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the issue of the place of logic programming and nonmonotonic reasoning in the computer science and artificial intelligence communities, more direct research into connections with natural language processing was suggested, as was trying to get more LPNMR-type papers accepted at and subjects discussed at more general meetings. Two important distinctions were drawn toward the end of the discussion. The first was between static and dynamic logics, with the point being that we have looked almost exclusively at the former and that the latter is where the future of the subject may lie. The second addressed the context of the research, looking at its scientific value versus its economic and political value. Dr. Subrahmanian closed the panel with a caveat that the road from a theory to effective applications can be long and difficult, and that one should not get discouraged along the way.

The working day finished early on Wednesday to give the participants a chance to take advantage of some of the opportunities afforded by the location of the meeting. In particular, the expedition to one of the oldest surviving and longest running iron refineries in Germany was a brief (and scenic) bus ride away. The knowledgeable guides helped put the overwhelming size of some of the machinery in perspective. (There may never have been such a large collection of computer scientists wearing protective hard hats.) The expedition concluded with the conference banquet, held at a delightful outdoor restaurant with musicians serenading the participants.

The final invited lecturer was Michael Gelfond, whose talk was titled "Towards a Systematic Approach to Representing Knowledge in Declarative Logic Programming." He listed three requirements for a reasonable representation of knowledge: an expressive language with a precisely defined entailment relation; algorithms to compute or approximate these entailments; and a methodology for representing knowledge in these languages. The main thrust of the talk was how we can develop the methodology for representing knowledge by looking at the methodology of procedural programming: developing the program together with its specifications, using correctness concerns as a heuristic guide for programming, and viewing programming as a refinement of specifications. The talk then proceeded with demonstration and argument by examples, mostly dealing with programs for handling inheritance hierarchies, including how the closed world assumption is often implicit in how we deal with these nets.

Thursday's morning session was one of the most unified in subject matter – all three talks dealt with belief revision at some level. Luis Moniz Pereira began by presenting joint work with Carlos Viegas Damásio on paraconsistent semantics and the detection of the support of a contradiction in these semantics. He also discussed how to block the propagation of inconsistencies in this context. Alexander Dikovsky's talk (on joint work with Michael Dekhtyar and Nicolas Spyratos) was more explicitly about updating. The idea of their new method is to restore integrity constraints to a database with the minimum of necessary changes. Dr. Dikovsky pointed out that some existing revision programs can be quite effective on knowledge bases while not working as well on databases. Cees Witteveen discussed revision not of databases, but of nonmonotonic theories. In work with Wiebe van der Hoek, he discussed how one can systematically and syntacticly revise a nonmonotonic theory if the intended set of models for the theory is empty. This approach depends, of course, on the semantics of the nonmonotonic rule system. Dr. Witteveen concluded with a more concrete discussion of the application of these ideas to logic programs.

Simone Contiero opened the final session of LPNMR '97 with a talk on the composition of programs, joint work with Antonio Brogi and Franco Turini. In software design, one topic of recent interest has been a system for allowing extant programs to work together. Dr. Contiero discussed a framework for combining general logic programs with several meta-level operations on programs (such as union, intersection, and restriction) and presented a three-valued semantics of the resulting expressions. Helmut Veith followed with a talk on a strongly related topic, that of being able to combine separate modules of a logic program even when the modules of the program have introduced new logical connectives of their own. Dr. Veith, Thomas Eiter, and Georg Gottlob take a model theoretic approach to this problem based on the use of generalized quantifiers – one can even look at a logic program with or without negation as a generalized quantifier. Vyacheslav Petukhin then spoke on a new nonmonotonic operator, universally quantified embedded implication. In addition to defining various semantics for the extended logic obtained, he also discussed the relation of this logic to normal logic programs. Adnan H. Yahya closed the conference with a discussion of generalized queries and their uses in database maintenance. He presented a scheme in which the query induces an order on minimal models, helping to answer questions of brave and cautious reasoning in disjunctive deductive databases.