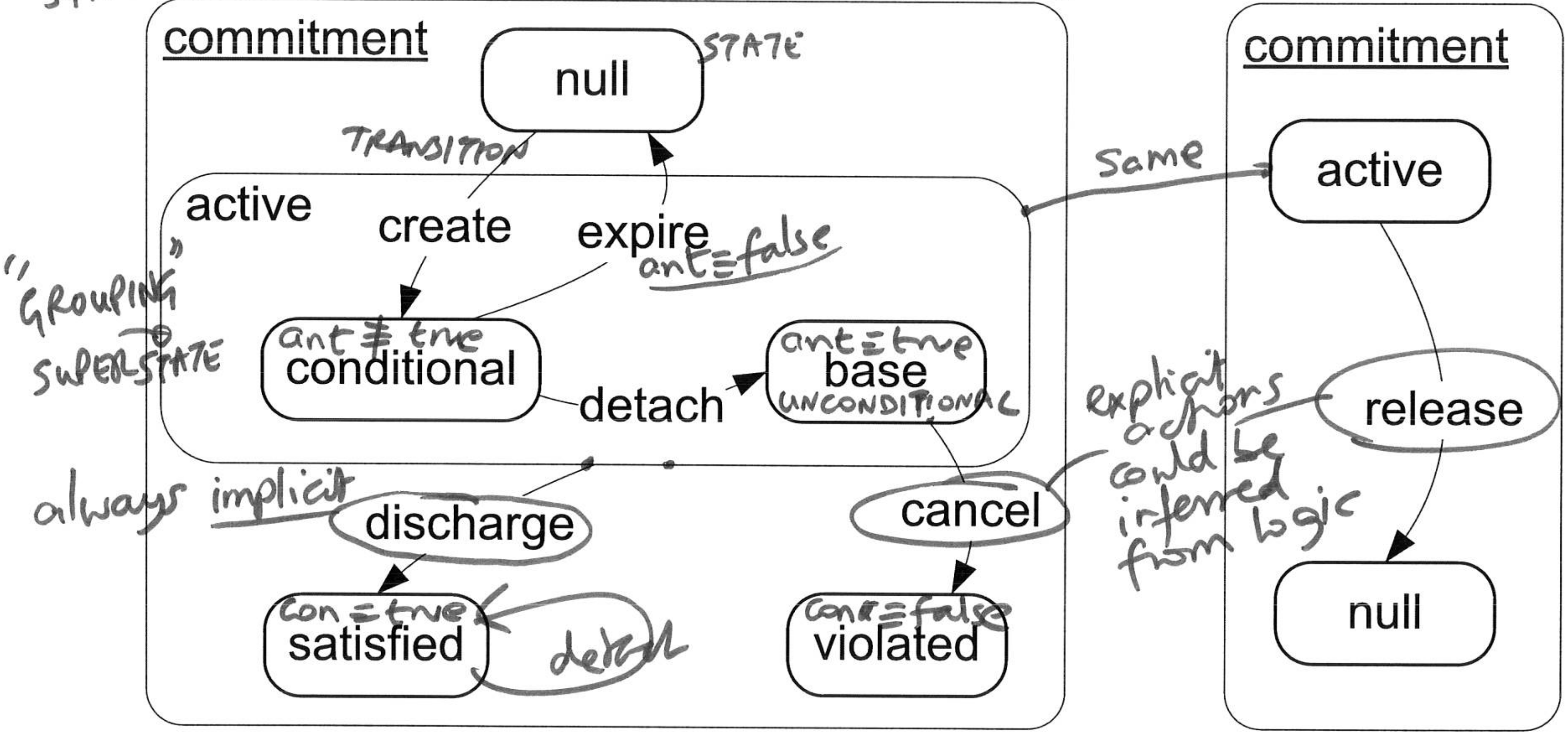
# Commitment Life Cycle (and Patterns)

IF THEN

C(debtor, creditor, antecedent, consequent)

STATE CHART
STATE DIAGRAM (UML)

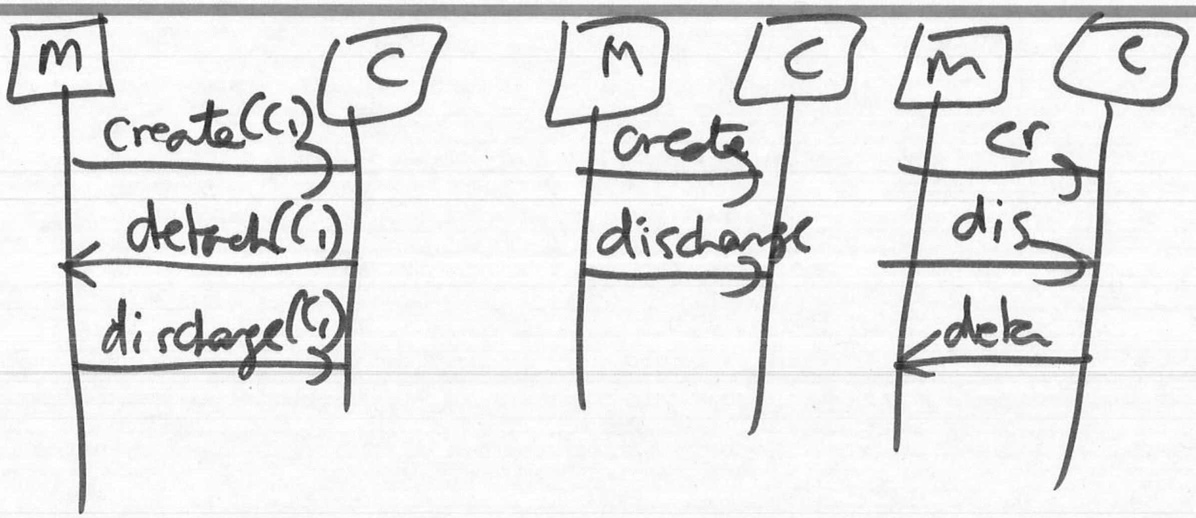
LOGICAL STRUCTURE



(a) Commit

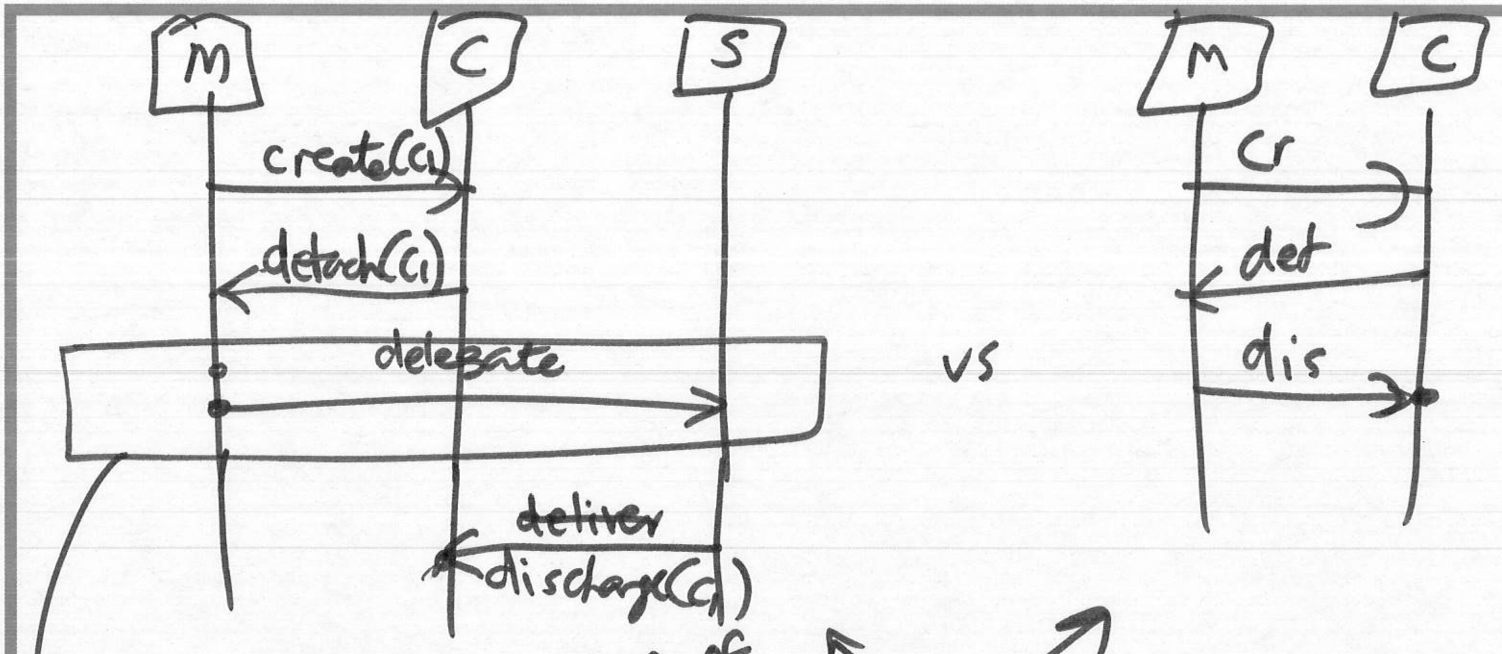
(b) Relieve

Transition = event[condition]/action


M
C
create(C1)
detach(C1)
discharge(C1)
M
C
create
discharge
M
C
cr
dis
deta

# Commitment Operations

- *create*($C(x, y, p, q)$) establishes the commitment
- *detach*($C(x, y, p, q)$) turns it into a base commitment
- *discharge*($C(x, y, p, q)$) satisfies the commitment
- *cancel*($C(x, y, p, q)$) cancels the commitment
- *release*($C(x, y, p, q)$) releases the debtor from the commitment
- *delegate*($z$, $C(x, y, p, q)$) replaces $x$ by $z$ as the debtor
  - $x$ remains ultimately responsible (in our work)
- *assign*($w$, $C(x, y, p, q)$) replaces $y$ by $w$ as the creditor



FLEXIBILITY – IN ORDER OF EVENTS
– IN PARTICIPANTS

SIMPLEST REALIZATION

BOTH ARE CORRECT BECAUSE THEY END WITH NO COMMITMENTS ARE VIOLATED
( SATISFIED OR EXPIRED NULL )