Sources of Scientific Literature for Multiagent Systems

Multiagent Systems LS
Sistemi Multiagente LS

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Scientific Literature: The Process

Scientific literature is the result of a complex process

- ▶ Involving thousands of skilled people world-wide
- ▶ Growing constantly in size and width in the last decades
- ▶ Where individual, social, organisational, economical, political issues are often as important as scientific ones
- ▶ Articulated essentially around four stages
  - ▶ production
  - ▶ publication
  - ▶ dissemination
  - ▶ access
- ▶ In general, only when all four stages are well-developed, a scientific result becomes shared and successful

Scientific Literature: The Actors

Scientific literature is the result of the activity of many actors

- Many actors are involved in the process
  - researchers
  - universities & research centres
  - funding bodies
  - publishers
- They participate in the process with different aims and roles
- Abstracting away from *motivations* of actors in the research process could make understanding the process and its results difficult, and participating to it actively even more problematic

Scientific Literature: The Producers

Scientific literature is essentially produced by researchers

- Researchers
  - working in the academia, industry, research institutions
  - working either individually or in team, in isolation or in research labs
  - are mainly involved in the production stage

Production of scientific results means nothing alone

- (Expert) researchers are typically involved in the other three stages, too
  - promoting, participating to, and coordinating scientific meetings
  - promoting, participating to, and coordinating scientific projects
  - promoting, participating to, and coordinating publication of books and journals
  - promoting dissemination of published results
  - possibly, making access to published results as wide as possible
- A huge number of non-scientific, non-technical issues to be faced & solved

  - like, say, fund raising

Scientific Literature: The Promoters

Universities & research centres

- ▶ Some institutional actors have the promotion of scientific research among their main goals
  - ▶ universities
  - ▶ public & private research institutes
  - ▶ industrial research centres
- ▶ Promoting research is not their only aim, however
  - ▶ universities have to produce and transmit knowledge
  - ▶ research institutes have to make their own results visible, and possibly to transfer them to industry
  - ▶ industrial research centres have to produce competitive advantage as well as long-term profits

Scientific Literature: The Sponsors

Public & private funding bodies

- Investing in research
- Funding theoretical & applied research
  - either occasionally, or systematically
  - either as an exceptional measure, or as part of the mission of the funding body
- Typical examples
  - public: European Community, Italian Ministry of Research, Region Emilia Romagna, …
  - private: mostly, big industrial groups like FIAT, British Telecom, Siemens, IBM, …

Modes for funding

- Often in the form of *projects*, involving individuals & groups from either the same body or different bodies
- Sometimes in form of *grants*, typically individual

Scientific Literature: The Artifacts

Scientific literature does not exist if not in a shareable form

- An idea is not a scientific result *per se*
- A scientific result is something that
  - is presented & structured in a way that can be *understood* by non-authors
  - has a form that can be *shared* and accessed by members of the scientific comunity
  - gives readers enough information upon its results, so that they could in principle be reproduced and possibly *confuted* by any (expert, knowledgeable) reader [Popper, 2002]

Articles & Books

- The primary sharable form for scientific results are *articles* (also called *papers*), collected and published
  - in scientific journals
  - in proceedings of conferences, symposia and workshops
  - as chapter of collections in form of books
- When *stable*, results are often presented in extended form, in scientific *monographies*

Scientific Literature: The Publication Process

Scientific literature is subject to public control

- Before it is published an article is *submitted* in some form to a *review process*
  - for publication in a scientific journal, a book collection, a conference, a symposia, a workshop
- Review is conducted by experts in the field, and concludes in a final evaluation
- In case the article is considered worth of publication, it might anyway be revised according to the reviewer's indications, and finally accepted for publication
- When published, the article represents a piece of scientific literature
- In case of conferences, workshops, symposia, public presentation of the article and discussion of the content is an essential part of the *dissemination* process

Scientific Literature: The Publishers

Scientific literature is published (and disseminated) by *publishers*

- ▶ Once ready, proceedings, journal issues, collections and monographies are ready as scientific products, but not yet as typographic ones
- ▶ Often, publishers intervene on the form (language, formatting, illustrations, . . .) of the scientific material before it is published
    - ▶ with the consent of authors / editors

The role of publishers

- ▶ Publishers have a twofold goal
    - ▶ primarily, earn *money*—at least do not loose money
    - ▶ secondarily, earn *reputation* through high quality publications
- ▶ Publishers dictate the pace for publication of volumes / issues, the total number of pages
    - ▶ they also may provide suggestions on the general goals of a published volume / journal
- ▶ Publishers handle organisational issues, and introduce / govern *social* & *economical* factors in the scientific process
- ▶ Publishers are also in charge of *dissemination*
- ▶ Publishers rule *access* to scientific literature

Scientific Literature: The Dissemination Process

Dissemination of scientific literature is a multi-faceted process

- ▶ Publication is just a premise
- ▶ Presentation at scientific meetings adds momentum
  - ▶ interpersonal communication is an essential even though non-technical key-point
- ▶ Promotion of demos at scientific meetings is fine for systems
- ▶ Mailing to selected lists may be good
  - ▶ typically done by both published and authors, if not by institutions
- ▶ Physical distribution of printed copies to individuals and libraries is another essential instrument
- ▶ However, the main tool & index of dissemination is *citation*!

Scientific Literature: Citations

The role of citations

- The main tool & index of dissemination is *citation*
  - paper *A* cites paper *B* in its bibliography
- When you read a paper, you may as well go through the bibliography, and possibly follow citations for further readings
- Citations are a measure of scientific impact
  - even though citation is not necessarily a sign of approval. . .
  - . . . it is typically a good measure of the relevance of a scientific result
- Citations are typically used for *evaluation* of scientific production
- Web resources for citations
  - Impact Factor, ISI
    `http://portal.isiknowledge.com/portal.cgi?DestApp=JCR`
  - CiteSeer `http://citeseer.ist.psu.edu/`
  - GoogleScholar `http://scholar.google.com/`

Scientific Literature: Access

Access to scientific literature is nowadays mostly Web-based

- Even though traditional means are still widespread—like
  - participation to scientific events, and
  - access to printed materials in libraries and personal collections
- *on-line access* is gaining more and more ground, and is already the most important means of access to scientific literature
- Internet & Web technologies have obviously a key role
  - since they allow an unprecedented flow of *dissemination* of and *access* to (either published or unpublished) technical results
- Most international publishers have on-line publication sites
- Most of the relevant material is accessible on-line

Scientific Literature: Our Efforts

aliCE Producing & publishing scientific literature is not enough

- In the long run, disseminating results and providing easy & organised access to them is at least as relevant
- The ongoing efforts in the **aliCE** portal at `http://alice.unibo.it/` are exactly aimed at that
- Other specialised portals are under development, concerning **aliCE** products, projects and publications as well
  - however, they are non-funded activities, based on volunteer's efforts
  - so, the process is slow and painful

Digital Libraries from Main International Publishers

Springer	http://www.springerlink.com/
ScienceDirect	http://www.sciencedirect.com/
Taylor & Francis	http://journalsonline.tandf.co.uk/
IOS Press	http://www.iospress.nl/
World Scientific	http://www.worldscinet.com/
Cambridge U.P.	http://journals.cambridge.org/
InderScience	http://www.inderscience.com/

Digital Libraries from Main International Associations

ACM DL `http://portal.acm.org/dl.cfm`

ACM Digital Library of the Association for Computing Machinery, `http://www.acm.org/`

IEEE DL urlhttp://www.computer.org/portal/site/csdl/

IEEE CS Digital Library of the IEEE Computer Society, `http://www.computer.org/`

MAS Journals

J.AAMAS Journal of Autonomous Agents and Multi-Agent Systems

`http://www.springerlink.com/content/1573-7454/`

TAAS ACM Transactions on Autonomous and Adaptive Systems

`http://www.acm.org/pubs/taas`

IJAOSE International Journal of Agent-Oriented Software Engineering

`http:`
`//www.inderscience.com/browse/index.php?journalID=174`

WIAS Web Intelligence and Agent Systems

`http://www.iospress.nl/loadtop/load.php?isbn=15701263`

MGS Multiagent and Grid Systems

`http://www.iospress.nl/loadtop/load.php?isbn=15741702`

MAS-related Journals

AAI Applied Artificial Intelligence
`http://journalsonline.tandf.co.uk/openurl.asp?genre=`
`journal&issn=0883-9514`

KER Knowledge Engineering Review
`http:`
`//journals.cambridge.org/action/displayJournal?jid=KER`

MAS Series

LNCS Springer's Lecture Notes in Computer Science publishes most of the up-to-date MAS literature, based on a huge number of MAS-related conferences and workshops
`http://www.springerlink.com/content/105633/`

    LNAI Its sub-series Lecture Notes in Artificial Intelligence collects most of the MAS-related LNCS volumes

ENTCS Elsevier's Electronic Notes in Theoretical Computer Science, even though not MAS-centred, publishes also some proceedings of MAS-related conferences and workshops
`http://www.sciencedirect.com/science/journal/15710661/`

MAS Conferences & Workshops

AAMAS Joint Conference on Autonomous Agents and Multi-Agent Systems

- ▶ since AAMAS 2002, Bologna, Italy
- ▶ joining previous Conference on Autonomous Agents (Agents), International Conference on Multi-Agent Systems (ICMAS), Workshop on Agent Theories, Architectures, and Languages (ATAL)

along with its many workshops

- ▶ DALT, E4MAS, PROMAS, AOSE, ESOA, . . .
- ▶ most of them with post-proceedings published as LNCS / LNAI

IAT International Conferences on Intelligent Agent Technologies

EUMAS European Workshop on Multi-Agent Systems

ESAW Workshop "Engineering Societies in the Agents World"

SELMAS Workshop "Software Engineering for Large-scale Multi-Agent Systems"

CIA Workshop "Cooperative Information Agents"

AT2AI Workshop "From Agent Theory to Agent Implementation"

COIN Workshop Series "Coordination, Organisation, Institutions and Norms"

WOA Italian Workshop "From Objects to Agents"

MAAMAW Workshop "Modelling Autonomous Agents in a Multi-Agent World" *(past)*

MAS-related Conferences & Workshops

IJCAI	International Joint Conference on Artificial Intelligence
ECAI	European Conference on Artificial Intelligence
SAC	ACM Symposium on Applied Computing
AI*IA	Italian Conference on Artificial Intelligence (past)

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