

# **Narrative Structure in Trans-Reality Role-Playing Games: Integrating Story Construction from Live Action, Table Top and Computer-Based Role-Playing Games**

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## **ABSTRACT**

Trans-reality role-playing games are conceived of as a form of role-playing game evolving from and integrating established table-top, live-action and computer-based role-playing forms. Each of these established forms has specific strengths and modalities for the ongoing articulation of the history of a game world regarded as an unfolding story. Integrating these forms in a trans-reality role-playing game involves the evolution of their techniques and technologies to allow each to function as a staging approach for game play within a single coherent game world. To achieve this integration, new technologically based design concepts are required to allow players within the different strategies to interact with each other as characters within the same game world.

## **Keywords**

MMORPG, LARP, RPG, TRRPG, pervasive, cross-platform, game, trans-reality, design.

## **INTRODUCTION**

Trans-reality games are games combining virtual gaming with game experiences staged and played in physical environments. The development of design principles and methodologies for trans-reality games requires models of how play functions vary with different game staging and scenarios, and how these variations can be integrated within games that involve different modes of physical, virtual and mixed reality game play. In the case of Trans-Reality Role-Playing games (TRRPGs), a coherent, common and persistent story world must emerge that integrates

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different Role-Playing Game (RPG) forms including Table-Top (TTRPG), Live-Action (LARP), computer-based, and especially Massively Multiplayer On-line (MMORPG), RPGs. A TTRPG can be based upon common game systems consisting of core rules and basic models for characters and objects, their features and capabilities, combat, economics and trading. Virtual, table-top and live action RPGs involve different ways of expressing player moves that can be regarded as performance primitives for the articulation of the unfolding game story. Developing a TTRPG requires technical solutions that allow these performance primitives to be mapped to and function within a common game world, accessible to all players independently of their local game staging and play modes. This paper presents and explores some proposed technical design approaches that might provide a feasible foundation for achieving the vision of a TTRPG as a collective story world accessed by performers using very different stages and languages of expression.

### **STORY CONSTRUCTION IN ROLE-PLAYING GAMES**

Previous work has analysed the relationships between simulation, game play and narrative in computer games (Lindley, 2005). These elements work together in the unfolding creation of the history of the game world, a story world detailed by the players. The diegesis of a story consists of its specific objects and events. The selection and presentation of elements of the story, with expressive variations of emphasis, constitute a plot. The plot is expressed in an act of telling, ie. a particular narrative. The available text is the narrative, while the other layers of meaning are inferred from the text and its relationship with other texts.

Considering narrative construction and encoding within RPGs reveals very different relationships to this model. A TTRPG is typically based upon a predefined world and scenario that a game master and group of players use to improvise a new, primarily verbal, narrative through the unfolding play sessions of a TTRPG campaign. Improvisation involves assembling sequences of fictive blocks, basic fragments or units of fictional/narrative significance that may be strung together to form a higher-level story or narrative (Mackay, 2001). Fictive blocks include moves and text provided by the game system together with those drawn from the players' imaginations and experiences. This process most strongly resembles the collective creation of a verbal narrative, the simulation level being achieved partly by imagination and partly by the use of more specific simulation rules such as those involved in simulating combat interactions using miniature figures and dice.

A computer-based MMORPG, however, provides players with a finite and fixed set of possible moves, together with the media foundation for realising moves as audiovisual and simulation events. Hence the MMORPG player generally chooses from a comparatively limited set of predefined fictive blocks, supplemented by textual interaction with other players via chat facilities. This is a severely constrained improvisational freedom compared with the other RPG forms; the computer RPG removes much of the space for individual interpretation and imaginative elaboration found in the other forms by providing very explicit visualisations together with very limited options for choosing performance primitives .

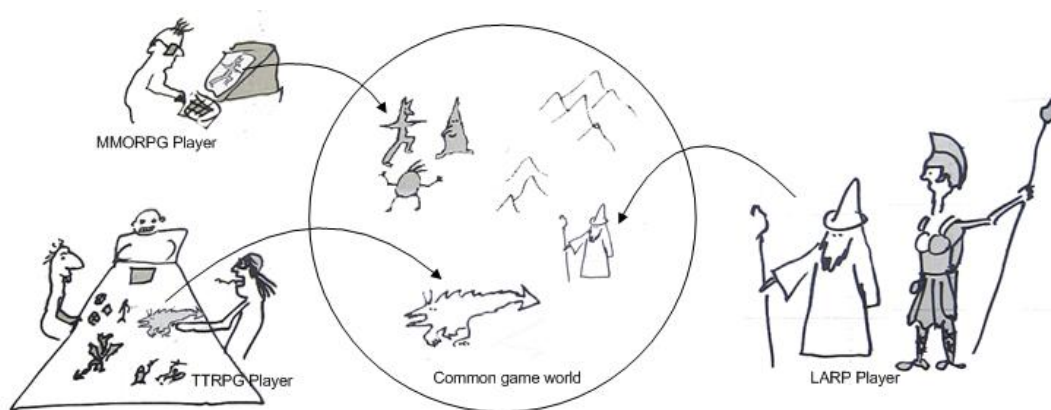
Collaborative story formation in LARPs is different again. While a TTRPG collaboratively produces a kind of collective text upon which individual acts of imagination build, a LARP consists of a kind of performative multitext; there is a different story for each player, none occupying a privileged position as the holder of an authoritative story perspective. The LARP setting may vary in its diegetic freedom between that of a MMORPG and that of a TTRPG,

depending upon the literalness of representation of its setting, costumes, props and performances. LARP performances have the full advantage of all avenues of direct, face-to-face human communication, leading to the possibility of the highest levels of immersive and emotional experience.

A TRRPG must integrate these different staging modalities and their respective performance and communications affordances in a way that allows a common story world to develop. Each modality presents its own specific strengths, requirements and deficiencies in terms of expressive potential. Technical solutions for TTRPGs must therefore meet basic requirements promoting player perceptions of inhabiting a common game world together with specific requirements arising from the table-top, live action and computer based interaction environments used by different players.

### GLOBAL REQUIREMENTS FOR A TRANS-REALITY RPG

A TRRPG must integrate the different narrative modalities of RPG forms to create a coherent common story world, as represented on Figure 1. Ideally this involves a careful mapping between player roles, technical mechanisms and narrative functions in ways that preserve or enhance the strengths of the different play modalities involved and disseminate these strengths throughout the overall TRRPG game.



**Figure 1:** A common game world.

A comparison of the features of different RPG forms is presented in Table 1. This comparison is broad, including typical, possible, and not always necessary characterisations.

<b>Feature</b>	<b>MMORPG</b>	<b>Table-top RPG</b>	<b>LARP</b>
apparatus/technology	- interactive 3D world, characters, game objects, mobs, NPCs - automation of game systems, rules and procedures	- players, pens/pencils, paper, dice - printed scenarios, maps, rules and systems - table-top, miniatures, boards, items	- players, pens/pencils, paper, dice - printed scenarios, maps, rules and systems - locations, sets, props, costumes - communications and audio-visual equipment
size of game space	very large	large to huge	small to large
game sessions	several years	several years	several days
play sessions	several hours daily	several hours weekly	several days
visibility of rules/mechanics	low	medium	high
primary representation media of story	2D projection of 3D world, animation, text, chat and emotes	imaginative, verbal. text and figurines	verbal, bodily performance and text
fictive block/ performance primitives	triggered actions/ animation sequences, chat text, NPC text	verbal expressions (in and out of character), move or position miniatures, play card, use randomiser	Physical actions, verbal expressions
object manipulation	via avatar	imaginative, move miniatures	direct hands-on
inter-player physical location	no relationship	close group	close to widely spread group(s)
visualised diegetic elements	all	maps, character types and relative locations, mobs and NPCs, immediate location	positions/locations, body language, game objects, dress
positional accuracy	high	low to high	high

**Table 1:** Comparison of features of RPG forms.

A TRRPG cannot be expected to achieve the integration of these forms without fundamentally changing some aspects of the play experience and its supporting infrastructure, since integration requires interfaces unique to TRRPGs. In particular, table-top and live-action games evolve more towards augmented and mixed reality games (eg. Szalavári 98, Björk 2001, Piekarski 02, Mag 2003, 2004). Before describing some TRRPG technical design approaches to illustrate this, it is useful to state some proposed requirements aimed at encouraging players in different staging situations to perceive themselves as playing a common game. These requirements are:

- there should be a unified game space within which in-game actions are understood to occur; this game space can include more than one game world
- the game space should be equally persistent for all players
- the game space should be logically consistent and compatible for all players

- the same game characters, objects, non-player characters (NPCs) and mobs (monsters etc.) should be present within the world for all players
- the effects of game world events upon characters should be perceived as such and in the same way for all players
- some subset of game systems, rules, mechanics and procedures should be shared by all players

The game space could consist of more than one world (eg. as different planes of reality within a fictional diegesis). Here, however, we consider the case of a single game world that has different but integrated representations, some virtual and some physical (eg. table tops or LARP settings). Trans-reality in this case refers to the representational media of the game, rather than its diegesis (a diegetically trans-reality game involves game play crossing different in-game realities; see Lindley, 2005b).

### **TECHNOLOGIES FOR TRANS-REALITY RPGS**

Technologies for the different staging contexts of TRRPGs can include the following (many of which are reviewed in Åkesson et al, 2004).

For computer-based play:

- conventional computers, game consoles and peripherals
- stereoscopic visualization and virtual reality systems

For table-top play:

- technologies for detecting the positions, identities and orientations of table-top miniatures, such as radio-frequency id readers, infrared-detectors, touch screens or CCD cameras with associated vision processing
- technologies for determining the use and values of randomizers such as dice; these include many of the mechanisms used for determining the states of miniatures
- visual displays such as front or rear projection for game state information (eg. character statistics), environments (dungeon passages, town streets), etc.
- audio output devices, such as stereo or surround sound systems
- audio input devices (microphones)
- augmented reality devices, such as headsets with positioning information
- robotic and animatronic devices

For LARP-derived game play:

- technologies for detecting the positions, identities and orientations of players, sets and game objects; these could be the same as for table-top games, but also include wider area technologies such as Blue Tooth, wireless and GPS systems
- visual displays and audio input and output devices, as for table-top games
- robotic and animatronic devices, possibly on a large scale

### **GAME DESIGN FOR TRANS-REALITY RPGS**

Specific design solutions for a TTRPG can be regarded in terms of both shorter term design concepts and longer term concepts requiring or depending upon what may in many cases be considerable ongoing research but nevertheless representing a not too distant future of how these kinds of games might be created. Plausible designs might be based upon the following basic elements:

- a central server, database and game state engine representing the overall state of the game world together with the rules and procedures of the game implementing game systems. Game systems may include systems for combat, trading and magic. The game world should be described geographically and its description should include game objects such as characters, NPCs, mobs, artifacts and special items.
- a player controls their own character within a table-top, virtual or live-action play session.
- a player in one staging context should be able to experience and interact (via their character) with representations of the characters of other players in different staging contexts

For players using conventional computer systems, the relationship between their client and the server is quite standard for current MMORPGs. The major differences would be the presence within the game world of player character groups having different time schedules from typical MMORPG players, representing the table-top and live-action players. Interactions with these players may also involve specific constraints as discussed below.

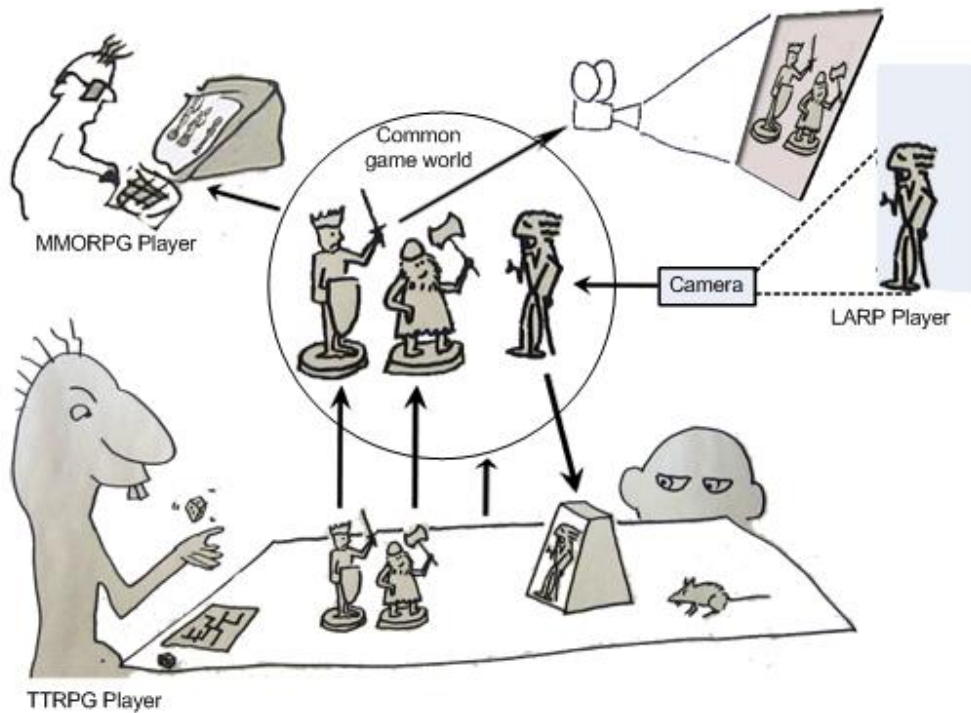
TTRPGs offer the possibility of using physical game pieces such as dice, miniature figurines, boards and other equipment as tangible interfaces with a TRRPG. Design approaches include:

- each character may be represented as a miniature figurine incorporating a method for automatically determining its position, its orientation and its identity upon a game board. The method could be a bar code or an infrared transmitter in the base of the figure. This allows the central game system to track the relative position of each character in relation to other characters and the in-game location and orientation they are in. However, despite the use of tangible character representations, TTRPGs tend to use game time steps having a standard in-game time duration but variable play duration. Representing positions in the other staging contexts will therefore require predictive extrapolations subject to correction.

- the game may be played on a game board having suitable interfaces for the figurines (eg. a built-in bar code or IR scanner). This can be simplified by using a board with a fixed number of discrete positions for figurines, rather than a continuous usable surface.
- use of a display device for showing the locations of figurines within the game world by projecting maps or icons onto the game board, as well as displaying character and other game object state information. Mobile devices can be used for displaying more private character state data.
- use of audio input devices with associated processing to capture and disseminate the players' in-character speech acts and out-of-character descriptions. This could be done by having players key a microphone at appropriate times. However, there are many and often long term design challenges involved in this. A simple design might simply record these expressions and, for example, play them in association with visualizations of characters in virtual or live play contexts. Speech to text processing could be used to enable display of these expressions as text. A longer term and more interesting solution would be to generate animations procedurally based upon computational interpretation of the meanings of movement descriptions.

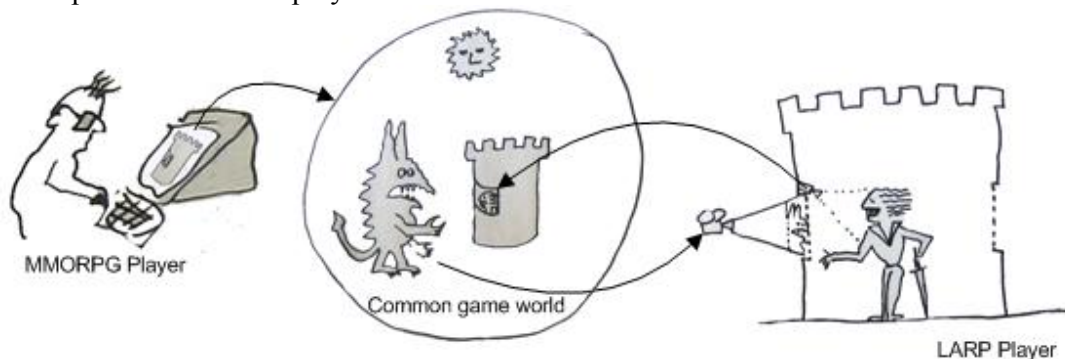
A design question here is: how to represent the characters of other players, NPCs and mobs that are not controlled within a local TTRPG. Some possible solutions are:

- represent them graphically and project them onto the game board. This is simple but creates a representational mismatch with the use of figurines
- a player or game master moves generic figures by hand to positions indicated by projection, with the game board sensing when validate moves are completed. This could include using game pieces having a built-in visual display, such as an LCD screen, to display game agent graphics (eg. a picture of a character), which could also be animated (see Figure 2).
- use a form of automatic movement, eg. electromagnetic movement, pick-and-place robotics or even complete small scale robots. In this case the timing of different paces of the motion of game characters among local and remote players would have to be addressed.



**Figure 2:** A table-top game includes a representation of a LARP player.

Similar issues are involved for integrating LARP game play. A simple way of integrating LARP play is to prevent intermingling of LARP and other player characters and define clear interfaces between the two. For example, the LARP players could be in a room corresponding to a room in the central game world. For the LARPer, the views from windows are created as camera views within the virtual world back-screen projected onto simulated windows in the LARP setting. Then for the other players, the LARP is video recorded as views inside the windows, mapped as textures in the virtual world (see Figure 3) and also displayed (perhaps onto a vertical screen) on the table-top for the TTRPG players.



**Figure 3:** Integration of virtual world play and LARP play.

For inter-mingling LARP and other players within the game world, the positions and orientations of the LARP characters need to be accurately tracked and mapped onto centralized game world models of those characters for representation in the other staging contexts, using the same

methods as used for computer-controlled characters. In principle this can be accomplished by high accuracy optical motion capture. Cheaper but less accurate methods may use IR emitters or tags on costumes or game objects. An alternative would be to use human players as NPCs for non-LARP players within a LARP, eg. using movement and speech instructions transmitted via mobile devices). In the longer term, robots and animatronics might function in these roles.

## CONCLUSION

This paper has considered a number of technical approaches for the development of TRRPGs. A great deal of ongoing work is needed to test and refine these concepts and to tune game play within such a system. The overall concept nevertheless appears to be feasible, allowing for very different modalities by which players may collaboratively construct rich game story worlds.

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