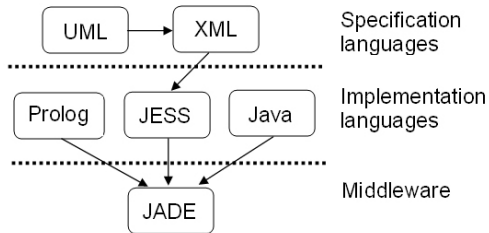


MIUR PRIN 2005 “Specification and verification of agent interaction protocols”: attività svolte

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17 gennaio 2008



`http://www.disi.unige.it/person/MascardiV/Software/DCaseLP.html`

Agent Interaction Protocol in AUML

Winikoff's textual notation

```

start id jobSearch
jobSearch.start()
jobManagerClass
agentReader p jobSearcher jobSearcherClass
message r p request
message p r inform
box loop
  message p r cfp
  box alternative
    message r p not-understood
    next
    message r p accept-proposal
    next
    message r p reject-proposal
  end
end

```

Prolog

```
main_fragment(  
    switch(!no_guard,  
        seq[receive,msg("INFORM",  
            'available',fruit,F.price,EuroForkKg))]},  
        receive,msg("PROPOSE",  
            'buy',fruit,F.price,EuroForkKg))]},  
    switch(!case(no_guard,  
        seq[send,msg("REQUEST",  
            'delivery_modes')],
```

Our XML-based notation

```
<?xml version="1.0" encoding="UTF-8"?>
<root xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xmlns="http://www.w3.org/2001/XMLSchema"
      xsi:schemaLocation="http://www.w3.org/2001/XMLSchema
                        http://www.w3.org/2001/XMLSchema.xsd">
  <job-search language="first-order-logic">
    <parameters>
      <protocol-name>sd.jobSearch/protocol-name</protocol-name>
      <agent-reader short-name="*">
        js.jobSearch.jobSearchClass/agent-reader</agent-reader>
      <main-interaction-fragment>
        <message>
          <sender>reader</sender>

```

WS-BPEL + WSDL documents

```

definitions:
  http://schemas.xmlsoap.org/ws/2004/03/business-process/
  <?xml version="1.0" encoding="UTF-8"?>
  <element
    fixed="agree-to-propose" />
  <?xml element name="agree" type="xs:string" fixed="agree"/>
  <?xml element name="tr" type="xs:string" fixed="tr"/>
  <process xmlns="http://schemas.xmlsoap.org/ws/2004/03/business-process"/>
  <partnerLinks>
    <partnerLink name="publisherPL" partnerLinkType="jobManagerJobSearcherLink1"
      myRole="jobManager" partnerRole="jobSearcher"/>
    <partnerLink name="readerPL" partnerLinkType="jobManagerJobSearcherJobManagerLink1"
      myRole="jobSearcher" partnerRole="jobManager"/>
  </partnerLinks>
  <variable name="continue_1" element="tns:continue_1" type="

```

AIP representation (in any supported language apart from Winikoff's notation)

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" type="text/plain">
<definitions xmlns="http://schemas.xmlsoap.org/soap/...">
  <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" type="xs:string">
    <xs:element base="xs:string" type="xs:string" fixed="discount"/>
  </xs:schema>
</definitions>
```



Reasoning stage



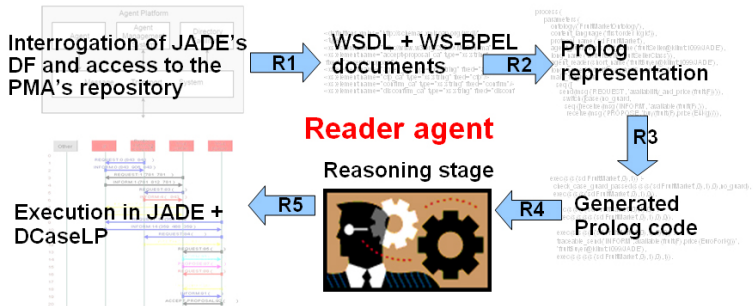
Generated code

```
exec(p(scd FrutMarket, D, 1)) >
  check_case_guard_passed(p(scd
    FrutMarket, D, 1), no_guard)
  exec(p(scd FrutMarket, D, 1), D))

exec(p(scd FrutMarket, D, 1), D) >
  exec(p(scd FrutMarket, D, 1), D, D))

exec(p(scd FrutMarket, D, 1), D, D) >
  traceable_send("INFORM", available(fruit(F), price(Euro
    Fortq))
    YourBayer@kline 1000(JADP))
  exec(p(scd FrutMarket, D, 1), D, 1))
```





`http://www.disi.unige.it/person/MascardiV/Software/
WEST2EAST.html`

- G. Casella, V. Mascardi, “West2East: exploiting WEb Service Technologies to Engineer Agent-based SofTware”, Int. J. Agent-Oriented Software Engineering, Vol. 1, Nos. 3/4, pages 396-434, 2007.
- G. Casella, V. Mascardi, “AUML e WS-BPEL: Ingegnerizzare e Pubblicare su Web Protocolli di Interazione tra Agenti”, Rivista della AI*IA, accettato nel 2006.

- V. Mascardi, M. Martelli, I. Gungui, “DCaseLP: a Prototyping Environment for Multi-Language Agent Systems”, To appear in LADS'2007 post-proceedings, M. Dastani, A. El-Fallah Seghrouchni, J. Leite, P. Torroni eds., LNCS series, 2008.
- V. Mascardi, G. Casella, “Intelligent Agents that Reason about Web Services: a Logic Programming Approach”, Proceedings of the ICLP'06 Workshop Workshop on Applications of Logic Programming in the Semantic Web and Semantic Web Services (ALPSWS2006), A. Polleres, S. Decker, G. Gupta, J. de Bruijn eds., CEUR series, 2006.



Comitato Scientifico Organizzatore: Matteo Baldoni (U. Torino), Antonio Boccalatte (U. Genova), Flavio De Paoli (U. Milano - Bicocca), Maurizio Martelli (U. Genova), Viviana Mascardi (U. Genova)

- Circa 50 partecipanti (tra miniscuola e workshop)

Miniscuola: 3 presentazioni

- ① Andrea Omicini: Agents and Artifacts, A Meta-Model for Agent-Oriented Computing
- ② Lorenzo Bettini: Building Distributed and Mobile Applications with IMC
- ③ Paola Turci: Using Agents for Enterprise Application Integration

Altre attività svolte: WOA 2007



Workshop: 16 presentazioni di articoli + 6 presentazioni di prototipi, suddivise su 7 sessioni

- 1 Modelli logici per sistemi ad agenti
- 2 Illustrazione dei prototipi
- 3 Tecnologie ed approcci per il recupero di risorse guidato dalla semantica
- 4 Applicazioni di agenti e MAS
- 5 Agenti situati nell'ambiente
- 6 Ruoli e fiducia tra agenti
- 7 Agenti ed approcci orientati ai servizi

- Una relazione invitata: Giovanni Rimassa, Birgit Burmeister, “Achieving Business Process Agility in Engineering Change Management with Agent Technology”
- Una tavola rotonda con esponenti dell’industria e dell’università

Altre attività svolte: WOA 2007



WOA 2007... e ci si è anche divertiti...



WOA 2007... e ci si è anche divertiti...



Ho finito!



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