*EL* Description Logic
Modeling Querying Web and Learning
Imperfect User Preferences

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URSW ISWC 06 position paper
DL and Web modelling

• DL basis for OWL
• Value restriction has to be reconsidered
• \( \mathcal{EL} \) DL sufficient for applications
• \( \mathcal{EL} \) querying in poly time
• Extension to user preference models
  e.g. a user looking for a cheap hotel close to a beach
• Aggregation of particular attribute preferences to global preference
• Top-k answers
Uncertainty in Web Modelling

- Probabilistic models in SW
- Fuzzy logic models SW
- Fuzzy EL - fuzzy concepts
- crisp roles
- fuzzy aggregation
- Enables concepts like
  \(@ (\exists \text{price.cheap}, \exists \text{distance.close})@\)
- Problem of learning @ for each user
From FILP, IGAP to BN
Bayesian $\mathcal{EL}$ DL and others

- Concepts are r. v. over preference scale
- Roles are crisp / certain
- Aggregation = combination function
- Integrated with $f\mathcal{EL}$, classical $\mathcal{EL}$, ...
Conclusion

• Position paper - sharing ideas
• Ideas supported by an analogy working in LP and simple experiments
• Further development of
  formal model
  experiments
  OWL extension
• Questions, comments, …