Extensive multiscale interactive situations

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Abstract. This short paper looks at the various levels of interaction and narrative within a large scale longer term interactive situation. We are currently developing a simple taxonomy to make clear what aspects of interaction and responsiveness need to be addressed at which level of the space. This taxonomy is being developed in order to better plan and realise large scale long term environments with a large number of collaborators.

1 A Brief Description of Interactive Situations

We[1] are interested in large scale long term interactive situations. Real-world environments that include interactive technology to build a world that is physically compelling, responsive and interpersonal. We also call them social and narrative Mixed Realities. The worlds have enough depth to encourage exploration, physicality to bind the visitors and scope to allow for a significant time spent within them. Models and ideas around such spaces tie the situations with real-world gaming environments and contemporary theatre[1, 5]. The smallest scale of the

Fig. 1. 1:Two players using the Gravitron environment (2005). 2,3: Paths give other direct perspectives (BodySPIN 2000). 4,5: Camera images and data visualisations offer further perspectives on the total environment, the last image showing part of the vital lounge environment of Sensory Circus (2004). Photos: Time's Up

spaces are small interactive environments, often formulated as games. These environments offer immediate responses, require physical action and have short

[1] Time's Up is supported by grants from the City of Linz, the state of Upper Austria and the Federal Government of Austria. Some of the projects described in this article have been produced with funding from the European Union Culture 2000 Program.

term and clear goals and ways of using them. There are many ways of using any given environment and we are repeatedly surprised at the other ways that visitors find to use the interfaces.

These small environments are situated within a larger environment with several paths and spaces, a navigable space where the visitor is able to choose their way through, to see the environments from differing angles, to theorise about how they work and discuss this with other visitors. Within the larger environment there is a separate space, a lounge, where the visitor can have a certain distance from the immediate interactions without leaving the environment. In this lounge, other perspectives upon the interactions are given, discussion of the pieces is common; we have heard the strangest theories and explanations. Including this reflective space within the larger environment allows the visitors to easily re-enter the interactive environments to try out other ideas of play with the local interactions.

Over the whole environment there is a global system that manipulates the parameters of local interactions, the perspectives and other visualisations. The summed effects of all actions and reactions in all the local interactions in the total space feed into a collective system that reacts to this massive data input in various ways. This system attempts to order, categorise, analyse and perhaps even control the localised interactions and to pass on this analysis to be visualised in certain spaces that are set apart from the localised interactions. This global *mood* (mood is to interaction as climate is to weather) changes slowly over longer time frames as a kind of learning system and becomes apparent only after spending some time within the space.

Over the past decade we have been involved in the design and construction of small and medium sized interactive environments which are visited for periods from tens of minutes up to hours. Our taxonomy is built upon the desire to build longer term environments that include not only the directly interactive elements of this space and the day-scale variations of the space, but also developments over weeks or months, special events within the environment (performances, symposia, etc) that take the environment from a visited space to a lived-in space. This paper is an attempt to formalise the language we are using, to develop and distribute a shared language in order to promote communication with collaborators. The rest of this paper will first attempt to briefly describe some of the ideas that influence this taxonomy before introducing some of the more central terms.

2 Gameplay and Narrative

Narrative structures in games are vital. The balance between gameplay and narration is important and becomes more important as we investigate the ways that games as well as interactive environments relate to theatre. The following analysis is based upon Craig Lindley's analysis [6, 7] as well as a collection of other influences including Julie Tolmie's work [8].

Lindley refers to the Gameplay Gestalt (GG) as the collection of moves, patterns of actions that are used in a game. Note that for the next few paragraphs,

we will concentrate upon classical computer games that are interacted with over a console and a single screen. The first part of learning a game involves learning the moves and determining how to use them together. Lindley then talks of gaming itself, after this initial learning phase, as "performing" the GG. This use of GG is akin to the way an improvising actor learns to work within the restrictions of a given "form" [4]. There are the following scales of action in a classical computer game environment:

- game moves - the button presses and joystick tweaks.
- gameplay gestalt - movement modules, collections of moves.
- tactics and strategy - short and long term goals, plans and desires.
- whole game - a complete narrative arc.

The first two items, forcing the basis for gameplay, are most effective in moments of complete immersion, when the performance of the GG absorbs the player completely; the player is in a state of *flow*. The player loses the perception of the interface as separate and plays directly with the game, the construct as a whole. Forms of this are seen when players duck and dodge, to physically move around in front of the screen while operating the console (such movement is, of course, not actually relevant inside the game).

This is then compared to the Narrative Gestalt (NG), the situation in a story at some point in time. Theatrical theory makes a distinction between that which is played out on the stage and that which is narrated [3]. In particular, the distinction between what the audience can perceive directly, where they can make their own appraisal of the actions they perceive and what the audience receives already evaluated in the form of narration. This is seen often in computer game environments with cut scenes where the player has no chance to intervene. The concept of a NG also includes elements of the game that are not reduced to narrative. The NG includes the second pair of elements above listed for a game environment. The area of tactics and strategy fall within the action area of the player and are directly played and perceived. The whole-game arc can be segmented into the part that the player develops for herself and the narrative commentary aspects introduced above. Lindley claims that there is a balance needed: too much NG and the game gets lost (especially flow), too much GG means the player is busy and cannot pay attention to the longer term aspects, especially the narrative.

Lindley uses the genre of Live Action Roleplaying Games (LARGs) as a basis within which to discuss this. A LARG brings together a group of people to play a game that occurs in real space with real objects and the rules of a given system, improvised within that system. The players are both actors and audience: we can treat a LARG as improvisational theatre [1]. The rest of this paper uses the metaphors of theatre as well as game play and installation art in order to describe the sort of structure that we use for our situations to help in the description of large scale interactive situations with a longterm development.

3 A Taxonomy and Description

The following short taxonomy is being used to develop a large scale long term interactive installation. Roughly it falls into three sections dealing with spatial, narrative and interactive terms.

- Physical space: the interactive situation, the actions are seen and participated in by the visitors. For a large number of visitors, this is all they will see, this is fundamental. A separate taxonomy of the physical spaces and interactions would be necessary, but would burst the limits of this short paper.
- Virtual space: the online virtual version of the situation. These actions take place virtually with real people, in abstractions / models of the real space, or extensions of it, created in multi user online environments. Actions effect and are effected by the physical space.
- Imaginary space: the imaginary characters in the situation. Part of their actions will respond to real and virtual events, others will be scripted from the beginning as part of the narrative arc, others will result from their character and the ideas of the writer(s).
- Commentary or Narration: the commentary on actions in the physical, virtual and imaginary spaces, appearing in blogs, newspapers, etc. This will tend to arise from Imaginary characters, it arises within the universe of the installation, under the control of the creators. The commentary also includes the discussion that appears in affiliated and independent media and the general discussion about the situation, external commentary as opposed to the internal commentary that is created within the world of the installation.
- History : the whole curve from the prehistory to its demise. This is subdivided further:
  - The Mythos is the history that happens before the beginning of the installation. This has many functions, e.g. defining aesthetics, and must also correspond with decisions such as location and duration of the installation.
  - The Narrative arc is the curve over the period of installation. It includes the implications of the Mythos, the actions of visitors and includes commentary.
  - The Resolution explains the end of the situation, its demise. This makes these three aspects into a classical Aristotelean schema. A certain amount of information that makes the demise make sense (at least in retrospect) must be built into the narrative.
- Exploration narrative(s): explanations of how things work, shared among the visitors. Something we encourage and support but cannot control.
- Mood: the general state of the entire physical and virtual system at some point in time, effected by the actions of visitors as well as long term (narrative) development.
- Local interactions: immediately responsive interactions with bounded effects. Game-like, restricted, playful, no major long-term developments. Parameters effected by Mood.

- Inter-local interactions: effects that move from one local interaction to another, e.g. objects from one interaction falling into the next. Should not destroy the GG moments in the local interactions, but indicate connections.
- Mood Representations: direct representations of the mood state, visually, acoustically or mechanically, separated from local interactions.
- Alternate perspectives: ways to see systems (e.g. local interactions) from different perspectives (video cameras, alternative game representations, etc). This supports the exploration narrative.
- Daily (or weekly) strategy: the way a day happens. Includes details of when the public arrives, what is possible and when, events, set actions, interventions in physical or virtual space or in the mood. In some sense this is a script, but this script must be highly adaptable.
- Tactics: the techniques used to make the daily strategy work. For instance the manipulation of parameters built into a local interaction, ways that the local interactions try to satisfy the ideas of the mood.

The terminology for interaction lies along the GG–NG line. The local interactions fall at the GG end of the spectrum; it is vital that a visitor be immediately caught up in the interaction. Thus play at this local level must be intuitive and simple to grasp. Once this interaction has been achieved, we can begin to introduce longer term relations between events. Interlocal interactions are a direct way to indicate connections between separate local interactions, to underscore that the total environment is not just an exhibition of items but that the items and their interrelations build a coherent world.

The exploration narrative has been and will remain vital. The internal exploration narrative is the explanations we find for ourselves about how things work, the tiny stories that define our understanding of the world. This is a fundamental human capacity, whether we base our explanations upon the movement of planets, the ratios of small integers or the equations of subatomic particles, this urge towards models and explanations is innate. The external exploration narrative is the collection of discussions that take place about these models and explanations. This external narrative is supported by several aspects within the space other than the existing relations between the systems. These can be summarised under the idea of alternate perspectives; given multiple views upon a system, various models make sense. The innate human desire to find connections, to explain things can be enticed into action with one view of an interaction, while a later view allows the interaction to be reinterpreted. Techniques that we have used have included surveillance cameras mounted at certain points in the environment, different representations of an interaction and the inclusion of spatially separated visitors in one interaction.

The highest levels of NG can be found in the narrative arc and daily strategies as well as in the mood. These are two sides of narrative building. The narrative arc, defined from the beginning of the situation, is a fixed story within which the visitors can play within bounds. Of course these bounds are kept quite wide, the writers who create the internal commentary are kept in a constant flow of adjusting their commentary to the actions of visitors. This necessity for adaptability

leads us to other narrative techniques. One technique that we have experimented with is the creation of a mood as an agent-type system. This agent attempts to follow and control the general state of the entire system. In these attempts the agent has various effects upon the physical space and the interactions within it. Through this feedback loop the entire system moves slowly from one general state to another. Our success here has been limited, not least due to the fact that we cannot hold a large group of people captive in the environment in order to fine tune the parameters of such a system. We will continue to investigate other strategies for automatically or algorithmically developing medium to long scale narrative in interactive environments.

4 Concluding Remarks

This short paper attempts to point out several ways in which ideas from game studies and improvisational theatre can be used in order to describe, discuss and plan large scale long term interactive situations. In particular we have been interested in finding some terminology in order to describe parts of the systems we wish to build, and implicit within this is a taxonomy of those systems. This taxonomy allows us to distinguish between various aspects of the development of the environment. It is already proving to be of value in the planning stage and will be refined until a large installation is made for several months in 2009. Note that a lot of this terminology has been developed ad hoc over the past decade and is only slowly being formalised.

Developing a language that is compatible with the work of people from game studies and theatre is vital if we are to be able to profit from their understandings. Interactive installations are significantly different from either of these areas, but profit from their techniques. Often a larger interactive environment can be effectively understood as a festival [1, 2] and it is precisely this lack of long term narrative that we are looking at counteracting with our new projects.

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