

Abstract

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UNIK-AGENT

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- UNIK-AGENT -

, UNIK-AGENT

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7

1.

(Electronic Market)

2.

2.1.

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(Kalakota and Whinston, 1995)

(Computer mediated trade system)

TELCOT

(Lindsey, et.al., 1990), 가

HAM (Neo, 1992),

AUCNET 가

EASE

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가 3

(Lee, 1995).

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가
UNIK-AGENT(Lee and Lee,

CLP)

Lee(1993)가
(Constraint Logic Programming:

1997;1995)

(Lee, et.al, 1995).

, UNIK-OBJECT ()
(KAIST, 1994)

ACL

ACL

가

(1995)
가 (, , ,)
(Hoffma, et.al. 1995).

-2
(,)
(,)
()

2.2.

(Etxioni and Weld, 1995;
Genesereth and Ketchoel, 1994;. Nissen, 1995)

3.

(Franklin and
Graesser, 1996; Nessen, 1995)
가 .

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3.1.

(Bargain Finder) (Bargain Finder,
1995)

1) : 가

(Comaprison Shopping)
(Hoffman and Novak, 1995).

2) 가 : 가

(Demand Agent) (Decision
Agent)

3) : 가

(Personal Agent, 1996).

4) : 가 가 가

가 가 가 가
가 가
(Kim, 1994; Park, 1990).

2.3.

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(Agent
Communication Language: ACL) . ACL
(Outer Language)

가 가

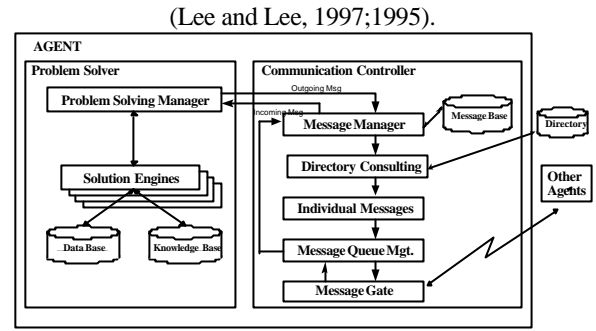
(Inner Language) (Genesereth
and Ketchpel, 1994),

가

(Knowledge Query and
Manipulation Language: KQML) (Finin, et.al. 1993)

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가가
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가 (Kim, 1994).
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가
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가
가
가
가
가 (Lee, et.al. 1995).



-1 UNIK-AGENT

3.2.

4.2.

< -1>
(Backus-Naur Form : BNF)

4.3.

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(Cash)

and Kim, 1996).

4. UNIK-AGENT

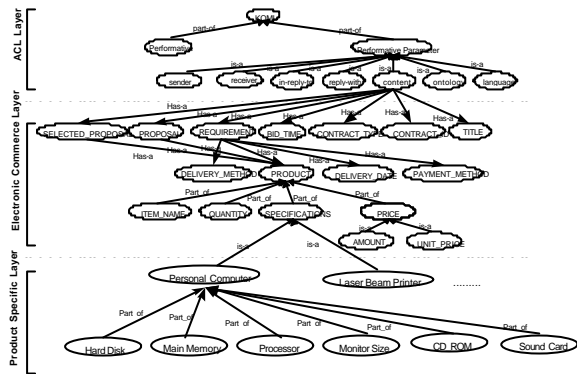
(Agent Based Commerce Development Environment: ABCDE)

4.1. UNIK-AGENT

UNIK-AGENT
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가 , UNIK-AGENT
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5.

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가
가
(Lee
and Kim, 1996).
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가
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:
가
:
TCP/IP



(Performative)

KQML

KQML

가

TITLE

, CONTRACT_ID

TITLE CONTRACT_ID

-2

REQUIREMENT, PROPOSAL, and
SELECTED_PROPOSAL

PRODUCT,
DELIVERY_METHOD,
DELIVERY_DATE,
PAYMENT_METHOD
REQUIREMENT

PROPOSAL

SELECTED_PROPOSAL

6.

7

6.1.

가

(1)

(2) ()

. Exact Matching

```

{{Contract_Type_960924
  is-a: Contract_960924
    number_of_bid_round: 1
    competitor_price_referable: not_referable
    announced_estimated_price_limit: enforced
    number_of_proposals_for_each_bidder: 1
    bid_price_change: not_allowed
    bid_price_open_time: at_predetermined_time
    buyer_bidder_prenomination:
      prenominated_by_customer
    human_involvement: enforced
    bidding_price_type: total_amount
    buyer_rule_for_selection_of_successful_bidder:
      min_price
    buyer_nego_between_price_&_spec:
not_allowed}}

```

(3)

```

{{ProductSpecifications_960924
  is-a: Contract_960924
  Main_Memory: (>= 840MB)
  Hard_Disk: (>= 16MB)
  Processor: (>= Pentium90)
}}

```

6.2. RFP

(Request for Proposal: RFP)

(evaluate) 가

-2.1>

6.3.

RFP
RFP

Contract Process Initiation Rule
 IF ReceivedMessage.TITLE IS RFP
 THEN (INITIALIZE ContractProcess)

6.4.

6.4.1.

가

Exact Matching Rule

IF buyer_nego_between_price_&_spec IS Not_Allowed
 THEN Product_Selection.Solving_Method IS
 Exact_Matching

Case Based Reasoning Rule

IF buyer_nego_between_price_&_spec IS Allowed
 THEN Product_Selection.Solving_Method IS
 Case_Based_Reasoning

6.4.2.

가

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(Constratints and Rules Satisfaction

Problem)

(Lee and Kwon, 1995).

(Amount (= 2000))
 (Specifications

IS-A: Cotract_960924
 Main_Memory: (= 64MB)
 Hard_Disk: (= 1GB)
 Processor: (= PENTIUM100)
 Monitor_Size: (= 20INCH)
 CD_ROM: (= 8X)
 Sound_Card : (= 32K))

6.5.

< -2.2>

TCP/IP

가

6.6.

6.6.1.

‘reply’

가

‘in-reply-to’

가

6.6.2.

Valid Proposals Rule

IF Received_Message.Title IS Proposal
 AND Received_Message.Contract_id IS_IN Contracts
 AND Received_Message.Time
 >= Bid.Begin_Time
 AND Received_Message.Time
 <= Bid.End_Time
 AND Received_Message.Sender IS_IN Contract.Bidders
 THEN CALL (ADD Received_Message.Candidates)

가 -3

6.7.

-3
 R5가 가

840MB

R3가

R1 Proposal (SPECIFICATIONS (MAIN MEMORY (=64MB) HARD_DISK (=1GB) PROCESSOR (=PENTIUM100) MONITOR_SIZE (=20inch) CD_ROM (=8X) SOUND_CARD (=32K) 2250) (AMOUNT)	R2 Proposal (SPECIFICATIONS (MAIN MEMORY (=64MB) HARD_DISK (=840MB) PROCESSOR (=PENTIUM80) MONITOR_SIZE (=20inch) CD_ROM (=8X) SOUND_CARD (=32K) 2125) (AMOUNT)
R3 Proposal (SPECIFICATIONS (MAIN MEMORY (=32MB) HARD_DISK (=1GB) PROCESSOR (=PENTIUM100) MONITOR_SIZE (=17inch) CD_ROM (=8X) SOUND_CARD (=32K) 2000) (AMOUNT)	R4 Proposal (SPECIFICATIONS (MAIN MEMORY (=64MB) HARD_DISK (=1GB) PROCESSOR (=PENTIUM120) MONITOR_SIZE (=20inch) CD_ROM (=8X) SOUND_CARD (=32K) 2375) (AMOUNT)
R5 Proposal (SPECIFICATIONS (MAIN MEMORY (=32MB) HARD_DISK (=200MB) PROCESSOR (=PENTIUM100) MONITOR_SIZE (=17inch) CD_ROM (=4X) SOUND_CARD (=16K) 1875) (AMOUNT)	

-3

6.8. Stop or Next Round

가 가

In case of a Single Alternative

IF (NUMBER Selected_Alternative) = 1
 AND Contract_Type.Number_of_Bid_Rounds
 = <CurrentRound>
 AND Contract_Type.Human_Involvement IS
 Not_Forced

THEN Selected_Alternative IS Final_Alternative
 BID IS Success

IF (NUMBER Selected_Alternative) = 1
 AND Contract_Type.Number_of_Bid_Rounds >
 <Current Round>
 AND Contract_Type.Human_Involvement IS
 Not_Forced
 THEN BID IS Next_Round

IF (NUMBER Selected_Alternative) = 1
 AND Contract_Type.Human_Involvement IS Forced
 THEN (HUMAN_SELECTION Selected_Alternatives)

IF Human_Selection.Result IS Satisfied
 THEN Selected_Alternatives IS Final_Alternative
 BID IS Success

IF Human_Selection.Result IS Unsatisfied
 AND Contract_Type.Number_of_Bid_Rounds = <Current
 Round>
 THEN BID IS Failed

IF Human_Selection.Result IS Unsatisfied
 AND Contract_Type.Number_of_Bid_Rounds > <Current
 Round>
 THEN BID IS Next_Round

In Case of Nondominated Alternatives

IF (NUMBER Selected_Alternative) > 1
 THEN (HUMAN_SELECTION Selected_Alternatives)

In Case of No Alternative

IF (NUMBER Selected_Alternative) = 0
 AND Contract_Type.Number_of_Bid_Rounds = <Current
 Round>
 THEN BID IS Failed

IF (NUMBER Selected_Alternative) = 0
 AND Contract_Type.Number_of_Bid_Rounds > <Current
 Round>
 THEN BID IS Next_Round

‘human involvement’ 가
 ‘enforced’ 가 1
 R3가 R3

< 2.3>

7. Conclusions

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UNIK-AGENT
Visual C++ 4.0,
UNIK-OBJECT, and UNIK-FWD
Window95

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```
<contract_type> := <buyer_centered_contract> | <seller_centered_contract>

<buyer_centered_contract>:=<number_of_bidding_rounds><competitor_price_referable>
  <announcer_estimated_price_limit><number_of_proposals_for_each_bidder><bid_price_changable><bid_price_open_time><buyer_bidder_prenomination><human_involvement><bidding_price_type><buyer_rule_for_selection_of_successful_bidder><buyer_negotiation_between_price_&_spec>

<seller_centered_contract>:=<auction_type><number_of_bidding_rounds><competitor_price_referable><announcer_estimated_price_limit>
  <number_of_proposals_for_each_bidder><bid_price_change><bid_price_open_time><seller_bidder_prenomination><bidding_price_type><seller_rule_for_selection_of_successful_bidder><buyer_negotiation_between_price_&_spec>

<auction_type> := English_auction | Dutch_auction

<number_of_bidding_rounds> := <a certain number> | unlimited.

<competitor_price_referable> := referable | not_referable

<announcer_estimated_price_limit> := enforced | just_referred

<number_of_proposals_for_each_bidder> := <a certain number> | unlimited

<bid_price_change> := not_allowed | allowed_once | allowed_certain_times | allowed_unlimited

<bid_price_open_time> := at_a_predetermined_time | upon_received

<buyer_bidder_prenomination> := unlimited | prenominated_by_buyer | prenominated_by_criteria | prenominated_by_registration

<seller_bidder_prenomination> := unlimited | prenominated_by_seller | prenominated_by_criteria | prenominated_by_registration

<human_involvement> := enforced | not_enforced

<bidding_price_type> := total_amount | unit_price

<buyer_rule_for_selection_of_successful_bidder>:= min_price | min_price_below_estimated_price
  | max_price_below_estimated_price | <proprietary_rule>

<buyer_negotiation_between_price_&_spec> := not_allowed | allowed_once | allowed_certain_number | allowed_unlimited

<seller_rule_for_selection_of_successful_bidder> := max_price | <proprietary_rule>

<seller_negotiation_between_price_&_spec> := not_allowed | allowed_once | allowed_certain_number | allowed_unlimited
```

