Prospectus

KL-ONE Workshop

Recently we have seen a significant surge of interest in the KL-ONE knowledge representation language, under development at BBN for several years (Brachman 78, 79). Not only have more and more people become familiar with it, several groups have taken serious enough interest in KL-ONE to begin either using the BBN implementation in their research or building smaller versions of the language on their own. Given that an important contribution to research on KL-ONE will invariably come from those who attempt to use it in a serious manner, and given the scope of the various projects now using it and the potential mutual benefit that all parties might gain through interaction with one another, we would like to hold a workshop in which we can all get together, discuss the various projects using (or potentially using) KL-ONE, and investigate some of the current topics in the language still undergoing extensive research.

We propose to hold the KL-ONE Workshop during the third week of October, somewhere in the Northeast (so that people from out of town can fly into Boston, and so travel expenses for BBN people will be minimal). A secluded but pleasant location would be best for the purposes of the gathering, although holding it at BBN is a possibility. We expect that something on the order of two and a half or three days will be the right amount of time.

We expect the agenda to include at least the following items:

1. Opening Statement: In this talk, those of us at BBN would relate to the non-BBN people a sketch of recent progress here on KL-ONE, including both abstract design and implementation.

2. Participating Group Presentations: Each group engaged in a significant piece of research involving KL-ONE - either using our INTERLISP implementation, an independent one, or working on paper - would be given the opportunity to present the major features of their work. Sufficient time should be allocated for substantial discussion, since most of the groups have been quite independent of one another, and will not be familiar with each other's work.

3. Prospective Group Presentations: Those who might be interested in making serious use of the ideas and/or implementation of KL-ONE would be invited to sketch out what kind of use they might make of it. Comments on appropriateness and potential problems will be solicited from the rest of the group.

4. Current Problems and Trends: Presentation by the BBN group of issues of most central concern here, and hints at solutions that are moderately worked out. While the intent would not be
to work out detailed solutions en masse, the experience of the various groups would be invaluable in determining future directions. In particular, benefits of the various groups playing off against each other would not be attainable in any other way. The discussion should probably focus on reasoning more than static description.

5. Open Discussions:

- What should be the central concerns of research on KL-ONE?
- What does one gain by using an epistemologically well-founded representation over an ad hoc one?
- Suggestions for alternative conceptions
- Comparisons with other current research - what is unique about KL-ONE?

Given the already substantial number of people either currently using, or seriously considering using KL-ONE, we would be forced to restrict attendance by invitation only. The primary list of invitees will include the following (in no particular order):

Ron Brachman (BBN)
Rusty Bobrow (BBN)
Bill Woods (BBN)
David Israel (BBN)
Jim Schmolze (BBN)
Frank Zdybel (BBN)
Martin Yonke (BBN)
Norton Greenfield (BBN)
Bonnie Webber (Pennsylvania/BBN)
Candy Sidner (BBN)
Phil Cohen (BBN)
Brian Smith (BBN/MIT)
Bruce Roberts (BBN)
Jeff Gibbons (Illinois/BBN)
Brad Goodman (Illinois/BBN)
Richard Fikes (Xerox PARC)
Austin Henderson (Xerox PARC)
John Seely Brown (Xerox PARC)
Ben Cohen (Stanford/Xerox PARC)
Mike Dolbec (Stanford/Xerox PARC)
Bill Mark (ISI)
David Wilczynski (ISI)
Bob Lingard (ISI)
Tom Lipkis (ISI)
Michael Freeman (Burroughs)
Henry Leitner (Harvard)
Norm Sondeheimer (Sperry Univac)
References


KL-ONE Workshop

Agenda

Wednesday, October 15, 1980

2:00 PM       Opening Remarks
2:15 PM -      Recent Developments in KL-ONE at BBN
               - Ron Brachman
               - Jim Schmolze
               - Frank Zdybel

3:30 PM -      Break
4:00 PM

4:00 PM -      Presentations by Current Users
               - Rusty Bobrow and Bonnie Webber
               - Bill Mark (with Dave Wilczynski, Bob Lingard, and Tom Lipkis)
               - Frank Zdybel (with Jeff Gibbons and Martin Yonke)

6:00 PM -      Reception (Cash Bar, Hors d'Oeuvres)
7:00 PM

7:00 PM       Dinner

[8:30 PM       World Series]

Thursday, October 16, 1980

9:00 AM -      Presentations by Current Users and Discussions of Related Issues
               - Candy Sidner, Phil Cohen, and David Israel
               - issues:
                 representation of propositions and assertions
                 contexts and nexuses
                 de re and de dicto beliefs

10:30 AM -     Break
11:00 AM

11:00 AM -     Current Users and Issues, cont'd.
               12:00
               - Mike Freeman and Henry Leitner
               - issues:
                 belief contexts
                 controlling granularity of description
                 nexus types
                 message-passing

12:00 Noon -   Free Time
6:00 PM
6:00 PM - Dinner
7:30 PM

7:30 PM - Presentations by Prospective Users
9:00 PM  
✓ Hassan Ait-Kaci and David Oppenheim
✓ James Allen and Alan Frisch
✓ Bob Bechtal
✓ Tim_tapia (ill)
✓ Bill Mann
✓ Larry Macintire
✓ Rachel Reichman
✓ Bonnie Webber & Eric Mayo
✓ Ralph Weischedel

9:00 PM - Break
9:30 PM

9:30 PM - Presentations by Prospective Users, cont'd.
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Friday, October 17, 1980

9:00 AM - Presentations by Current Users
10:30 AM - Austin Henderson
12:00 Noon - Dave McDonald
1:00 PM - Mike & Henry

11:00 AM - Working Group Discussions
12:00 Noon - Lunch
1:00 PM

11:00 AM - Working Group Discussions
a) Practical considerations group
   - KL-ONE on a VAX?
   - A KL-ONE Virtual Machine?
   - Would KL-ONE be more easily implemented in an object-oriented environment?

b) Natural language applications group
   - Quantification
   - Belief; speech acts; plans

c) Non-natural language applications
   - Physics; thermodynamics
   - Data bases; implicit monitoring; changing worlds
   - Representing programs, systems

1:00 PM - Concluding session
3:00 PM  
Reports from Working Group Discussions
Other issues not previously considered
   - KL-ONE and logic (and PROLOG)
   - Inference and matching/unification
   - "Meta"
   - User interface questions
   - Constraints
   - Analogy
   - Perspectives and multiple viewpoints

Mike's issues
SNS
FIRST (ANNUAL?) KL-ONE WORKSHOP

Christine E. J. Jan

Jackson, New Hampshire

October 15-17, 1984

KL-ONE is a knowledge representation language that has been under development at MIT for several years. Recently, it has begun to be used in both its abstract and implemented forms by a number of different research groups doing work on natural language understanding and generation, intelligent graphics, intelligent "agents" for interactive systems, plan recognition, management consulting, office procedures, and physics. With the size of the community with serious interest in KL-ONE getting to the point where its participants could begin to share insights, impressions, and results of their research (not to mention complaints and bug reports), we thought it was about time we got all of the members of this community together to meet one another. So this end, the first KL-ONE workshop was held in October.

The workshop ran from 2:30 PM on Wednesday the 15th to about 9:00 on Friday the 17th. It was conducted informally, with emphasis on interested parties getting to know each other and catch up on the latest developments at one. Interlaced with free time and lots of animated discussion, we had the following technical contributions:

- Reports from seven groups who have done substantial research development in some way on KL-ONE

- Presentation of some recent research on the representation of contingent facts (KL-ONE's previous emphasis has been strictly deterministic description-formation), propositions, deontics, and necessary but not sufficient (natural kind), descriptions;

- Presentation of some technical details of role differentiation and modification;

- And brief introductions from seven groups who are seriously considering using KL-ONE in their current research.

We also had time for several open discussions which, among other things, covered the representation of belief, the representation of "time-varying role-dependent entities", KL-ONE and PROLOG, knowledge representation in industry, and implementation issues (e.g., KL-ONE and object-oriented programming, KL-ONE on a VAX).

Our 47 participants did a great job of keeping things lively yet serious, and we look forward to further contributions to the language from this "questionable user community." We are still in the process of compiling a mailing list of the KL-ONE User Community; if you are interested, please contact me at the following address: