

First International Congress on Tools for Teaching Logic. ARACNE

María Manzano
aracne@xarxa.udl.es
mara@gugu.usal.es
University of Salamanca
Spain
<http://aracne.usal.es>

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Abstract

ARACNE is a network of ALFA (América Latina Formación Académica) addressing innovations and the systematization of educational activity. The program is ...nanced by the European Commission; the coordinating institution is the University of Salamanca and its headquarters is at the Department of Logic of that University. ARACNE was created in 1998 to carry out the TOOLS FOR TEACHING project. Its theme is LOGIC.

1 Institutions belonging to the Network:

1. Universidad Federal de Pernambuco, Brazil; local coordinator: Ruy Guerra de Queiroz
2. Universidad de la República de Uruguay, Uruguay; local coordinator: Ana Patricia Rona Grucci
3. Universidad de Buenos Aires, Argentina; local coordinator: Gladys Palau
4. Universidad de Lima, Perú; local coordinator: Gloria Lau
5. Universidad Nacional Autónoma de México, México; local coordinator: Santiago Negrete Yankelevich
6. Imperial College, United Kingdom; local coordinator: Ian Martin Hodgkinson
7. Università di Udine, Italy; local coordinator: Alberto Policriti

8. University of Amsterdam, Holland; local coordinator: Dick de Jongh
9. Universidad de Salamanca, Spain; general coordinator: María Manzano Arjona

At each of the nine sites there are people working in the project, a whole list of members can be obtained from our project's web page.

2 Aims of the project

TOOLS FOR TEACHING is a project designed to develop a series of useful tools for the interdisciplinary training required by our society. LOGIC is the interdisciplinary subject par excellence since it is at the core of an emerging science; the transmission of information. So, focusing on creating educational material for the teaching of logic is exemplary because it combines disciplines in which the symbolic aspects of information processing are paramount. The first goal of the project is to share our experience as teachers among ARACNE members. The project lasted two years during what we have worked on:

- 2 The preparation of a METABOOK (with a hypertext version)
- 2 The design of an ON-LINE dictionary of logic terms
- 2 Investigation of SOFTWARE for the teaching of logic
- 2 The translation of both elementary texts and interdisciplinary texts and of software
- 2 To help potential authors to write LECTURE NOTES
- 2 The DISSEMINATION of our project both within our academic community and outside it (high school), thus bolstering a good image of Logic.
- 2 The organization of the FIRST INTERNATIONAL CONGRESS ON TOOLS FOR TEACHING LOGIC

2.1 METABOOK

A METABOOK is a guide for the preparation of a basic level university course with a hypertext version which includes exercises and examinations. It can be used by both teachers and the students to make a book for a course in introductory logic. The METABOOK is bilingual (English and Spanish), it is a living text (being modified by it undergoes), it has a tree structure and its units are blocks; it is a first step to more interdisciplinary programs. (It is described in detail in Alberto Policriti's contribution to this volume.)

The initial blocks in propositional and first order logic are already on our web and can be used at will. We plan to enlarge and improve it by the years.

2.2 ON-LINE DICTIONARY

We have compiled an ON-LINE dictionary of logic terms with translations into the languages included in the project (English, Italian, Spanish, Catalan, Dutch and Portuguese)

Support. The dictionary have been implemented on the web for ready reference. It contains the terms but not the definitions. (It is described in detail in Ramón Bejar's contribution to this volume)

2.3 LOGIC SOFTWARE

As things stands, it would be desirable not to start from scratch but rather to use already existing software as a spring-board. We have translated and further developed some of the programs already available, as **PANDORA** (made at Imperial College, under the supervision of Krysia Broda). **Tarski's world** by Jon Barwise and Jonh Etchemendy have been translated by Horacio Faas in Argentina.

In Salamanca our students have implemented some didactical and entertaining tools for the teaching of logic and related disciplines; when the student takes an active part in the developing of such tools the benefits for the student is considerable. Here are some results: **Calculus Ratiocinator** (Jorge Hernández), **Traductor de Lógicas**. (Iván Marcos, María Iglesias, José Escuadra), **Tutor de Lógica** (José Carlos Blanco), **Los Enigmas de Ulises** (Aitor Mata), **Ton's Word** (Tomás Rodríguez), **An Application for Translation of Spanish Sentences into First Order Logic Implemented in Prolog** (Emilio Rodríguez) and **Herramientas de Aprendizaje** (Rubén Simón).

At present there are some students preparing their compulsory project needed to earn a degree in the following fields: Diagrammatic Reasoning, Cryptography, Games, Tools for Teaching, Formal Languages and Virtual Courses.

2.4 REFERENCES & TRANSLATIONS

In **TOOLS FOR TEACHING**, we are compiling: (1) a list of the basic references on logic of the network languages other than English, (2) a list of basic and/or interdisciplinary texts thought to be worth translating.

Dutch colleagues are developing a local project with similar goals, under the **Logic in Action** initiatives and are offering results for translation.

Ruy de Queiroz have already translated several books and we have produced the **METABOOK** in bilingual form.

2.5 LECTURE NOTES

At intermediate level -for University degrees- there is a considerable void in logic texts. **TOOLS FOR TEACHING** will encourage its members to write up this type of text or publish already drafted ones on Logic, Language and Information. The Argentinian group as well as some other members of **ARACNE** propose different tentative titles. We are supporting such potential authors.

2.6 DISSEMINATION

Among the initiatives we have implemented are: (1) Announcements, (2) Organization of the presentation of the results obtained, chats, discussions and debates at meetings, summer schools and usual events of our ...eld. (3) during the academic year 2000-2001 we are presenting a course for High School teachers; De Pura Lógica (Universidad de Educación a Distancia: UNED). Being an ALFA project means that the necessary links between Europe and Latin America are granted.

3 What will the future bring?

Summa Logicae In The XXI Century

"Summa Logicae" is the title that William of Ockham gave to his work, written during the ...rst half of the XIV century. We think it is interesting to use the same name for our project, which consists in: (1) expanding the initiatives taken already in our previous TOOLS FOR TEACHING project, (2) selecting texts about logic to be published in a CD ROM, (3) research on new logics with clear educational content, like visual reasoning, (4) the development of new computer science applications for teaching logic and (5) the use of new digital technologies for the presentation and dissemination of the project's results beyond the university environment, embracing also non national territories. A group of logicians in Spain are about to engage in this project and forward a proposal to obtain international partners.

We are assuming that Rationality implies Logic and by logic we will understand the study of reasoning in a broader sense, so as to shorten the distance between antecedent and consequence in the previous sentence; i.e. including most rational human activities language-based and rules-guided. This has been the trend in the XX century and presumably it will carry on in the XXI century under the guidelines ushered by our FoLLI association. We do not want a big gap between teaching and research and thus will accommodate teaching to this mind opened sense of logic.

We know that this project is ambitious, but we also know that we already count with resources to develop it, as well as with some results and enthusiasm to carry it out.

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