Ontology Design

Games Domain

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Scope

The scope of the ontology is based in the games domain. In designing the ontology I took the approach of thinking that a game is an activity and designed by ontology around that idea. Thinking of a game as an activity allowed me to look at the characteristics of the activity and infer these characteristics across other activities.

Design

In designing my ontology, I decided on using the "bottom up" approach. I decided on my 10 games that I would design my ontology around. Once I defined these games, I looked at what the similarities and differences were. The initial ontology designs were done on paper and when I had refined the ontology enough I started designing it in protégé. To help me with the design I researched other ontologies that were available as well as guides on creating ontologies, which are listed in the reference section.

For the 10 games and 5 non games, I decided on the following activities

Game Activities	Non Game activities
Solitaire	Politics
Poker	Eating
Blackjack	Reading
Soccer	Drinking
Basketball	Dancing
Boxing	
MMA	
Monopoly	
Scrabble	
Jigsaw	

These activities gave me enough similarities and differences to create super classes and allowed me to create restricted classes to infer membership. Alongside this, I had to create various other classes of objects that are used in these activities, used by these activities and a class to represent the object doing these activities. An example of some of the restricted classes is as follows

Competition	Individual Activity	Team Activity
Basketball	Monopoly	Basketball
Blackjack	Scrabble	Politics
Boxing	Dancing	Soccer
MMA	Eating	
Monopoly	Blackjack	
Poker	Boxing	
Scrabble	Jigsaw	
Soccer	MMA	
Politics	Poker	
	Reading	
	Solitaire	

In defining these classes I also defined the properties required to describe the class. An example of which is the hasWinner or hasCompetitor properties. These properties make up the restriction that allows an activity to be listed under Competition class. This becomes useful when new classes are added and the reasoned in protégé can reason that these classes are also a competition class.

In developing the ontology I made certain decisions about activities, examples of these decisions are as follows.

- An Activity is a subclass of a thing.
- The classes BoardGame, CardGame, PhysicalSport, PuzzleGame, are direct subclasses of Activity are disjoint. Reading, Politics, Dancing, Eating, Drinking are also disjoint to these classes
- An Individual activity is disjoint to Team Activities

Future work

The ontology I developed is not a complete ontology but it provides a good basis for a scalable ontology that can be used to describe the activity based view of the games domain. Future addition of classes for example video games and TV game shows can be added into the ontology and with the addition of these classes the ontology can be refined further. This ontology can be linked to other ontologies by that focus on People [11] and to other sports ontology such as the BBC Sport ontology [1].

References

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