A Relationship Model for Believable Social Dynamics of Characters in Games

Brendan O'Connor. Supervisor: Dr. Mads Haahr

M.Sc. in Computer Science

(Interactive Entertainment Technology)

August 2015

Abstract

This dissertation investigates believable social dynamics based on a relationship model between Non-Player Characters (NPCs) in games. The majority of interactions between characters in games is rigidly defined; with limited scope for character relationships that change as a result of interactions with each other or other factors. This limited ability hinders player immersion and believability in their interactions with the characters. This dissertation presents a model which can be easily applied to NPCs to provide them with relationship awareness.

The model supports characters that store their own "assumed knowledge" of other characters relationships, in addition to their own direct relationships with other characters in their environment. This allows the characters awareness of not just their own relationships to other characters (e.g. to a sibling or child character), but also awareness of the relationships between other characters (e.g. that two other characters may be enemies). This knowledge can be treated as an assumption; allowing characters to be provided with misleading information - the results of which are left up to extended implementations of the model.

A messaging system is also implemented that allows the characters to communicate with one another directly as well as through their relationships (e.g. passing a message to all members of a group).

The model has been implemented with a generic interface that allows other types of information to be tracked between NPCs as extensions to the basic relationships between characters. This provides for advanced implementations such as characters that "remember" previous relationship states with other NPCs.

The model is tested and evaluated within a prototype environment within the Unity game engine. The implementation showcases a model with promising potential where characters act upon, learn and communicate about relationships they are aware of.