

# Subjective Logic

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## 1 Introduction

- Probabilistic logic.
- Subjective logic as probabilistic logic with uncertainty and subjectivity.
- Main question of this investigation: Can we use Subjective Logic to improve the model?
- Summary.

## 2 Opinion representation

- Elementary definitions
  - Domain and Hyperdomain
  - Base-rate distribution (prior)
  - Belief mass distribution and uncertainty
  - Projected probability distribution (posterior)
- Binomial opinion and example
- Multinomial option and example
- Hypernomial opinion and example

## 3 Computational trust

This is an overview. Nothing formal. (Maybe it will be if I have time.)

- Definition of trust. (Influence?)

- Trust transitivity. (Update function?)
- Belief fusion. (Overall update function?)

## 4 Next questions

When I was reviewing the book, I found something that I may have got wrong about trust transitivity. I'm not sure if the example I told at the meeting is possible in SL.

- Suppose that an agent A trusts an agent B ( $\omega_B^A$ ), and B trusts X ( $\omega_X^B$ ). Can the cardinality of the domain of  $\omega_X^A$  be greater than 2? (At the meeting, assumed yes. Now I'm not sure.)
- Is there a way (an operator) to consider the trust of an agent A when they obtain another trust opinion (from trust transitivity)?
  - If yes, can this operator have the same properties as the rational belief update?
  - If not, can we create an operator that has the same properties as the rational belief update?