

# Letter to the Editor

**Editor's note:** Letters to the editor are encouraged on all matters of opinion relevant to computational linguistics. In addition, responses to previous letters are actively encouraged. All letters are reviewed for appropriateness by the editor and a few members of the editorial board. Comments and suggestions on how to improve this section are welcome.

## On the Need for Careful Description of NL Prototypes

As a result of much computation linguistic research in the 1970's, natural language (NL) processors have begun to rival more formal means of computer access in some instances. Unfortunately, very little is known, even by applied NL researchers themselves, about the true capabilities of existing systems. This is partly due to the fact that most literature, at least in journals such as this one, has focused on technical or theoretical questions, paying less attention to practical matters. We believe the state of the art in NL system design allows authors to become more serious about matters of usability, without losing sight of the theoretical basis on which various facilities are being designed.

Many researchers have observed the usefulness of obtaining actual "hands-on" experience with an NL system in order to evaluate it or even truly understand its workings (e.g., Ballard 1981, Harris 1980, Morris 1979, Petrick 1976, Sondheimer 1978, Tennant 1979). This suggests to us that a profitable and responsible way to organize written reports of prototype NL systems is to attempt to "stimulate" a one-on-one demonstration. Of course, certain aspects of a given system will deserve separate papers but, even in those cases, it is important to understand their role in the overall processing. We now propose a standard format for descriptions of prototype or near-prototype natural language processors.

### A "Standard Form" for Written Reports

1. *Overview:* Define the problem being solved in terms of the domains, operations, language to be used, and intended group of users. Tell how the processing provided by the prototype relates to the overall class of interest.
2. *Sample Session:* Provide a transcript of a short session with the system. State the circumstances under which the session was held, and indicate how indicative it is of similar sessions that have been attempted. If necessary, give hypothetical

inputs or system responses, but clearly indicate them as such.

3. *System Overview:* Present the construction (architecture) of the processor, briefly explaining the role of the major modules. Include a figure showing which modules talk to which others, and how various files are used.
4. *Example Trace:* Trace a single input through all phases of processing. Choose the example input to be representative of the anticipated inputs and of the system capabilities. Tell what would happen if slight modifications were made in the example. Comment on potential errors that would arise for similar inputs. Explain the effect of processing the input, including system response. Describe the effect of the sample (or another suitable) input in setting up the system to process subsequent inputs.
5. *Features:* Indicate the syntactic and semantic properties of acceptable inputs. List and briefly describe the available "special features", both linguistic (e.g., conjunctions, ellipsis) and otherwise (e.g., synonym definitions, means of changing verb meanings, undoing previous actions of the system).
6. *Theory:* Present the philosophy or theories on which the system is based. If one objective of building the system is to evaluate alternate theories, state the questions to be addressed.
7. *Detailed Description:* Discuss the aspects of the prototype that are considered important or novel. Describe the techniques and formalisms developed during the research, and mention what previously known schemes have been used.  
(This is the "heart" of the paper, where the author is given the freedom to emphasize selected features while disregarding others. Technical discussions are now appropriate for components whose role in the overall processing has already been specified.)
8. *Readiness:* Relate experiences with the processor, telling which components have worked well and which haven't. Give examples of inputs informed

users would expect the system to accept that are processed incorrectly. If any formal or informal tests have been conducted, describe them and the findings. Assess as precisely as possible the "readiness" of the prototype. That is, who can use it in its current state, under what conditions, and what training or practice is needed? Include a dial-in number and login protocol so the system may be experimented with by reviewers or prospective users!

9. *Prospects*: Comment on the generality of the system design. Evaluate the extendibility of the system within the prototype domain(s), and the "portability" of the system to new domains.

### Comments

Some comments are in order. First, it may be suitable for projects for which a complete processor has been built as a means for evaluating a theory, rather than as an end in itself, to reorder the sections we suggest, e.g., to place the theory section earlier. Furthermore, since existing approaches vary widely, it may be useful for some papers to gloss over a particular topic or make it the subject of a separate report.

One obvious benefit of adopting a more-or-less standard format is that readers will less often need to "read between the lines" to tell whether a specific feature is provided if there is a convention of what material goes where. Another benefit is that by keeping a broad presentation of a system in mind when doing the research, investigators may be less likely to expend inordinate effort on less important matters. Furthermore, providing a proper format is chosen, both researchers and prospective users can derive at least some benefit from the same paper.

Concerning the likelihood of acceptance of the proposal above, we sympathize with a reviewer of a previous paper of ours who suggested that "it is naive to think that [a] standard form ... could – or would, if it could – be followed, but ... it does no harm to dream." It is to be expected that readers' attitudes toward possible standard form will differ from ours in detail, but we believe the spirit is important, and would provide a too-often missing element in the NL literature.

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### References

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