

Spatial Image Schemas and Viewpoints Interacting in the Computer Game Puzzles Manifold Garden and Hyperbolica

Prof. Dr. Martin Thiering^{1,2}, Prof. Dr. Stephan Günzel³

¹ University of Europe for Applied Sciences, Art & Design, Berlin, martin.thiering@ue-germany.de,
Technische Universität Berlin, Language and Communication, ³ University of Europe for Applied
Sciences, Art & Design, Berlin, stephan.guenzel@ue-germany.de

Keywords: Image Schemas, Viewpoints, Computer Game Puzzles, Impossible Worlds

This paper investigates how embodied/ enacted image schemas and force dynamics seem to operate and interact in the computer games *Manifold Garden* (Chryr 2019) and *Hyperbolica* (Code Parade 2022). The main aim is to show how some of the most pervasive image and force schemata may serve as cognitive-semiotic tools to discern different kinds of dynamic orientation processes based on central problem-solving strategies (Thiering & Mittelberg 2022). The hypothesis is that in solving the puzzles and the mazes more specifically, the player not only manipulates the game environment to find their way through the labyrinth, but at the same time the environment, or, rather its affordances, manipulates the player's embodied image schemas and force dynamics. Both games are particularly well-suited for this purpose, as they offer a range of game- and design-specific affordances such as hallways, rooms, walls, but also different colors, riddles, bricks, arrows, straight lines, that is, different geometrical objects that anchor spatial reference coordinates. Arguably, the games are based on the impossible world in M.C. Escher's lithograph print 'Relativity'. Impossible worlds with upside-down staircases impose rather odd perspectives and viewpoints. In *Manifold Garden*, these worlds keep emerging and vanishing as the game proceeds, thus affecting and challenging the viewer's habits of perception and canonical knowledge of spaces and places. Whoever plays the game enters and actively interacts with this particular, constantly changing digital environment. From an *enactive embodied* perspective Noë (2004) argues that perception is not merely a matter of passively structuring incoming information. It rather relies on dynamic bodily activity, and thus also on embodied image schemas and force dynamics, as we argue.

In both games, we see at least three predominant image schemas that jointly structure the game, interacting, in different moments, with a range of other schemas. First, *Manifold Garden* prompts the CONTAINER schema; it thus evokes, by principle, spatial relationships and thus spatial-relations schemata such as IN-OUT or ABOVE-BELOW. Second, when playing the game, the ultimate objective is to find one's way through the labyrinth with its intricate sub-spaces and sub- pathways. That is, we can assume that the SOURCE-PATH-GOAL schema is constantly activated: the path is not pre-set or given, but actually emerges while the player moves through the virtual environment and influences the way in which the game proceeds through subsequent perception-in-action phases. Third, along the emerging PATH, the phased flow of motion, and thus the game's progression, comes about through instantiations of interacting FORCES.

In this paper, an analysis is presented showing that a) in both games a spatial architecture on its own is at work (Günzel 2019); b) they are vivid examples of how spatial image schemas interact in game environments; and c) these environments ask for continuously shifting combinations of image schemas, visual perception and force dynamics based on the game specific affordances.

References

- Gerber, Andri & Götz, Ulrich (eds.) 2019. *Architectonics of Game Spaces. The Spatial Logic of the Virtual and its Meaning for the Real*. Transcript, Bielefeld.
- Günzel, Stephan. 2019. What do they represent? computer games as spatial concepts. In Espen Aarseth & Stephan Günzel (eds.), *Ludotopia. Spaces, Places and Territories in Computer Games*. Transcript, Bielefeld, 13–40.
- Noë, Alva. 2004. *Action in Perception*. Cambridge, MA: MIT Press.
- Thiering, Martin & Mittelberg, Irene. 2022. Image and Force Schemas Interacting in Digital Environments: The Computer Game Antichamber. Proceedings of the Sixth Image Schemas Day, Jönköping, März. Maria Hedblom & Oliver Kutz (ed.). *CEUR Workshop Proceedings*, Vol. 3140 (ISSN 1613-0073)

Online Sources:

Manifold Garden (William Chyr, 2019): <https://manifold.garden/>
Hyperbolica (Code Parade, 2022): <https://codeparade.itch.io/hyperbolica>