

Fact Extraction and Reasoning using ITA Controlled English

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ITA Controlled English

ITA Controlled English is a Controlled Natural Language:

- subset of English understandable by man and machine
- based on a user's conceptual model of terms and logic
- facts for information, and rules for logical inference
- assumptions for expressing uncertainty and "what-if"
- rationale to represent and visualize the user's reasoning

Domain Knowledge for reasoning

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conceptualise a ~ dignitary ~ D that is a person and
  ~ is an official of ~ the country C and
  ~ is located in ~ the place P.

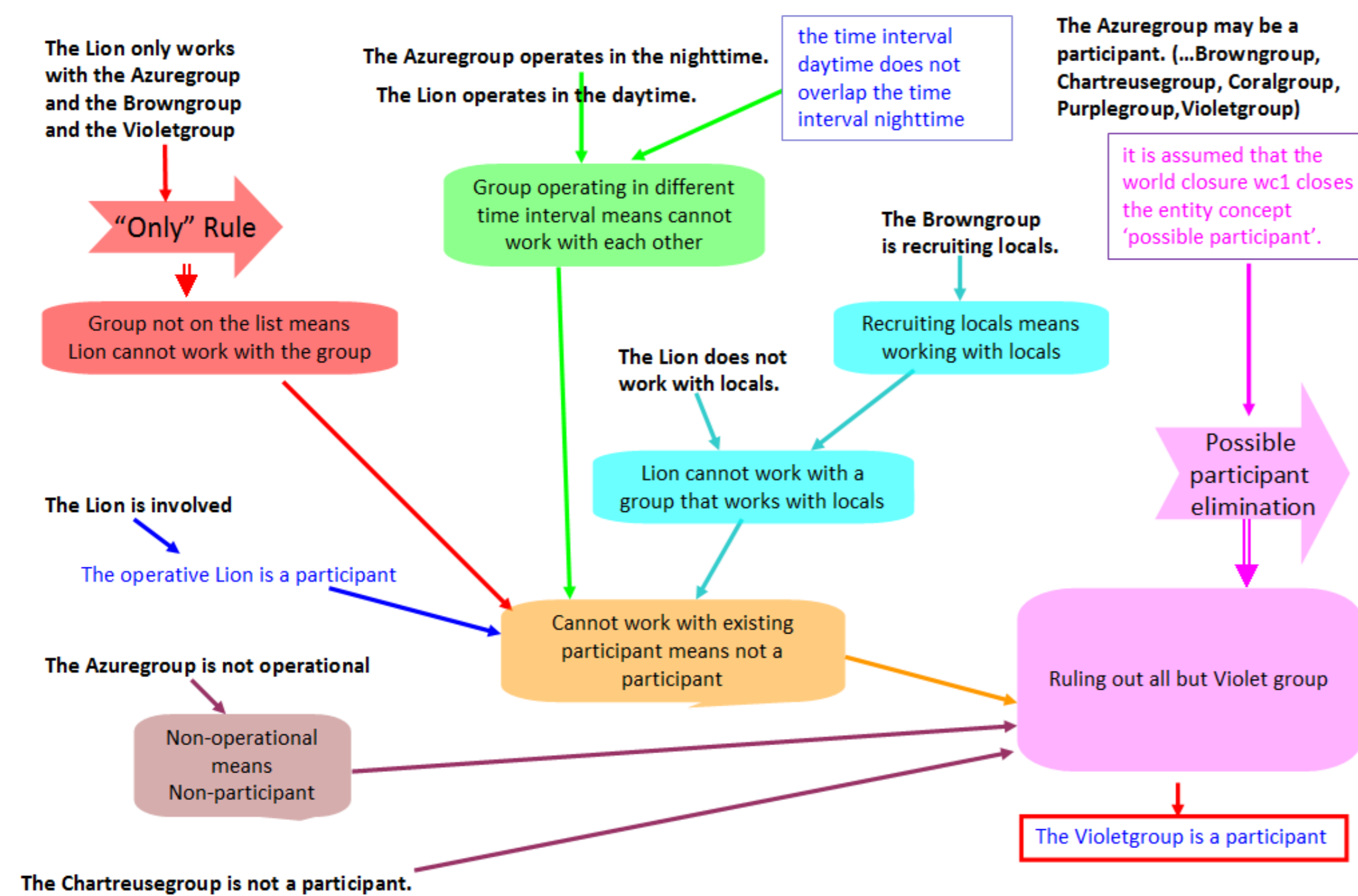
there is a dignitary named 'J Smith' that is an official
of the country EpsilonLand and is located in the
country PsiLand.

if
  ( there is a dignitary named D that
    is an official of the country HOME C and
    is located in the country HOST C ) and
  ( the country HOME C # the country HOST C )
then
  ( the dignitary D is visiting the country HOST C ).

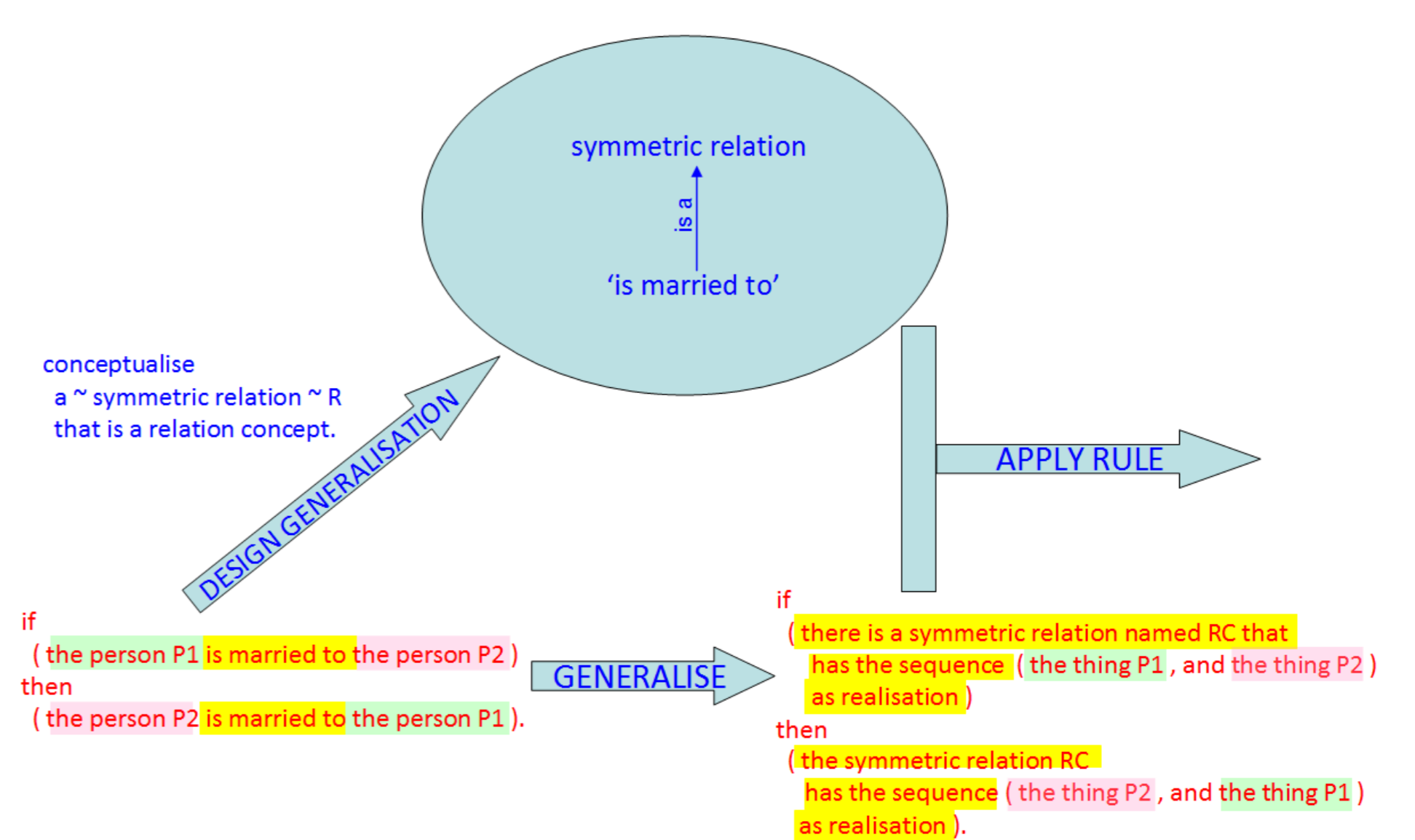
if
  ( the operative A operates in the time interval TA ) and
  ( the group B operates in the time interval TB ) and
  ( the time interval TA does not overlap the time interval TB )
then
  ( the operative A cannot work with the group B ).

if
  ( there is an agent named Lion ) and
  ( the agent A is different to the agent Azuregroup and
    is different to the agent Browngroup and
    is different to the agent Violetgroup )
then
  ( the agent Lion cannot work with the agent A ).
  
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Fact extraction and reasoning

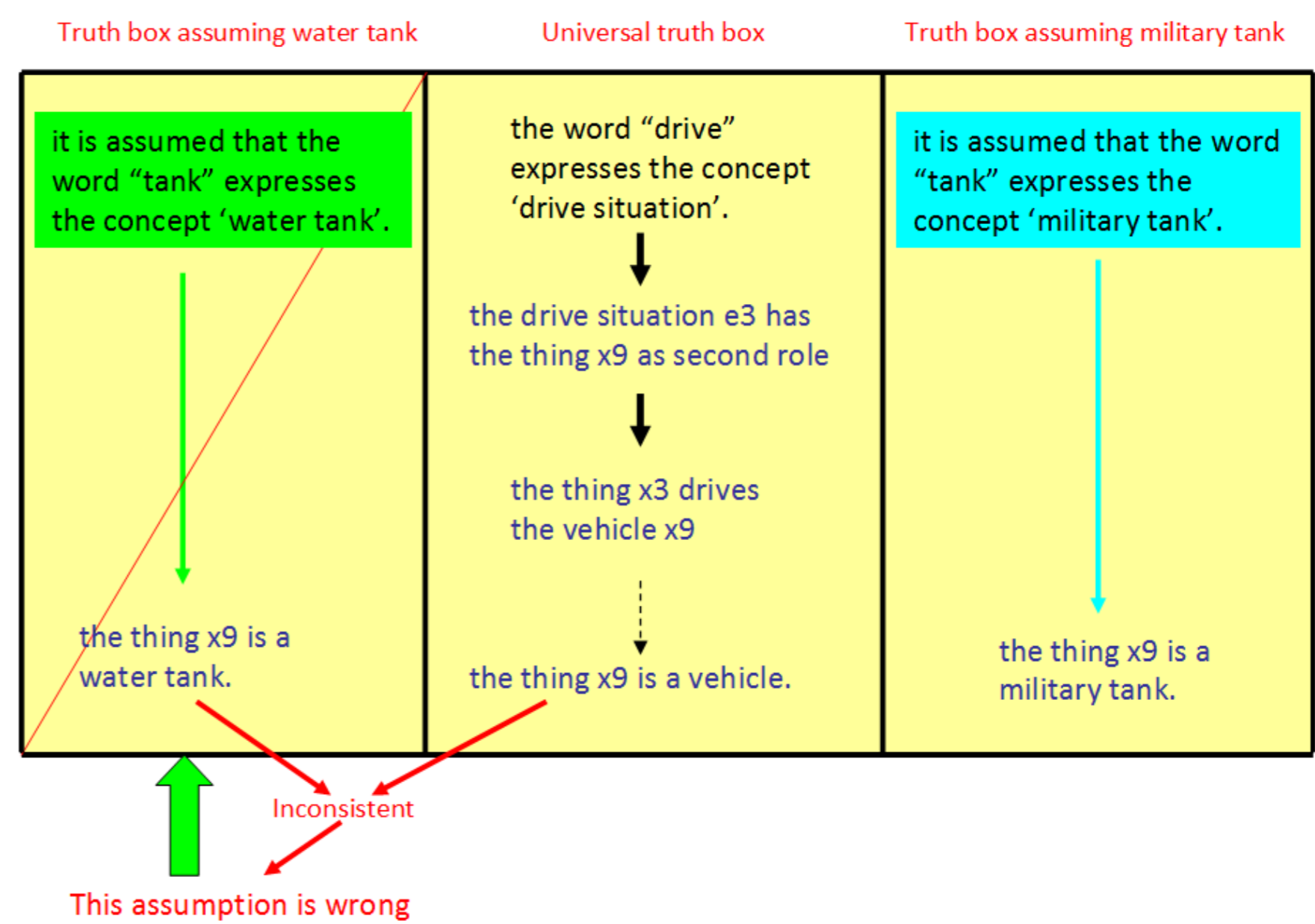


Meta-logic for generalisation

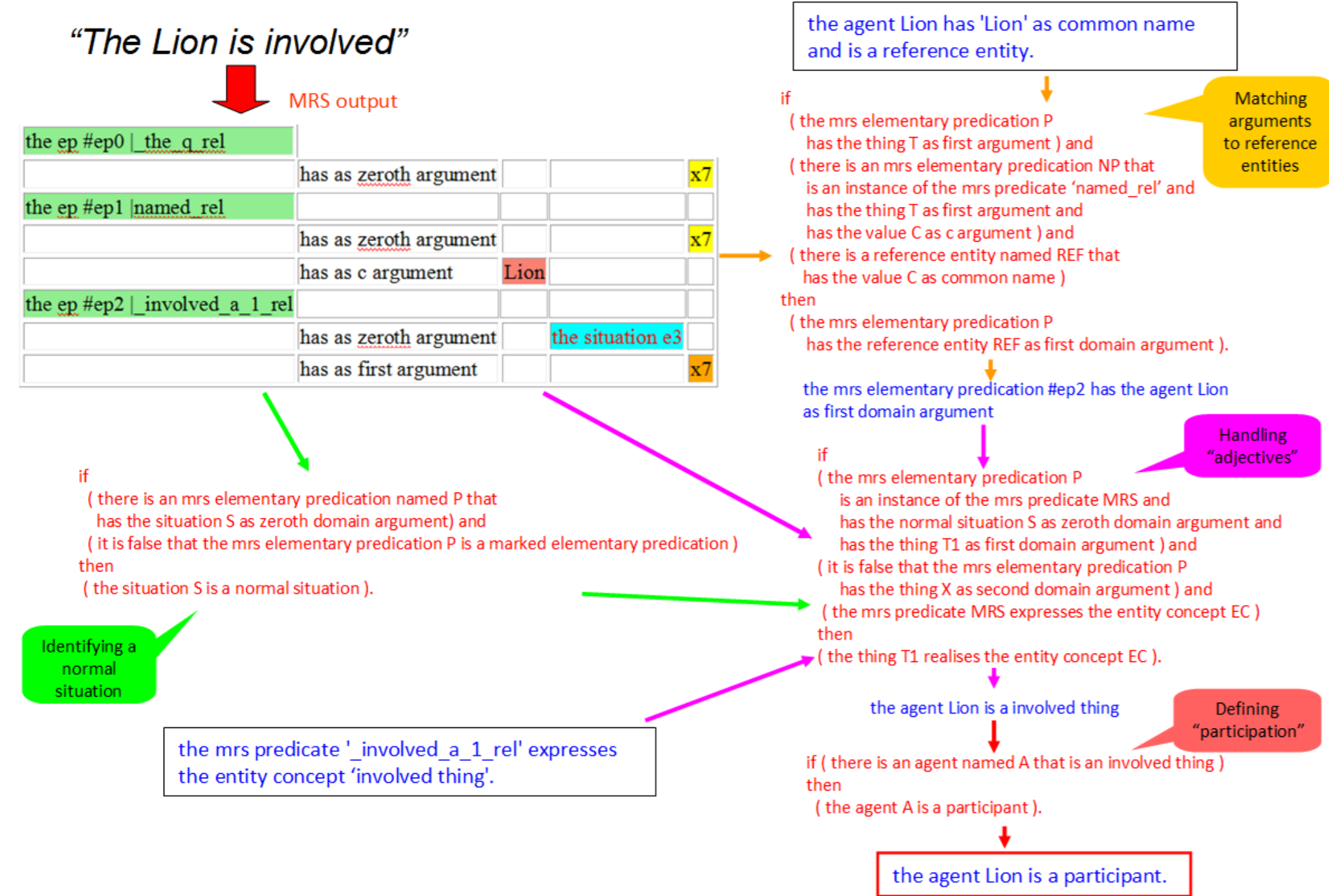


Assumptions for disambiguation

the engineer drove the tank



NLP with DELPH-IN and ITA CE



Use of ITA CE for fact extraction from NL sentences and subsequent reasoning has been demonstrated on the ELICIT task. Future work focuses on use of domain knowledge to disambiguate sentences and to provide deeper interpretation using background knowledge