

Towards a Foundation for Comprehensive Scheme Support in Argumentative Dialogue Games

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Intro: Argument & Dialogue

— [“Tackling the conceptual leap from problem domain to deployment of arg-oriented tools (within that domain)”

— [Mixed human/agent arena supporting some combination of:

— Computational Efficiency

— Scrutability & Introspection

— Alignment with Human Reasoning & Interaction Processes

What's the story?

- [Schemes look like a good way to structure a KB about a problem domain
- [Chaining schemes - good way to structure interaction within the domain - even richer if using dialogue games
- [Looks to be a good alignment between arguments (schemes) & dialogue (games) [*NB.* Atkinson, Reed]

Games & Schemes

- [Explore (& optionally extend) the (scheme structured) KB
- [Feed arg process
 - e.g. determine what to say next or which areas of domain exploration have been neglected
- [Ultimately: interact more easily with intelligent computational systems using mechanisms that are more human-oriented

But it's not that easy...

- [Practically it is not so straightforward to align games & schemes

- [Generally, games do not do argument very well

- For “well” read: ‘explicitly’ in terms of mapping locutions to argument building/manipulating acts

- all feels a bit rudimentary...

Expressiveness

- [Currently, often treat locutional content as atomic: ranging from statement variables, & propositions, through quite complex sentences of language L
- [Interpretation is often left to the listener
- [Makes computational game players more difficult to produce
- [Essentially a form of loosely interpreted DuckTyping - not always clear what the status of a piece of content is (argument, premise, conclusion, ???)

Game Description

- [Schemes are quite simple & reasonable well structured

- [Games can be complex

- How do we structure a game so that it usefully supports schemes & scheme components?

- How do we describe this support so it is useful/transparent (meta-level)?

- Can we provide useful guidelines to game designers?

Assumptions

- [Computationally accessible (automated & unambiguous) scheme sets (with namespacing)
- e.g. can retrieve {scheme_name, conclusion_desc, minor/major_premise_desc, [critical_questions]}

Annotating Locutional Content

— [Remove ambiguity from interpretation of what speaker meant

— [If I say that P is my conclusion & I want it to be interpreted as such then why not be able to label it as such?

— [e.g. `assert("conclusion": "p")`

— [rather than the current fashion for overloading locutions:

— [e.g. `assert_conclusion("p")`

Similarly

- [We could go further & explicitly link moves & content with specific schemes:

- e.g. `assert ("conclusion": "p", "scheme":"expert_opinion")`

- [or (to extend the earlier example):

- e.g. `assert_scheme_conclusion("p")`

Describing Games

- [When describing a game:

- {optionally | mandatorily} label content as some | all
{argument_part | scheme_part} using key:value style notation

- [When playing a game:

- Dependent upon rules; {optionally | mandatorily} label content
as some | all {argument_part | scheme_part} using key:value
style notation

Conclusions

- [Unpacking a lot that has been previously assembled into the locution label, or left to interpretation, or deus ex machina solutions

- e.g. "assume some mechanism that can recognise that an argument conforming to a particular scheme has been uttered"

- [(If) Games generate more explicit data - (naively assume) improves computational tractability

- Remove class of interpretation related problems that depended upon working out: where the content stood in the argument, what the arg meant, etc.

- [

Future Work/Questions

- [How does this affect strategy?

- Removing ambiguity could remove a whole class of rhetorical devices

- can't rely on misrepresenting the form of an opponent's argument

- [How does this affect interpretation & analysis?

References

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