Explicit Passive Analysis in Electronic Catalogs

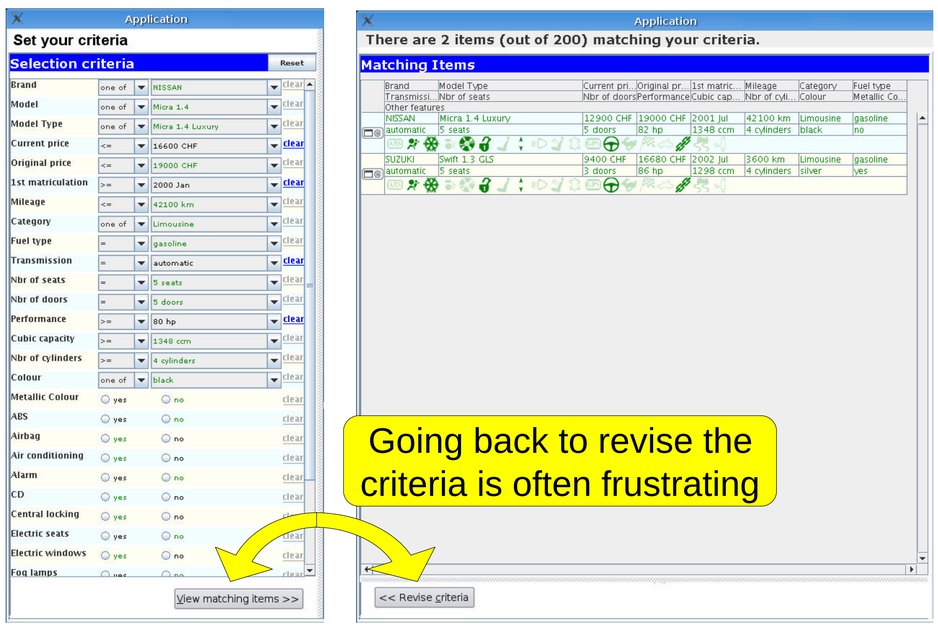
David Portabella Clotet and Martin Rajman
École Polytechnique Fédérale de Lausanne (EPFL)

Download the ECatalog and User Study software!
http://sourceforge.net/projects/ecatalog

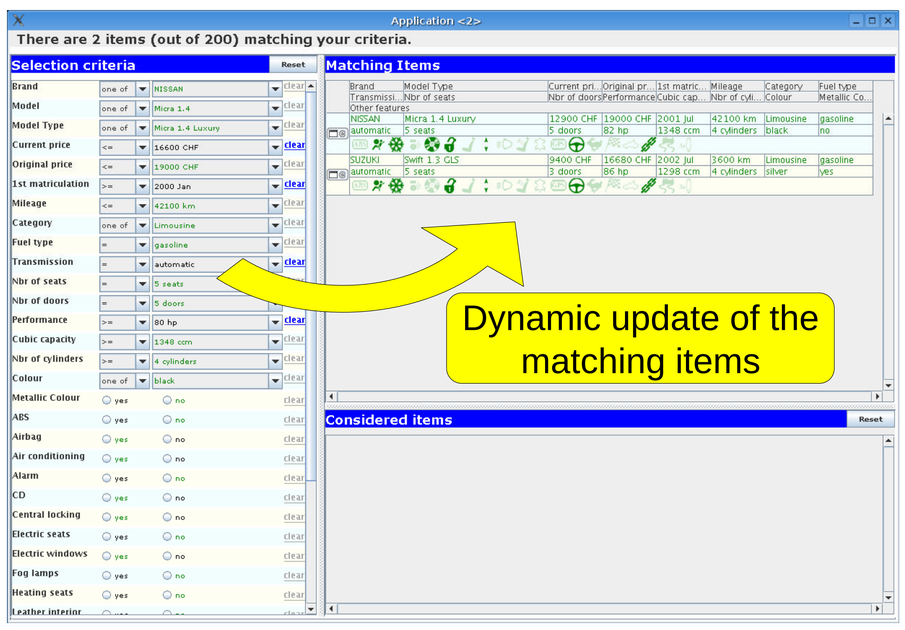
A **Multi-Attribute Decision Problem** (MADP) is the problem of finding the best outcome or solution based on the user's preferences.

However users may not have an accurate idea of their preferences while searching for a product, especially when the type of product is beyond the user's knowledge. They may begin the search with some vague set of preferences and refine them as they learn more about the different possibilities [Payne93].

Two phases form-filling



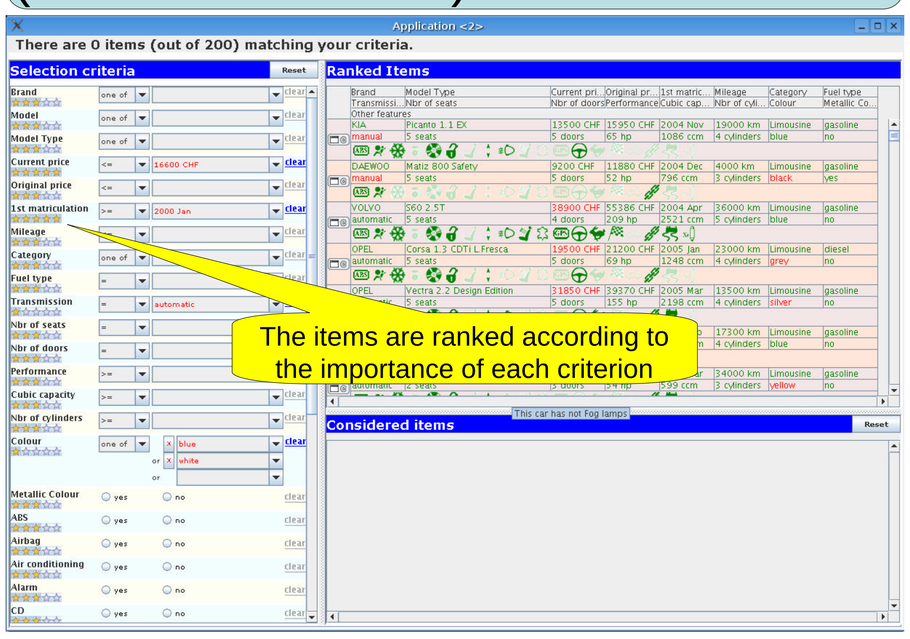
Dynamic form-filling



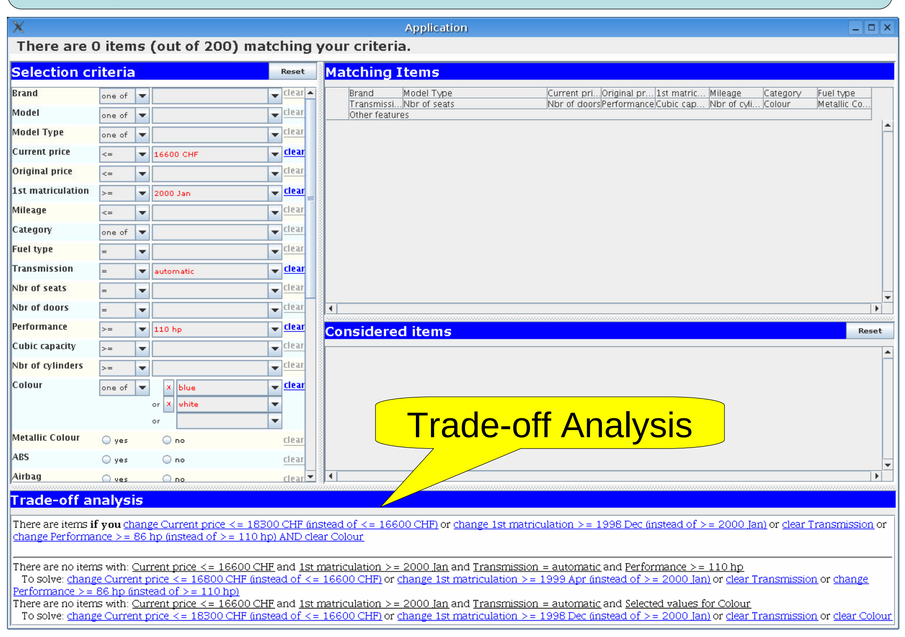
Pu [Pu06] showed that users that revised more their criteria achieved better decision accuracy.
Current interfaces are split in two phases: (1) request all the criteria and then (2) show the matching items.
Going back to revise the criteria is often frustrating.
In a more dynamic approach, the user sees the corresponding matching items while he is incrementally specifying/revising his criteria.

Hypothesis: A dynamic form-filling approach leads to more criteria revision and so to better decision accuracy.

Recommendation Systems (Preference-based)



Cooperative databases



In a typical preference-based approach, the items are ranked accordingly to the criteria of the user.
(the user is requested to define the importance of each criterion)

In a cooperative database approach, the system “argues” with the user about his criteria. In our study, when there are no matching items, the system explains the minimal conflicting set and give some possible strong and weak relaxations about his criteria.

The two approaches are orthogonal and can be combined.

User Study
We measure:
•Confidence: Is the user sure that he found his best possible choice (from the ones present in the database)?
•Decision accuracy: Did the user really find his best possible choice? Validation phase (yet not extremely convincing)
•User cognitive load (NASA TLX), time, enjoyableness
•Perceived Usability - Usefulness