Approaches to Modeling Conversational Agents in the Tactical Language and Culture Training System (TLCTS)

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Abstract

The Tactical Language and Culture Training System (TLCTS) is designed to teach foreign language and culture skills using a task based approach. The system is unique from other language and culture training systems in that it uses an interactive environment containing conversational agents that behave appropriately for the targeted language and culture. In this presentation we explain our current attempt at modeling culturally capable agents within TLCTS, and also briefly explain our previous approaches.

Introduction

The Tactical Language and Culture Training System (TLCTS) is designed to help learners rapidly acquire linguistic and cultural skills for a specific geographic location. The system uses a combination of interactive lessons and games in order to help trainees acquire and test their skills. The interactive games use artificial intelligence powered non-player characters (NPCs) that react to player speech based on the cultural rules of the target region.

TLCTS is very widely used, at least twenty thousand copies of TLCTS courses have been distributed, and several thousand learners have used them. Because TLCTS is a product rather than a research prototype, we have made certain decisions when modeling cultural agents that favor simple rather than complex cognitive models, and authorability is a primary concern. This presentation will explain the current iteration of the agent framework, and also briefly go over the previous iterations. The current system is presently in use in the Automated Language Training System (sponsored by USMC PMTRASYS), a multiplayer adaptation of TLCTS for rehearsing missions involving intercultural communication (as opposed to language and culture training per se). We also plan to use it to create agents that are capable of engaging in rich dialogs with learners seeking to improve their spoken language proficiency.

Structure of the agents

Figure 1 shows how an input speech signal is transformed and processed in our social simulation module (called Honua). In the presentation, each of these phases – behavior interpretation (transformation of the recognized sentence into a semantic structure [communicative act]), intent planning (the reaction to receiving an input), and behavior generation (the transformation of the resulting communicative act to speech and gesture) will be discussed, as all of them rely on the rules and protocols of the target culture.
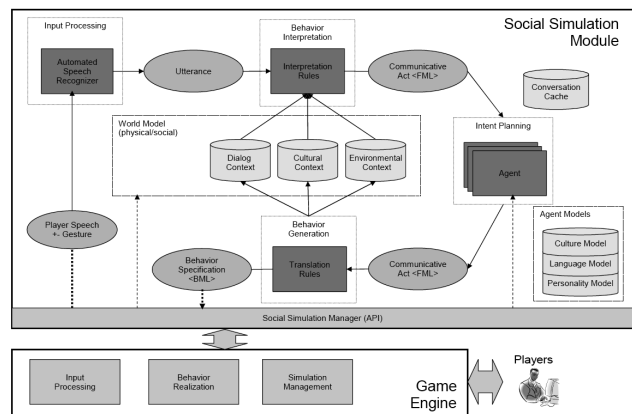

Figure 1: Honua Pipeline

References

Johnson, W. L. 2007. *Serious Use of a Serious Game for Language Learning.* In R. Luckin et al. (Eds.), Artificial Intelligence in Education, 67-74. Amsterdam: IOS Press

Johnson, W. L. and Wu, S. 2008. *Assessing Aptitude for Learning with a Serious Game for Foreign Language and Culture.* In proceedings of Intelligent Tutoring Systems 2008, Montreal

Johnson, W.L. and Valente, A. 2008 *Collaborative Authoring of Serious Games for Language and Culture*, In proceedings of SimTecT 2008