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New Software Structures for the ENRAC News Journal and Newsletter

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The ENRAC system of Newsletters and News Journals depends crucially on software support for generating its multiple presentations of the submitted information. The following is a summary of the new software facilities that were put in operation in January.

Formulas in HTML

One change concerns the representation of formulas in the on-line text and, in particular, in HTML. This is important for a wider use of an interactive, on-line communication service in a scientific domain such as ours. There seems to be two problems: graphics and ease of reading. The graphics problem is that present versions of HTML do not provide good support for mathematical characters or for the precise layout that is needed in order to make formulas look good. While waiting for implementations of the recently announced HTML4.0 standard (which will at least provide the character sets), we have implemented an ad hoc solution within current HTML that is somewhat reasonable.

As for ease of reading, it is generally recognized that it is more tiring to read the same mathematical text on a screen than on paper. However, we have now made an interesting observation: the use of color in the on-line medium may compensate for the disadvantages that it otherwise has. Basically, the trick is to use several colors that are distinct but not *too* distinct, such as black and two nuances of blue, in order to make the text easier to read. The main text is in black, formulas in blue, and what would be different fonts on paper is instead different kinds of blue on the screen. This serves a dual purpose: it adds liveliness to the textual surface, and it also helps to remedy the character-set problem. Additional colors and hues are used in the context of citations.

We have developed some simple software that is able to generate both latex and this kind of formula HTML from a single underlying representation, and the body of Newsletter contributions during the past few months are being converted to this representation. This job has been finished for the review discussions about received articles; please take a look at them. The conversion of the article summaries will follow, and then the panel-debate contributions during 1997. Forthcoming contributions will be put into this format as they arrive.

On-line citations

A second change concerns the representation of citations and other cross-links between discussion contributions, and from discussion contributions to previously published articles. An earlier implementation of an on-line "footnote" system (where footnote contents are shown in a small pane of the browser display, using HTML frames) has now been connected to the ACRES bibliographic database. The bottom line is that the author of a contribution can now indicate citations using a global coding scheme, such as `c-ecai-94-401` for the paper beginning on page 401 of the ECAI 1994 proceedings, and the rest will happen automatically: The article code appears clickable in the on-line text, clicking it will cause the bibliographic entry to appear in the footnote windowpane, and from there one can again click to see the author's homepage or the full text of the paper, to the extent that these are known to the database.

There is of course also a facility for defining footnotes that are local to a contribution, for example for articles that appeared outside the A I literature and which are therefore not listed in ACRES. The noframe version of the system presents citations at the end of the contribution, since on-line footnotes are not available.

These facilities have also so far been realized for the article review discussions, and will follow for the other materials.

Authors of contributions during 1997 are kindly asked to check that nothing has been disrupted in their contributions as a result of this editing process. At the same time, please check also the wording in the copyright statement which has been slightly modified in order to specify this possibility of posterior editing. (The copyright of all contributions stay with the author).

Cross-linking frame mechanism

The discussions during the past months contained several examples of where an author referred to earlier discussion, not only for a direct answer or retort to what was said before, but also for a more general reference. This suggests the need for hot (clickable) links within and between the discussions. Such hot links may be particularly useful in HTML frame-based contexts, but some technical problems had to be solved first. In particular, it must be possible to change the contents of several windowpanes at a single click, but without redrawing the whole window. This in turn means that different kinds of discussions must have equal or compatible window layouts. The existing information structure has now been reorganized accordingly, and discussion crosslinks are operational.

Improved support for retrospection

The News Journal on Reasoning about Actions and Change appears at the end of each month, and contains the contributions that have arrived and have been exchanged by mail during that month. It serves several purposes:

- For the reader who has not followed the day-to-day communication in the Newsletters, it provides an aggregated way of finding out what has occurred.

- Since the postscript version of the News Journal has a journal-like appearance, it may serve as a carrier for research notes and in order to give them published status. Research articles are published by First publication archives prior to review discussion, but it would not be practical to make a separate publication out of each research note. The published News Journal issue at the end of the month provides a way of grouping several research notes into one periodical publication.

Our original idea was that the News Journal would contain essentially all the month's contributions, and that the first purpose would be served both by the HTML edition (on line readable, containing hot links) and the postscript version (convenient to read off-line on paper). However, due to the considerable volume of contributions, it may be somewhat difficult to orient oneself in the HTML version of the News Journal.

In fact, the contributions to the discussions (both article discussions and panel debates) account for the major parts of the volume. This information is anyway also entered into separate, diachronic structures where each discussion is represented as one trace from start to end. Therefore, in order to facilitate overview, there is now a minimal variant of the News Journal called the **Digest** which only lists the headings that have been active during the past month, that is, what articles have been received, what articles have been discussed, what panel discussions have been active, etc. Some simple measures of activity are also given, such as the number of contributions. In addition, of course, the Digest contains hot links into the respective discussion tracks. The hope is that for on-line use, the Digest will be a convenient point of entry.

For off-line reading, the postscript version is presumably the most convenient to use, but it also takes some time to prepare it. The HTML version of the full News Journal is available instantly, and can of course also be printed out and read off-line.

Publication vehicle for Research Notes

Besides providing easy overview, the News Journals have a second purpose namely to serve as a publication vehicle for (research) notes. To this end, the Electronic News Journal on Reasoning about Actions and Change (ENRAC) is being formally registered as a periodic publication with monthly appearance. The contributions during 1997 will appear retroactively as Volume 1; 1998 will be Volume 2. More information about this will follow when the formalities have been completed.

A note on software methodology

The method that is being used here is to develop this new information service gradually and based on feedback from the application: we "feel our way" to a design that will fit the users' needs as well as possible. In fact, it may be understood as an example of action research: new results are developed concurrently with their use in a selected application, although of course here we do it for the results, and the research is not an end in itself. Anyway, this methodology has its pros and cons, for example that all facilities are not ready at once, but then when it's ready it should be good.