

## Matchmaker Agents for Electronic Commerce \*

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Matchmaker agents facilitate interaction between customers and vendors. In this work we view Matchmakers as constraint-based solvers. A Matchmaker of this type provides potential solutions (“suggestions”) based on partial knowledge, while gaining further information about the problem from the Customer through the latter’s evaluation of these suggestions (“corrections”). The dialog between Matchmaker and Customer results in iterative improvement in the quality of the solution presented to the Customer.

For example, a used-car Matchmaker might suggest a reliable Toyota Camry, switch to a mini-van when told the Camry was too small because the customer had 12 children, and to a 1965 VW bus when told the customer had already spent most of his money on the children.

There are a variety of metrics by which we can evaluate the success of a customer/vendor interaction. For example, the vendor may wish to minimize the time spent with customers to maximize immediate sales volume, or the vendor may wish to maximize the information obtained from customers, to facilitate an ongoing relationship. We have explored different strategies for presenting proposed solutions to the customer, and evaluated these strategies according to different success metrics.

Constraint technology provides a natural mechanism for combining customer problem solving with customer profiling. The suggestion/correction mechanism supports a natural interactive dialogue, and allows for up-selling.

We are combining this work with our expertise in the area of product configuration. Opportunities may exist as well to combine this work with the wider use of constraint technology in enterprise and supply chain management.

Further information about this work can be found

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at the UNH Constraint Computation Center website:

<http://www.cs.unh.edu/ccc>

or in the following sources:

- Suggestion Strategies for Constraint-Based Matchmaker Agents, Eugene C. Freuder and Richard J. Wallace, AAI Technical Report, WS-97-05, AAAI-97 Workshop on Constraints and Agents, Providence, RI, July, 1997
- Intelligent Matchmakers, Eugene C. Freuder, Workshop on Research Directions for the Next Generation Internet, [www.cra.org/Policy/NGI](http://www.cra.org/Policy/NGI), Hosted by the Computing Research Association, the Computer Systems Policy Project, and the Cross Industry Working Team Vienna, VA, May, 1997.
- Constraints and agents: Confronting ignorance, Peggy S. Eaton, Eugene C. Freuder and Richard J. Wallace *AI Magazine*. Summer 1998, Vol. 19, No. 2.
- Constraint-based strategies for matchmakers, Eugene C. Freuder and Richard J. Wallace, Recommender Systems, Papers from the 1998 Workshop, AAAI Technical Report WS-98-08, Madison, WI, July 1998.
- Suggestion Strategies for Constraint-Based Matchmaker Agents, Eugene C. Freuder and Richard J. Wallace, *Principles and Practice of Constraint Programming - CP'98*, F. Rossi, editor, Lecture Notes in Computer Science, Berlin: Springer, 1998.

An introduction to Configuration can be found in:

*Special Issue on Configuration of IEEE Intelligent Systems*, Guest Editors: Boi Faltings and Eugene C. Freuder, vol. 13, no. 4, July-August 1998.