PLAYFUL MAPPING IN THE DIGITAL AGE

THE PLAYFUL MAPPING COLLECTIVE

THEORY ON DEMAND
A SERIES OF READERS
PUBLISHED BY THE
INSTITUTE OF NETWORK CULTURES
ISSUE NO.:
21

PLAYFUL MAPPING IN THE DIGITAL AGE

THE PLAYFUL MAPPING COLLECTIVE

Theory on Demand #21
Playful Mapping in the Digital Age

Authors: Playful Mapping Collective (Clancy Wilmott, Chris Perkins, Sybille Lammes, Sam Hind, Alex Gekker, Emma Fraser, Daniel Evans)
Editorial support: Miriam Rasch
Copy-editing: Leonieke van Dipten

Cover Design: Katja van Stiphout
Design: Leonieke van Dipten
EPUB development: Leonieke van Dipten

Printer: Print on demand
Publisher: Institute of Network Cultures, Amsterdam, 2016
ISBN: 978-94-92302-13-7

Contact
Institute of Network Cultures
Phone: +3120 5951865
Email: info@networkcultures.org
Web: http://www.networkcultures.org

This publication is available through various print on demand services. For more information, and a freely downloadable PDF: http://networkcultures.org/publications

institute of
network cultures

CONTENTS

PREFACE

Playful Mapping is the result of many years of joint enterprise in which we, as authors, developed a close intellectual collaboration. As a book, it emerged towards the end of the ERC project *Charting the Digital* that ran from 2011-2016, and during a still-ongoing Erasmus+ project*; Go Go Gozo*. Over this five year period, members of the Playful Mapping Collective got to know each other as colleagues and friends, participating regularly in diverse academic and social activities, such as conference panels and workshops.[1] The authorship of this book therefore reflects an interesting collaborative experiment, enrolling researchers who have been working together in an active way over the past half-decade. This preface explains the genealogy of the emerging and open collaboration through which we developed ideas.

As such, we explore a reflexive archaeology of how such ideas progressed – a process that is almost never foregrounded in academic texts[2], yet can explain and inform their outcomes tremendously. It explores our writing practice, the gradual steps through which texts have emerged, and the need for a collaborative acknowledgment of this process. This, we would argue, should be regarded as a necessary and radical move, in order to counter the dominance in academia of the single-author text. This dominance sees the erasure of shared, cognitive, technical and administrative labor, and the value in collaborative, generative work. It also underscores the diminishing value of generosity in sharing and playing with ideas, a loss which is realized in the still inadequate addressing of non-academic, but interested and engaged, audiences.

This preface also situates the relationships between the different authorial voices engaged in this project. These links emerge in the qualitative, collegiate and friendly side-effects of ongoing collaboration, in the honest account of intertwining funded research projects and other related research and ideas developed during our ongoing work together. Therefore, the form of this publication is reiterated in the fluidity and contestation of ideas embodied in this book – and agreements and arguments are expanded into an ongoing, archival volume.

Following the ideas

In 2008, Sybille Lammes[3] focused on video-games as a genre through which spatial stories might be enacted. She consequently argued for a performative analysis of the spatial and situated game assemblage, and the emerging links between playing and mapping. Similarly, from 2006, Chris Perkins[4] had begun to research broader synergies between maps and play that he demonstrated through a case analysis of the game of golf. Evidently, there

1 For information about these various activities see http://www.digitalcartography.eu/.

2 For a reflexive exception to this generalization see http://www.followthethings.com/peerreview.shtml.

3 Sybille Lammes, 'Spatial Regimes of the Digital Playground: Cultural Functions of Spatial Practices in Computer Games,' *Space and Culture* 11, no. 3 (2008): 260–72.

4 Chris Perkins, 'Mapping Golf: A Contextual Study,' *The Cartographic Journal,* 43, no. 3 (2006): 208–23 and, 'Playing with Maps', in Martin Dodge, Rob Kitchin and Chris Perkins (eds) *Rethinking Maps*, London: Taylor and Francis, 2009, pp.167-188.

was already a commonality of interest in relational approaches to knowledge and in the processes through which ideas coalesce and gain currency. From November 2012, three PhD students became partners in the developing *Charting the Digital* project – Clancy Wilmott in Manchester, Alex Gekker in Utrecht and Sam Hind in Warwick. Their respective research projects came to fruition at almost the very time when we were all bringing the playful mapping project together. Two other collective members became involved at later stages in the project – Emma Fraser during the writing of her shared chapter with Clancy Wilmott and the pulling together of this book into a consistent whole, and Dan Evans during the process of editing the book in the final push towards publication.

From the outset of *Charting the Digital*, a collaborative ethos developed in which collectivity prevailed over hierarchy. We found this a highly productive and inspiring way of doing research. This is reflected in shared publications, shared bids, shared workshop organization, shared reading groups and frequent team meetings at conferences, workshops and other venues across Europe and beyond. Working collaboratively is by no means smooth and univocal at all times. There are competing demands on time from collective members at different career stages. There are likewise different skill sets, motivations and interests. Such differences in opinion can result in lively, yet fruitful, discussions. Inevitable challenges included how to make sure that these voices were integrated in the design, implementation and delivery of final texts. During this period, there were also often issues in staging and streamlining writing processes. What is, however, shared is a commitment to collaboration and to incorporating different voices.

Rocking the Boat

In earlier experiments, we had taken the decision to write an article arising out of one of our workshops by using a process similar to how a relay-race functions. In this manner, each author took a turn, passing the writing 'baton' on to the next person, forming an iterative loop. Sometimes authors held on to the 'baton' longer, or shared a sequential lead together, before passing the text on to another to continue.[5] We learned that six people can find it challenging to collaborate directly in a piece. Whilst a larger project might usefully enroll multiple voices, it is important to reduce direct collaboration to smaller numbers for any one part of this process. Working in this fashion allows for pragmatism, whilst not detracting from the responsibility of the piece as residing with the whole. We also realized that being in the same place at the same time can help enormously to keep the writing process going, making it easier to cross-check the developments of each other's ideas. Running together works better, we concluded.

We therefore experimented with a novel form of shared writing that took these insights on board. A series of 'book sprints'[6] were held in which the team came together at different

5 For other approaches to collaborative writing see Ian Cook et al 'Writing Collaboration: a Work in Progress', https://writingcollaboration.wordpress.com (last accessed 14th November 2016).

6 Martin Kean, 'Open Source Publishing, 'Book Sprints' and Possible Futures,' *Junctures: The Journal for Thematic Dialogue,* no. 15 (2012).

locations to work on shared Google Docs. At these 'sprints', we worked on the documents in the same room at the same time. Propinquity facilitated an active exchange of ideas, but also helped to motivate us all to deliver material 'on time' in ways that would be harder to realize had we been collaborating remotely and sequentially on the same document. This sprinting approach was tested for another project – completing and editing a book focused on digital mapping and temporality.[7] 'Sprints' were held in a large crumbling house in Tywyn, North Wales, in an apartment in Gozo during the Erasmus+ project, on a houseboat near to Leiden in the Netherlands, in an old tearoom in Buxton, Derbyshire, a holiday home in Greenwich, south London, a hotel in Amsterdam, and in a cottage in the Cotswolds, in the south of England.

Geography mattered. Each location and surrounding area provided a new and unique stimulation for our writing. Universities, we would argue, are not made for writing. Granted, they are institutional spaces for teaching and learning, but when one is engaged on a daily basis on providing both (as all in the collective are), even thinking itself can become a challenge. Administration can be the enemy of creativity. And thinking and writing collectively is not just the sum of individual, internal thoughts. Thinking and writing collectively emerges from a field of things and practices: from the study of family heirlooms, the lighting of fires, the operating of motorboats, the exploration of long-disused lime kilns, or the search for an internet signal. The geography of book sprints encouraged activities like these, and few would have been possible within the confines of the university. They helped to rock the creative boat and encouraged a novel collaboration to emerge.

Playful Writing

As the *Charting the Digital* project neared its end, so discussion turned towards publishing a collective monograph that reflected different team members' shared interests in play. It is these shared interests that developed over the years *only through* collective readings, discussions and presentations. Although we all developed a profound fascination with how relations between play and mapping can unfold in the digital age, we also had our own interests and takes on such developments. The chapters in this monograph thus reflect our shared insights but also our own positions within this collective process. They should be read as part of a comparative framework in which the cases are set against each other. Do not mistake a collective for a unified voice. Whilst we speak under a banner, it does not define nor erase the tension within. It is through this that collective action is possible.

The evidence from our Gozo experiments (chapter 2) might be set against other real world playful mapping practice in locative games (chapter 3), or against other forms of hybrid map play in golfing practice (chapter 4). This hybridity might be juxtaposed to the car based navigational tropes explored in chapter 5, or the futurity of playful regulation in the management of civil protest (chapter 6). The worlds of videogames (chapter 7 and 8) might be set against playful mapping experience in the physical world. These chapters emerged as

7 Alex Gekker, Sam Hind, Sybille Lammes, Chris Perkins, Clancy Wilmott, and Dan Evans (eds) *Time Travellers: Temporality and Digital Mapping*. Manchester: MUP, 2017.

ideas, sometimes single-authored (chapter 4 Perkins; chapter 6 Hind; chapter 8 Gekker), sometimes with shared authorship (chapter 1 Lammes and Perkins; chapter 3 Lammes and Wilmott; chapter 5 Gekker and Hind), chapter 7 Wilmott and Fraser) and in one case, with three authors (chapter 2 Lammes, Perkins and Wilmott).

During the four final book sprints these chapters gradually formed. Not only during intensive writing sessions, but also through walks, informal talks and (home-cooked) dinners. Hence, play also lies at the heart of how we worked together when making this book; from 'sprinting', cooking, laughing, rambling, teasing and joking, to sometimes even playing games.[8] During these sprints, other members of the collective commented extensively on drafts of the lead-author chapters and through on-the-spot discussions. During those engagements our ideas were honed and scrutinized.

As we all strongly support the exploration of new collaborative forms of hybrid academic publishing that are open-access and less dependent on established and often neoliberal-informed publishing methods, we actively sought a different way of sharing this book.[9] We visited the Institute of Network Culture (INC) during our writing session in Amsterdam to discuss this project and possibilities for publishing with them. The implicitly collaborative ideas that underpinned our ongoing work were akin to the institutional ethos of INC, and we took on board Geert Lovink's suggestion to publish the book as a collective. In hindsight, this was a logical step as we had already been operating as a collective for years and this denomer reflects our work ethos, both academically and politically.

Like many collectives the starting point was not a codification of ethics, nor an administration of identities and political persuasions, but a shared desire to think and act beyond the self. If higher education has rewarded the single-author journal article (as has been the case in the UK), then we regard such efforts as a necessary counter-action. Neither the book nor multi-authorship is dead, despite economic and academic pressures towards single authorship. Indeed, as we argue here, it has only been through collective thinking that such a project has been possible. Each chapter is stronger for the collective scrutiny – sometime unwanted, but always necessary. Much of what is contained within these pages would have been immeasurably poorer (in analysis, in scope, in prose) without the collective. Alone, this book would not have existed.

Much of this collective activity would have been impossible without digital tools and platforms. Google Docs, for example, was our web application of choice when writing together, on the same document. This very preface is emerging at the very end of the project as a directly shared experience. However, we retreated to individual, offline documents to write the bulk of the chapters, offering them to collective scrutiny once the ideas were mapped out. This allowed us the space to compose our contributions, before sending them back into the collective space for comment, critique and suggestion. Instant messaging platforms, also, allowed collaborators to discuss content, form and tone whilst writing.

---

8 Brian Sutton-Smith, *The Ambiguity of Play* (Cambridge. Mass.: Harvard University Press, 2001).

9 Mercedes Bunz, 'The Returned': On the Future of Monographic Books,' *Insights* 27 (2014).

Collectives, and especially collective writing, does not mean that everyone does everything together, at once. Instead, collective writing entails necessary divisions of tasks and responsibilities. This is based on, as suggested above, individual skills and motivations. Nevertheless, acting together allows these roles to be routinely swapped and changed. Whilst some favored editing, others communication, each could take on a portion of this week for a period of time. Working collectively shared the responsibility, as well as the reward, making each task easier and more fruitful. In this, we came to understand and simultaneously *assume* those otherwise demarcated labor roles: of academic, editor, peer-reviewer and administrator on the same piece of work. Only in doing so were we able to comprehend its otherwise fractured and fragmented means of production. Only collective work can do so.

However, our decision to write in a variety of novel locations proved sometimes awkward. Our reliance on stable Wi-Fi, or a 3/4G signal that was strong enough to support communication meant much of our time was spent either searching for networks or – more often than not – *talking about* searching for networks. 'The Wi-Fi here is awful!' became a familiar refrain, with questions such as 'are you on?' and joyous announcements; 'I'm on! I'm on!', chalked up as minor victories. Our urban sensibilities and expectations of being 'always on' were radically revised as we paced round the rooms of each book sprint location, manically waving our devices in the air, searching for stray mobile signals. These often annoying interludes provided us with comic, collectively-experienced breaks necessary for the solidarity and motivation so often lacking in academia.

Collaborative Futurity: Towards an Agenda of Playful Mapping

Having been involved in this process of collective thinking and doing over the last few years, we suggest that this mode of shared writing is important for academia and signals critical ways forward for future collaboration and publishing. Breaking from traditional forms of writing and publishing (by forming a collective and through hybrid publishing) is important. But so is the departure from fixed ways of participating in a book-sprint (by having a series of shorter sprints combined with times that we worked asynchronously). The collective way of writing about playful mapping that emerged is based on interdisciplinary and transdisciplinary collaboration, methodological innovation, playful methods, and conceptual encounters. As a collective process, this is worth exploring further, as are the tropes of playful mapping that emerged through our writing and which are explored in subsequent chapters.

References

Bunz, Mercedes, 'The Returned': On the Future of Monographic Books,' *Insights* 27 (2014).

Cook, Ian et al, 'Writing Collaboration: a Work in Progress', https://writingcollaboration.wordpress.com [last accessed 14th November 2016].

Gekker, Alex, Sam Hind, Sybille Lammes, Chris Perkins, Clancy Wilmott, Clancy and Dan Evans (eds) *Time Travellers: Temporality and Digital Mapping*, Manchester: MUP, 2017.

Kean, Martin, 'Open Source Publishing, 'Book Sprints' and Possible Futures', *Junctures: The Journal for Thematic Dialogue,* no. 15 (2012).

Lammes, Sybille, 'Spatial Regimes of the Digital Playground: Cultural Functions of Spatial Practices in Computer Games', 11, no. 3 (2008): 260-72.

Perkins, Chris, 'Mapping Golf: A Contextual Study', *Cartographic Journal* 43, no. 3 (2006): 208-223.

Perkins, Chris,'Playing with Maps'. in Martin Dodge, Rob Kitchin and Chris Perkins, (eds), *Rethinking Maps,* London: Taylor and Francis, 2009, pp. 167-188.

Sutton-Smith, Brian, *The Ambiguity of Play,* Cambridge, Massachusetts: Harvard University Press, 2001.

ACKNOWLEDGMENTS

As a collective we would like to express our gratitude to all those involved in the making of this book, from the individual members who contributed their works and ideas, to those who hosted sessions and provided criticisms to help strengthen this publication. In particular, we would like to thank The Institute of Network Cultures for their support. We also wish to thank Pablo Abend for the fruitful discussions we had with him which really helped to carry this book forward as well as Nanna Verhoeff for her ideas in initially developing this project. We would also like to acknowledge Erasmus+, and especially the students who participated in this program, for contributing to the development of chapter 2. Special thanks to Jana Wendler for her assistance in developing and prototyping our Gozo game *Playfields* as a designer and an academic.

The research leading to these results has received funding from the European Research Council under the European Community's 7th Framework Program (FP7/2007-2013) / ERC Grant agreement n° 283464 and ERC Proof of Concept Grant agreement n° 693426. The results also have been partly funded by the European Commission under the Erasmus + Key Action 2 Strategic Partnership funding framework, grant number 2014-1-UK01-KA203-001642.

Members of The Playful Mapping Collective (in reverse alphabetical order):

Clancy Wilmott, Chris Perkins, Sybille Lammes, Sam Hind, Alex Gekker, Emma Fraser, Daniel Evans.

CHAPTER 1: PLAYFUL MAPPING IN THE DIGITAL AGE

SYBILLE LAMMES AND CHRIS PERKINS

Mapping and play share a long and diverse history. From Mah-Jong, to the introduction of Prussian war-games, through to the emergence of location-based play, mapping and play have always been closely related. Central to both pursuits is the creative and strategic charting of environmental possibilities. When playing chess, for example, one moves through a map of an imaginary battlefield – probing – in both mind and action, its limitations and affordances; changing the board's appearance and possibilities by moving and taking pieces. Whether one's movement is literal or imaginary through such space is of secondary importance here. What matters is that play frequently entails an exploration and mapping of an environment, or what game-scholar Espen Aarseth describes as an 'active experimentation'[1] both of and within an environment. This experimentation can thus be a powerful and constitutive mechanism in how maps take (and lose) shape. Through playing, we can probe and produce spatial formations. If it is not our turn, we can take a step back to get an overview of what is at stake; mapping what has emerged and what could manifest in imaginary futures. Thus, playing and mapping constantly bleed into one another and can even legitimize each other's existence.

This book draws attention to the forms that reciprocal processes of mapping and playing can take in the digital age, with a specific emphasis on how play contributes to digital mapping practices. Such work constitutes a timely intervention, as we have witnessed an even greater resonance between mapping and play since the advent of the digital: novel connections between mapping and the ludic have emerged since the dawn of mass digital communication. These wide synergies between mapping and play are increasingly taking-place at a time when we are experiencing a 'ludification of culture'[2] and when an overt hybridization is taking place between play and other activities such as: work, science, commercialization (e.g. gamification[3]), politics, and education. Yet, despite the strong connections between the ludic and cartography, play is still infrequently investigated as part of mapping practices. Through this book, we want to actively change this. We approach play and mapping as liberating, dangerous, subversive and performative. This allows us to reconcile the still-often strictly conceived boundaries between cartographic media and

1 Espen Aarseth, 'Allegories of Space: The Question of Spatiality in Computer Games' in Markku Eskelinen and Raine Koskimaa (eds) *Cybertext Yearbook 2000,* Jyväskylä: University of Jyväskylä, 2000, pp. 152.

2 Joost Raessens, 'Playful Identities, or the Ludification of Culture', *Games and Culture* 1, no. 1 (2006): 52-57; Joost Raessens, 'The Ludification of Culture' in Mathias Fuchs, Sonia Fizek, Paolo Ruffino and Niklas Schrape, in *Rethinking Gamification*, Lüneburg: Meson Press, 2014, pp. 91-114.

3 Sebastian Deterding, Miguel Sicart, Lennart Nacke, Kenton O'Hara and Dan Dixon, 'Gamification. Using Game-Design Elements in Non-Gaming Contexts' in *Proceedings of the 2011 Annual Conference on Human Factors in Computing Systems (extended abstracts)*: Vancouver: Association for Computing Machinery, 2011, pp. 2425-2428.

playfulness. Ultimately, we discuss play as a method to understand maps and, through them, space, rather than just as yet another object of exploration.

Evidenced from a rich plethora of contemporary case-studies, ranging from fieldwork, golf, activism and automotive navigation, to pervasive and desktop-based games, we show in this book how mapping and play can form productive synergies, whilst encouraging new ways of being, knowing and shaping our daily lives. The underpinning assumption of this book then is that mapping practices, whether digital or analogue, offer a rich potential for playful interaction. In other words, during mapping encounters, possibilities emerge that can encourage us to engage with playful practices as part of these mapping acts. But, in particular, we examine how this proximity of playing and mapping has taken on different meanings in the digital age, when far more fluid networks of interaction have come to characterize multiple and different hybridizations between mapping and playing.

This book taps into a newly-emerging interest in the relation between mapping and play in critical geography and media studies.[4] It asks theoretical questions about the hybridization of mapping and play in daily life, and subsequently anchors the perspectives that come out of this enquiry to empirical case-studies. To offer a better understanding of how such interactions can unfold, whilst avoiding universalistic claims about what this can entail, we approach playful mapping as 'situated'. We then present the reader with chapters that each take one specific 'manifestation' of how playing and mapping can come to be related. We do not claim that these cases cover the whole range of possible synergies between mapping and playing. In our view, case-evidence demonstrates heuristic possibilities, instead of serving as a deterministic or essentializing exercise. The cases in this book offer readers a rich cross-selection of instances that show mutually-productive relations between quotidian mapping and play. These cases vary greatly in the kinds of playful mapping that they foreground, ranging from (mini)maps in desktop games, to mapping as a pedagogic method, through to physical play and its relation with mapping. Furthermore, the case-studies are situated in a wide range of environments, locations, or contexts, which all dictate different translations between mapping and playing. We analyze playful mapping 'in the field' in chapters 2 and 3, whilst chapter 4 blends the field pursuit of golf with its re-enactment in desktop mapping; merging the design of maps of real places and playing on these creations. In chapter 5, we explore 'gamified' navigation on the motorway, whilst urban streets are the main setting for protest and pervasive mapping practices that are the focus of chapter 6. Chapter 7 shifts the focus to the performance of mapping 'on-screen' and 'in-house'. This emphasis on 'off-the-street' and 'in-house' settings of computer-games, running on various computer platforms, continues in chapters 8. The concluding chapter draws these threads together and offers a manifesto for future research. Through such a heterogeneous and interdisciplinary perspective, this book

4 See for example: Sybille Lammes, 'Spatial Regimes of the Digital Playground: Cultural Functions of Spatial Practices in Computer Games', *Space and Culture,* 11, no. 3 (2008): 260-72; Chris Perkins, 'Playing with Maps' in Martin Dodge, Rob Kitchin and Chris Perkins, *Rethinking Maps*, London: Taylor and Francis, 2009, pp. 167-188; Tara Woodyer. 'Ludic geographies: not merely child's play', *Geography Compass* 6, no. 6 (2012): 313-326.

offers a wide range of exemplary cases, each demonstrating how playing and mapping are mutually constructive in daily life.

What we want to show in this book is how playful mapping can give rise to thought-provoking and very diverse practices, frequently entailing novel and hybrid combinations of: the imaginary and the material; things and people; designing and playing; touring and mapping; and of the map and the playground. In this introduction, we set the groundwork for the book; addressing the most important similarities between mapping and playing and teasing out the specificities of playful mapping in the digital age.

Changing the Playfield

Mapping practices are still somewhat sparsely-examined in terms of the ludic. This inattentiveness to play is surprising, as mapping has always invited users and mapmakers to take on lusory attitudes.[5] Ancient and archetypical board-games, like Mah-Jong and chess, deploy the map quite literally as a game-board. Indeed, more recent table-top games, such as *Monopoly* or *Risk*, are based on a game-board that also works simultaneously as a map; whether based on an actual environment or a more imaginary world. This merging of the map and game board has taken-on changed and differing forms in the digital era. Rather than players simply playing *on* the map, they can equally become pawns *in* the map. Ranging from interactive mini-maps in digital desktop games (such as the *Civilization* series), to mobile games that are GPS-enabled and also use satellite maps or base maps (such as *Ingress*, or *Zombies, Run!*), these new playful forms of mapping absorb the movements of players in the map. The appearance of the map itself may also be changed during playful practice. In a computer game like *Civilization*, for example, the player can see themselves and other players moving *in* the map. An interwoven consequence of this is that the map's design changes as well; borders shift, settlements expand and territories are discovered. The postcolonial drive and cartographical gaze of such games hinges on a fascination with mapping, exploration and play. This has a long and ideologically imbued tradition, explored by Emma Fraser and Clancy Wilmott in chapter 7.

So, playing and mapping have always informed each other and share a diverse and long history. Furthermore, their closeness is by no means limited to solely entertainment. For example, mapping and play are combined in field strategies deployed by security forces, such as the military and police, as well as by those seeking to counter or disrupt such powers.[6] In this book, we would further argue that play cannot only be an integral part of *using* maps, but also of *making* maps. It has been argued convincingly that maps are akin

5 Chris Perkins, 'Mapping golf: A contextual study', *Cartographic Journal* 43, no. 3 (2006): 208-223; Chris Perkins, 'Performative and Embodied Mapping' in Rob Kitchin (ed.), *International Encyclopedia of Human Geography*, Oxford: Elsevier, 2009, pp. 126-132; Sybille Lammes, 'Playing the World: Computer Games, Cartography and Spatial Stories', *Aether: The Journal Of Media Geography* 3 (Summer 2008): 84–96.

6 Sam Hind, 'Maps, Kettles and Inflatable Cobblestones: The Art of Playful Disruption in the City', *Media Fields Journal: Critical Explorations in Media and Space,* 11 (2015).

to scientific practice, constructed to explain and order the world.[7] As scholars in Science and Technology Studies (STS) have shown convincingly, these processes of producing 'scientific facts' in workplaces like laboratories are messy and consequently are open to play. Although maybe less visible to the outside world, such kinds of 'informal social play'[8] were undoubtedly also taking-place during traditional and pre-computer cartographic practice as part of the processes of making 'scientific facts'.[9] Therefore, the merging of playing and mapping is not exclusive to map use, but can be an important part of the design process of map making.[10] Indeed, a limited number of ethnographic studies regarding map-making highlight the complexity of decisions and analogies to play in the 'making' process of maps; where maps function as a 'playing field where different actor frames met, were shared, and sometimes competed.'[11]

What is most important for this book, then, is to understand why supposed asymmetries between mapping and play are so persistent. First and foremost, the cultural norms associated with mapping entice people to believe that the science of mapping is an objective, factual and serious business.[12] This discourages us from looking through the cracks of scientific workplaces where maps are made. There is little room for play in such a formalized and bureaucratic understanding of cartography as a techno-scientific pursuit. Recently, critical cartography scholars have started to unpack assumptions that underlie such objective conceptions of mapping discourses.[13] Yet their investigations still usually pertain to questions of power and play remains under-exposed. We applaud such work for criticizing asymmetrical assumptions about power and objectivity in relation to mapping, but we still believe that the lack of attention to play is based in a deep-seated idea that maps, as immutable mobiles[14], are serious instruments of power, doing work where play is irrelevant.[15] In this book we explore arguments to the contrary, but at this stage it is worth noting the wider cultural differences embodied in the two contrasting tropes: play signifies creativity, possibility, and flow, whereas immutability connotes closure, fixation and certainty. As one of the authors

---

7 David Harvey, *Explanation in Geography*, New York: St. Martin's Press, 1969.

8 Brian Sutton-Smith, *The Ambiguity of Play*, Cambridge, Massachusetts: Harvard University Press, 2001, pp. 4-5.

9 John Law, *After Method: Mess in Social Science Research*, London: Routledge, 2004; Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter, Cambridge, Massachusetts: Harvard University Press, 1993.

10 Chris Perkins, 'Playing with Maps', pp. 167-188; Alex Gekker, '*Digital Maps as Objects of Playful-Casual Power*', PhD. diss., Utrecht University, 2016; forthcoming.

11 Linda J. Carton. Map Making and Map Use in a Multi-Actor Context. Spatial Visualizations and Frame Conflicts in Regional Policymaking in the Netherlands, Delft: TU Delft, 2007, p. iv.

12 Denis Wood, *Rethinking The Power of Maps,* New York: The Guildford Press, 2010: 4-7.

13 Jeremy W. Crampton, *Mapping: A Critical Introduction to Cartography and GIS,* Malden, Massachusetts: Wiley-Blackwell, 2010.

14 Bruno Latour, 'Visualization and Cognition: Drawing Things Together' in Michael Lynch and Steve Woolgar, *Representation in Scientific Activity*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 1990, pp. 19-68.

15 Sybille Lammes, 'Digital Mapping Interfaces: From Immutable Mobiles to Mutable Images', *New Media & Society* (2016).

of this book noted recently[16], this belief in mapping *versus* playing has even become further engrained at a time when digital maps appear to be direct translators of real-live data, and the map *seems* to have become the territory, accessible through our fingertips.[17] This recurrent, yet deceiving, contrast between mapping and playing may well explain the lack of attention given to play in most accounts of mapping.

In a bid to further develop and refine an understanding of mapping as a playful process, and by way of contrast, we show the potential of approaching mapping from a ludic perspective, approached as plural, situated and processual.[18] Our point of departure is an understanding of play as both an actual and possible attitude to *all* mapping practices, and emphatically *not* as being opposed to serious mapping. We use a ludic lens as a way to build an alternative conceptual framework for understanding mapping. In doing so, our framework seeks to redress asymmetric power relations and draws attention to the plural and situated relations between digital mapping and play. As will become evident, the different playful mapping cases investigated in the following chapters of this book help us to look at research topics in creative and new ways, by offering new approaches to mapping as cultural ludic practices. We will return to methodologies in the conclusion of our arguments.

Play, Pleasure, and Practices

But how do we define play in this book? Play studies and cultural studies have both shown that play is not just fun or light entertainment, but a cultural praxis that can be very much related to power.[19] In line with this, we define play as an involvement in activities that give participants pleasure, but are not necessarily unserious or light-hearted. Furthermore, playful activities may, to a certain extent, be constrained by specific parameters or rules, as is the case with the computer games discussed in chapter 4. However, this is not necessarily always so either, as play can also be free and even anarchistic, as is poignantly illustrated in chapter 6 about protest mapping and play. Also, the duration of involvement in play may vary as it can span longer or shorter stretches of time, and this involvement can also vary according to the amount of 'incorporation'.[20] Furthermore, it is important to note that play is *not* characterized by boredom or anxiety, although boredom can be an impetus to start playing. Additionally, as several scholars have argued, play is not necessarily limited to domains such as the playground or a computer-game played on our desktops. Indeed, our whole culture is imbued with play[21], or is even born out of it.[22] As such, play is also a networked

16 Alex Gekker, '*Digital Maps as Objects of Playful-Casual Power*', PhD. diss., Utrecht University, 2016; forthcoming.

17 Sam Hind and Sybille Lammes, 'Digital Mapping as Double-Tap: Cartographic Modes, Calculations and Failures', *Global Discourse: An Interdisciplinary Journal of Current Affairs and Applied Contemporary Thought* (2015).

18 Nigel Thrift, *Non-Representational Theory: Space, Politics, Affect*, London: Routledge, 2008.

19 John Fiske, *Power Plays, Power Works*, London: Verso, 1993.; Alexander R. Galloway, *Gaming: Essays on Algorithmic Culture*, Minneapolis: University of Minnesota Press, 2006.

20 Gordon Calleja, *In-Game: From Immersion to Incorporation*, Massachusetts: The Massachusetts Institute of Technology Press, 2011, p. 3.

21 Brian Sutton-Smith, *The Ambiguity of Play*.

22 Johan Huizinga, *Homo Ludens: A Study of the Play-Element in Culture*, Amsterdam: Amsterdam

praxis and 'is not tied to objects but brought by people to the complex interrelations with and between things that form daily life'.[23]

In the cases that will be analyzed in the following chapters, playful mapping refers to any mapping practice in which participants experience a combination of pleasure and ludic involvement during the process of mapping: from map-making, through to the deployment of mapping in particular navigational, sporting and strategic tasks. Additionally, in line with Sicart's approach, cartographical play does not simply unfold through an encounter with the map as an object, but also through a shifting assemblage emerging out of spatio-temporal translations between things (a building, a mobile phone, a tree, a paper map, an interface, a GPS receiver), contexts (commuting as 'playbour', topography, the weather), other people (co-makers, players, and bystanders), embodied actions (shouting, touching, measuring, walking, running, smelling) and feelings and emotions (excitement, fun, frustration, or anger).

The figure of the assemblage has emerged in recent years as an influential organizing device across many fields of investigation. Assemblage thinking focuses attention on the relation between many different material things that come together to facilitate particular tasks or activities. Informed by thinkers from Science and Technology Studies (STS), by Deleuze and Guattari[24] and by artistic-practice, assemblage thinking has been deployed for example in urban studies[25], island studies[26] and indeed mapping.[27]

We believe that the fluidity of this assemblage and its playful affordances may be even more prevalent when mapping is done in the field, and during 'pervasive' play in a physical environment.[28] This is most clearly evidenced in our case-studies of playful fieldwork and location-based games. In those kind of mapping circumstances, play is extended to the physical 'real' world. Such an extension enables players on the street or in the field to form and become part of assemblages that absorb and shed unanticipated things, such as people living on the game board, serendipitous experience or material objects. Luck, risk, fate or failure become foregrounded as shape-shifting factors of playful mapping assemblages when play takes place *in situ*.

As a consequence of our perspective towards playful mapping as akin to fluid assemblages, Huizinga's[29] theoretical notion of the 'magic circle' becomes untenable, or at least

University Press, 1938.

23 Miguel Sicart, *Play Matters*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2014, pp. 1-2.

24 Giles Deleuze and Fèlix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia,* trans. Brian Massumi, Minneapolis: University of Minnesota Press, 1987.

25 Ben Anderson and Colin McFarlane, 'Assemblage and Geography', *Area* 43, no. 2 (2011): 124-127.

26 Elaine Stratford, 'The Idea of the Archipelago: Contemplating Island Relations', *Island Studies Journal* 8, no. 1 (2013): 3-8.

27 Gwilym Eades, 'An Apollonian Appreciation of Google Earth', *Geoforum* 41, no. 5 (2010): 671–73

28 Markus Montola, Jaakko Stenros and Annika Waern, *Pervasive Games: Theory and Design*, San Francisco, California: Morgan Kaufmann, 2009.

29 Johan Huizinga, *Homo Ludens.*

of limited potential for our approach. After all, how can we speak of delineated and closed circles when we approach mapping assemblages as being unstable in shape and unconstrained by any pre-defined limits? Play and game-scholars, such as Calleja[30], Consalvo[31], Pargman and Jakobsson[32] and Taylor[33], support this critique and see the 'magic circle' as a theoretical concept depending too much on pre-given, unchangeable and stable boundaries.

As an alternative to the 'magic circle', we therefore regard playful contexts as always an outcome of a process. In Latourian terms, playful contexts become nodes in a network that can be strengthened or weakened, and whose shape depends on players' relationality within that network, as well as on the translations that players seek to make between different parts of the playful assemblage. In the case-study on the island of Gozo as described in chapter 2 of this book, for example, the limits to the island defined where play could not take place. However, in other ways, the shape of the magic node[34] frequently changed as participants enrolled new actors into their assemblage, and also decided to remove certain elements. Thus, the mapping assemblages morphed during game play and did not have pre-given spatio-temporal or technological boundaries.

So, in this book we approach play as a potential formative aspect of *all* mapping practices. Of course, any social practice can include lusory attitudes, but we believe that strong similarities between mapping and playing can invite participants to hybridize both practices in particularly strong ways. In the following section, we explain what the most important correspondences between mapping and play are.

Compatibilities of Playing and Mapping

A first correspondence between play and mapping emerges through the rhetorical power that informs and drives both practices. In the wake of ground-breaking work from theorists such as Brian Harley[35] and Denis Wood[36], the power of mapping has received significant intellectual consideration. Early theoretical elaborations often leant on Marxian, or structuralist, approaches to mapping as an exploitative tool of capitalist control. This emphasis on control and hegemony can still be discerned in later post-structural approaches.[37] In cultural

30 Gordon Calleja, 'Erasing the Magic Circle' in John R. Sageng, Hallvard J. Fossheim and Tarjei M. Larsen (eds) *The Philosophy of Computer Games*, Heidelberg: Springer Dordrecht, 2012, p. 77-91.

31 Mia Consalvo, 'Rule Sets, Cheating, and Magic Circles: Studying Games and Ethic', *International Review of Information Ethics* 4 (2005): 7-12.

32 Daniel Pargman and Peter Jakobsson, 'The Magic Is Gone: A Critical Examination of the Gaming Situation' in Manthos Santorineos, *Gaming realities: A challenge for digital culture*, Athens: Fournos, 2006, pp. 15-22.

33 Laurie Taylor, 'When Seams Fall Apart: Video Game Space and the Player', *Game Studies: The International Journal of Computer Game Research* 3, no. 2 (2003).

34 Sybille Lammes, 'Playing the World', pp. 84–96.

35 John Brian Harley, 'Deconstructing the Map', *Cartographica* 26, no. 2 (1989): 1-20.

36 Denis Wood, *The Power of Maps*, New York: The Guildford Press, 1992; Denis Wood *Rethinking The Power of Maps.*

37 Jeremy W. Crampton, *Mapping.*

studies, power has also been understood in such (neo)Marxist terms, but is also directly related to play. Play and power may be especially linked when users' appropriate meaning over cultural artifacts through play and pleasure.[38]

Whereas such investigations into the links between mapping, media and power are mainly concerned with pre-digital technologies, the status of play and mapping has shifted since the advent of the digital. As it stood in the last decades of the twentieth century, cultural studies still leant heavily on conceptions of apparatuses of control – based on Marxist, Foucauldian or, on-occasion, psycho-analytical discourses. At this time and age, such theoretical frameworks become harder sustain. We indeed subscribe to Alexander Galloway's observation that we have now moved from apparatus of control to *networks* of control.[39] As a consequence, at present, playing and mapping take place far more through interactions within fluid networks of media technologies, in which users are 'enmeshed' as actors.

Yet, it is important to keep in mind that such networks are still very much about power. Whilst playful appropriations of meaning may be a subversive strategy within apparatuses of control, we are now talking about far more mutable, complex and fluid networks of media technologies. In such networks, the pleasure and fun of 'shallow' or 'deep' hacking practices can be empowering, but can also, sometimes unwittingly, feed into ideologies of financial gain and help enforce capitalist ideologies.[40] The satnav app *Waze*, described in chapter 5 for example, engages users into 'taking the road' through play by asking drivers to add data to the map that is shared with other drivers, and in so doing, earns points. At first glance, this seems to empower drivers through play; functioning as an impetus for community-driven activities that bring pleasure and ownership over mapping practices. However, questions remain over whether users 'own' their cartographical data, or share them for purposes of financial gain with others in this network, and in particular with the owners of the app.[41] These data are valuable for commercial enterprises, such as Google, enabling them to refine their maps and to gather data on traffic flow and drivers' behavior, as well as selling location-tagged advertisements to third parties. So, whilst networks of control enroll users more actively in their assemblages, giving them some playing-power and even opening up possibilities for users to track how cartographical 'facts' are made[42], digital mapping practices can also be disempowering and play can be a lubricator facilitating hegemonic processes.

---

38 See: John Fiske, *Television Culture*, London: Methuen, 1987; John Fiske, *Power Plays, Power Works*; Jackie Stacey, *Star-Gazing: Hollywood Cinema and Female Spectatorship*, London: Routledge, 1994; Elaine Stratford, 'The Idea of the Archipelago'.

39 Alexander, R. Galloway, *Protocol: How Control Exists after Decentralization*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2004.

40 Craig, M. Dalton, 'For Fun and Profit: The Limits and Possibilities of Google-Maps-Based Geoweb Applications', *Environment and Planning A* 47, no. 5 (2015): 1029-46.

41 Sam Hind and Alex Gekker, 'Outsmarting Traffic, Together': Driving as Social Navigation', *Exchanges: The Warwick Research Journal* 1, no. 2 (2014): 1-17.

42 Valérie November, Eduardo Camacho-Hübner and Bruno Latour, 'Entering a Risky Territory: Space in the Age of Digital Navigation', *Environment and Planning D: Society and Space* 28 (2010): 581-599.

A second important similarity between mapping and playing is that as activities, they frequently trigger users to engage with processes of spatial navigation and test the possibilities of environments.[43] This navigational trope is especially prevalent when mapping takes place in the field and/or in a quotidian context. Be it a spatio-temporal environment simulated on a computer screen (such as some of the games described in chapter 3, or *Google Earth*), or an actual physical environment through which users navigate, mappers and players both engage in an activity that can be characterized as explorative and navigational. Kitchin and Dodge[44] highlight these processual elements that are called into play in mapping practice, arguing that maps so to speak 'emerge' during their deployment. Game-scholar Espen Aarseth's early definition of play also aligns seamlessly with navigation when seen from this perspective: 'an alternative to the narrative' by stimulating an 'active experimentation' of and within an environment.[45] Clearly, this spatial logic[46] is very similar to that of mapping, where explorers, wayfinders, dwellers, or cartographers navigate and chart an environment using mapping technologies, but also test spatial possibilities in an active interaction with a map limited by particular temporalities.[47] This strong resemblance between mapping and playing as processually and spatio-temporally driven by users as well as things, explains why maps are so attractive to use in playful settings. It also assists in explaining why playful practices so often include mapping activities[48]; a map can easily become a game-board, and a playground can transform into a map.

So, mapping and playing share a preoccupation with making things happen through navigating, testing and producing spatio-temporal relations. In this navigation, stories unfold, which brings us to another striking similarity. Clearly, mapping and playing can both be regarded as having narrative potential. In particular, they offer users strong tools to develop spatial stories: games can prompt players to create these narratives, with plots and characters that frequently unfold in spatial practice.[49] But mapping has also recently been rethought as a narrative practice[50], embodying particular spatial stories.[51]

---

43 Valérie November, Eduardo Camacho-Hübner and Bruno Latour, 'Entering a Risky Territory: Space in the Age of Digital Navigation'.

44 Rob Kitchin and Martin Dodge, 'Rethinking Maps', *Progress in Human Geography* 31, no. 3 (2007): 331-344.

45 Espen Aarseth, 'Allegories of Space: The Question of Spatiality in Computer Games,' 152.

46 Henry Jenkins, 'Game Design as Narrative Architecture' in Noah Wardrip-Fruin and Pat Harrigan (eds), *First Person: New Media As Story, Performance, and Game*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2004, pp. 118-130.

47 Mary Fuller and Henry Jenkins, 'Nintendo® and New World Travel Writing: A Dialogue' in Steven G. Jones (ed.), *Cybersociety: Computer-Mediated Communication and Community*, Thousand Oaks, California: Sage, 1995, pp. 57-72.

48 Chris Chesher, 'Navigating Sociotechnical Spaces: Comparing Computer Games and Sat Navs as Digital Spatial Media', *Convergence: The International Journal of Research into New Media Technologies* 18, no.3 (2012): 315-30.

49 Henry Jenkins, 'Game Design as Narrative Architecture', p. 118–30.

50 Sébastien Caquard, 'Cartography I: Mapping narrative cartography', *Progress in Human Geography* (2011).

51 Michel de Certeau, *The Practice of Everyday Life,* Berkeley, California: The University of California Press, 1984.

Furthermore, these stories emerge from specific *designed* affordances that entice us into making them happen. Chapter 4, in particular, explores some of the 'designerly' strategies enacted by people crafting golf courses as playful environments. But map designers also certainly playfully engage in the serious business of designing maps, with digital technologies encouraging a more iterative and processual manner of making mapping.[52] Hence, like play, maps are also 'designerly' assemblages, crafted to incorporate specified aesthetics and functions through which they invite users to take certain actions.[53]

Another strong link between the two activities is that mapping is part of a material assemblage which *has* play. Following play-scholar Sutton-Smith[54], as well as our own take on play as emerging from a changeable assemblage, we see play as an ambiguous activity, thus drawing attention to 'the play within' maps, or 'playing with' mapping. In a mobile cartographical game, as discussed in chapter 3, a location on the map, such as a bus stop, can have play by gaining plural and intertwined meanings. The real and the imagined, for example, might come together during a game of *Pokémon GO*, in which mapping practices are synchronously referenced alongside imagined and 'real' parts of the playful assemblage.

Assemblages are playful in the sense that they are always open to reconfigurations by users *in situ* and have no pre-fixed structure, being performative, processual and transformable.[55] Indeed, play itself has been theorized as amenable to assemblage thinking, with Taylor suggesting that 'games, and their play, are constituted by…interrelations'.[56]

So, things are aligned and realigned during mapping, and people engaging with a mapping assemblage enroll their own bodies, signals from satellites, their movements, road surfaces and stuff they find during the mapping process to add to particular, situated and mutable combinations of practice. There is play in how they establish this shifting network and it is exactly this quality that brings so much ludic potential to mapping as a performative practice.

Mapping Modes

Hence, mapping intrinsically offers interesting ludic possibilities through narrative, design, power, navigation and the inherent playability in mapping assemblages. Although we would therefore suggest that mapping and playing are close associates that are frequently enrolled into one another, it is important to differentiate between different kinds of mapping and how, as well as to what extent, they invite specific and situated ludic attitudes. To develop this stance further, we argue for a conceptual approach to playful mapping in terms of 'modes'. As first proposed by Dodge, Perkins and Kitchin[57], the notion of a mapping 'mode' was

52 Chris Perkins, 'Playing with Maps', p. 167-188.
53 Bieke Cattoor and Chris Perkins, 'Re-cartographies of Landscape: New Narratives in Architectural Atlases', *The Cartographic Journal* 51, no. 2 (2014): 166-178.
54 Brian Sutton-Smith, *The Ambiguity of Play*.
55 Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory*, Oxford: Oxford University Press, 2005.
56 TL Taylor, 'The Assemblage of Play', *Games and Culture* 4, no. 4 (2009): 323.
57 Martin Dodge, Chris Perkins and Rob Kitchin, 'Mapping Modes, Methods and Moments: A Manifesto

introduced together with their concepts of 'moments' and 'methods' in an effort to further a processual rethinking of the medium. In their manifesto, Dodge, Perkins and Kitchin call for a situated approach to mapping that avoids universalistic definitions. The concept of modes casts mapping as situated and 'ontogenic'.[58] 'Mapping modes' are explained by the authors as 'the milieu in which mapping practice occur', and as 'unique to their time and place and transitory'[59]. Such a perspective on mapping practices opens up possibilities to view playful mapping as plural and situated; unfolding both through and within particular 'timespaces'.[60] At the same time, it acknowledges that the level to which mapping can be playful depends on the specific spatio-temporal setting.

Meandering Mapping Modes

The theoretical framework of this book is thus based on an understanding of mapping as processual and situated. Taking a plural understanding of mapping modes as our starting point, the following chapters examine the ludic affordances of particular digital and mobile cartographies, and how the digital mapping modes that are under scrutiny call into being specific kinds of playability. Mapping modes are not simply unique in the sense that they emerge from situated practices, such as the setting of the location-based game discussed in chapter 2 played on an island with pedagogic intent. Rather, mapping modes are also historically dependent and emerge with technological assemblages of a particular era, such as the changing configuration of mapping in wargames during the post-second-world-war period in chapter 6. Their processual properties also permit us to think of mapping modes as morphing over time. Novel mapping modes have arisen in this digital age, not by replacing 'old' modes, but hybridizing them in new ways. This calls into being new mapping modes and ludic possibilities.

The most striking contrast between digital and analogue maps is that digital maps frequently invite users to change the assemblage. This has the by-product of extending users' possibilities for playing with maps. Analogue maps, as classical 'immutable mobiles'[61], were frequently regarded as 'scientific things', or outcomes of processes that were difficult to modify. Once they began to circulate in the world, change on a surface-level was possible, but the general social role was to 'fix' knowledge.[62] Yet, in the case of much digital mapping, the *image* became mutable as it visually absorbed fleeting 'markers', such as the position of

for Map Studies' in Martin Dodge, Chris Perkins, and Rob Kitchin (eds) *Rethinking Maps: New Frontiers in Cartographic Theory*, London: Routledge, 2009, pp. 220-243.

58 Rob Kitchin and Martin Dodge, 'Rethinking Maps', *Progress in Human Geography* 31, no. 3 (2007): 331-344.

59 Martin Dodge, Chris Perkins and Rob Kitchin, 'Mapping Modes, Methods and Moments', p. 221.

60 Jon May and Nigel Thrift (eds), *TimeSpace: Geographies of Temporality*. London: Routledge, 2001.

61 Bruno Latour, 'Visualisation and Cognition: Thinking with Eyes and Hands' in Henrika Kuklick (ed.), *Knowledge and Society Studies in the Sociology of Culture Past and Present* (vol. 6), New York: Jai Press, 1986, p. 7.

62 Bruno Latour, 'Drawing Things Together' in Michael Lynch and Steve Woolgar, *Representation in Scientific Activity*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 1990, pp. 19-68; Valérie November, Eduardo Camacho-Hübner and Bruno Latour, 'Entering a Risky Territory'.

the navigator, traffic updates, or a crowd-sourced update to the mapped display.[63] Elements of immutability may remain, in the code or cultural connotations of the medium, but these assemblages are more complex and dynamic. They therefore increasingly insert 'play' into contemporary mapping.[64]

Digital mapping modes have the potential for being more playful because of the high degree of transformative spatial interaction between actants that interfaces mediate. So, their ludic qualities are related to the affordances of digital technologies that are now inscribed in the mapping assemblage. Or as play-scholar Miguel Sicart phrased it*:* 'programming a computer is making it play; that is, be another machine. So… all computation is play'.[65] The point here is that digital cartographical interfaces, such as Ingress or a navigational app on our phone, have play because of their computational disposition. This opens up novel connections between playing and mapping. With the advent of digital mapping, modes have morphed into a more playful endeavor; offering possibilities to engage with computer systems in a performative and interactive fashion.

As part of this shift, the tactility of our interaction with maps has changed as well, as users interact with mapping technologies through touching, clicking, or speaking. This tactile, reciprocal and semi-direct engagement with the interface can be described as a 'double tap mapping mode'.[66] It gives users the idea that they have unmediated access to a physical environment – such as a city, an island or a motorway network – through the mapping interface. As we will see in some of the following chapters, it is only when technologies break down that we realize such immediacy is constructed. Simultaneously, this reveals that the creation of immediacy heavily depends on black-boxing processes that go on 'behind' the interface to facilitate this sense of directness. In the educational mapping games that are discussed in the next chapter, for example, playful affordances help to expose this constructedness of direct correspondence. So, play can be used as a tactic to problematize the 'double tap' mode that can be so dominant in digital mapping practices.

To fully understand digital mapping practices in terms of play, we also have to be aware of the increased mobility of user and mapping interfaces. Not only is this in terms of portability, but also regarding how this user mobility is directly 'absorbed' *in* the mapping interface, further reinforcing the sense of immediacy. When we walk, run, drive or cycle, our movements instantaneously result in a changing visual appearance of the map image. Indeed, this double-sided mobility is built into these digital systems: actions are in a split-second absorbed into the mapping device, producing new relations between users and the interface. The mapping interface and operator become 'communicating vessels', hybridizing the mover

63 Sam Hind and Alex Gekker, 'Outsmarting Traffic, Together'; Chris Perkins, 'Plotting Practices and politics: (Im)mutable Narratives in OpenStreetMap', *Transactions of the Institute of British Geographers* 39, no. 2 (2014): 304-17.

64 Sybille Lammes, 'Destabilising Playgrounds: Cartographical Interfaces, Mutability, Risk and Play' in Daniel Cermak-Sassenrath, Chek T. Tan, and Charles Walker, *Playful Subversion of Technoculture*, Heidelberg: Springer, 2016; in publication.

65 Miguel Sicart, *Play Matters*, p. 100.

66 Sam Hind and Sybille Lammes, 'Digital Mapping as Double-Tap'.

and mapping interface. This hybridization does not only result in a merging of mapping and touring as defined by de Certeau[67], but also results in a visual image of the map where users can see themselves and others as moving pawns *in* the map.[68]

Using this concept of playful mapping modes, we aim to move away from taxonomies or ontologies of playful mapping – including the question of what playful mapping might *be*. Instead, we want to show how playful mapping can be *enacted* through a series of case-studies, written to analyze how mapping and play, as forms of situated knowledge, merge in a specific digital or post-digital context. In some cases, this constitutes working as an integral part of fieldwork for students, elsewhere it is central to the simulation of playing golf. In other contexts, it is crucial for the designing and playing of videogames, for playing urban gaming, for automotive navigation and as an important part of activism. Through examining these different cases, our book reveals situated and heterogeneous knowledge practices enrolled in digital mapping.

References

Aarseth, Espen, 'Allegories of Space: The Question of Spatiality in Computer Games' in Markku Eskelinen and Raine Koskimaa (eds) *Cybertext Yearbook 2000* Jyväskylä: University of Jyväskylä, 2000, pp. 152-171.

Anderson, Ben and Colin McFarlane, 'Assemblage and Geography', *Area* 43, no. 2 (2011): 124-127.

Calleja, Gordon, *In-Game: From Immersion to Incorporation*, Massachusetts: The Massachusetts Institute of Technology Press, 2011.

Calleja, Gordon,'Erasing the Magic Circle' in John R. Sageng, Hallvard J. Fossheim and Tarjei M. Larsen (eds) *The Philosophy of Computer Games*, Heidelberg: Springer Dordrecht, 2012. 77-91.

Caquard, Sébastien, 'Cartography I: Mapping narrative cartography', *Progress in Human Geography* (2011). Accessed October 25, 2016. doi: 10.1177/0309132511423796.

Carton, Linda J. *Map Making and Map Use in a Multi-Actor Context. Spatial Visualizations and Frame Conflicts in Regional Policymaking in the Netherlands*, Delft: TU Delft, 2007.

Cattoor, Bieke and Chris Perkins, 'Re-cartographies of Landscape: New Narratives in Architectural Atlases', *The Cartographic Journal* 51, no. 2 (2014): 166-178.

Chesher, Chris, 'Navigating Sociotechnical Spaces: Comparing Computer Games and Sat Navs as Digital Spatial Media', *Convergence: The International Journal of Research into New Media Technologies* 18, no.3 (2012): 315-30.

Consalvo, Mia, 'Rule Sets, Cheating, and Magic Circles: Studying Games and Ethics', *International Review of Information Ethics* 4 (2005): 7-12.

Crampton, Jeremy W. *Mapping: A Critical Introduction to Cartography and GIS,* Malden, Massachusetts: Wiley-Blackwell, 2010.

Dalton, Craig M, 'For Fun and Profit: The Limits and Possibilities of Google-Maps-Based Geoweb Applications', *Environment and Planning A* 47, no. 5 (2015): 1029-46.

67 Michel de Certeau, The Practice of Everyday Life.

68 Sybille Lammes, 'Digital Mapping Interfaces'; Sybille Lammes and Clancy Wilmott, 'Mapping the City, Playing the City: Location-based Apps as Navigational Interfaces', *Convergence* (2016; forthcoming).

de Certeau, Michel, *The Practice of Everyday Life,* Berkeley, California: The University of California Press, 1984.

Deleuze, Giles and Fèlix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia,* trans. Brian Massumi, Minneapolis: University of Minnesota Press, 1987.

Deterding, Sebastian, Miguel Sicart, Lennart Nacke, Kenton O'Hara and Dan Dixon, 'Gamification. Using Game-Design Elements in Non-Gaming Contexts' in *Proceedings of the 2011 Annual Conference on Human Factors in Computing Systems (extended abstracts)*: Vancouver: Association for Computing Machinery, 2011, pp. 2425-2428.

Dodge, Martin, Chris Perkins and Rob Kitchin, 'Mapping Modes, Methods and Moments: A Manifesto for Map Studies' in Martin Dodge, Chris Perkins, and Rob Kitchin (eds) *Rethinking Maps: New Frontiers in Cartographic Theory*, London: Routledge, 2009, pp. 220-243.

Eades, Gwilym, 'An Apollonian Appreciation of Google Earth', *Geoforum* 41, no. 5 (2010): 671–73

Fiske, John, *Television Culture*, London: Methuen, 1987.

Fiske, John, *Power Plays, Power Works*, London: Verso, 1993.

Fuller, Mary and Henry Jenkins, 'Nintendo® and New World Travel Writing: A Dialogue' in Steven G. Jones (ed.), *Cybersociety: Computer-Mediated Communication and Community*, Thousand Oaks, California: Sage, 1995, pp. 57-72.

Galloway, Alexander R. *Protocol: How Control Exists after Decentralization*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2004.

Galloway, Alexander R. *Gaming: Essays on Algorithmic Culture*, Minneapolis: University of Minnesota Press, 2006.

Gekker, Alex, '*Digital Maps as Objects of Playful-Casual Power*', PhD. diss., Utrecht University, 2016; forthcoming.

Harley, Brian, 'Deconstructing the Map', *Cartographica* 26, no. 2 (1989): 1-20.

Harvey, David, *Explanation in Geography*, New York: St. Martin's Press, 1969.

Hind, Sam, 'Maps, Kettles and Inflatable Cobblestones: The Art of Playful Disruption in the City', *Media Fields Journal: Critical Explorations in Media and Space* 11 (2015). Accessed October 28, 2016. Available at: http://www.mediafieldsjournal.org/tactical-frivolity-and-disobed/.

Hind, Sam and Alex Gekker, 'Outsmarting Traffic, Together': Driving as Social Navigation', *Exchanges: The Warwick Research Journal* 1, no. 2 (2014): 1-17.

Hind, Sam and Sybille Lammes, 'Digital Mapping as Double-Tap: Cartographic Modes, Calculations and Failures', *Global Discourse: An Interdisciplinary Journal of Current Affairs and Applied Contemporary Thought* (2015).

Huizinga, Johan, *Homo Ludens: A Study of the Play-Element in Culture*, Amsterdam: Amsterdam University Press, 1938.

Jenkins, Henry, 'Game Design as Narrative Architecture' in Noah Wardrip-Fruin and Pat Harrigan (eds), *First Person: New Media As Story, Performance, and Game*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2004, pp. 118-130.

Kitchin, Rob and Martin Dodge, 'Rethinking Maps', *Progress in Human Geography* 31, no. 3 (2007): 331-344.

Lammes, Sybille, 'Spatial Regimes of the Digital Playground: Cultural Functions of Spatial Practices in Computer Games', *Space and Culture* 11, no. 3 (2008): 260-72.

Lammes, Sybille, 'Playing the World: Computer Games, Cartography and Spatial Stories', *Aether: The Journal Of Media Geography* 3 (Summer 2008): 84–96.

Lammes, Sybille, 'Destabilising Playgrounds: Cartographical Interfaces, Mutability, Risk and Play', in Daniel Cermak-Sassenrath, Chek T. Tan, and Charles Walker, *Playful Subversion of Technoculture*, Heidelberg: Springer, 2016; in publication.

Lammes, Sybille,'Digital Mapping Interfaces: From Immutable Mobiles to Mutable Images', *New Media & Society* (2016).

Lammes, Sybille and Clancy Wilmott, 'Mapping the City, Playing the City: Location-based Apps as Navigational Interfaces', *Convergence* (2016; forthcoming).

Latour, Bruno, 'Visualisation and Cognition: Thinking with Eyes and Hands' in Henrika Kuklick (ed.), *Knowledge and Society Studies in the Sociology of Culture Past and Present* (vol. 6), New York: Jai Press, 1986, pp. 1-40.

Latour, Bruno, 'Visualisation and Cognition: Drawing Things Together' in Michael Lynch and Steve Woolgar, *Representation in Scientific Activity*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 1990, pp. 19-68.

Latour, Bruno, *We Have Never Been Modern*, trans. Catherine Porter, Cambridge, Massachusetts: Harvard University Press, 1993.

Latour, Bruno, *Reassembling the Social: An Introduction to Actor-Network-Theory*, Oxford: Oxford University Press, 2005.

Law, John, *After Method: Mess in Social Science Research*, London: Routledge, 2004.

May, Jon and Nigel Thrift (eds) *TimeSpace: Geographies of Temporality*. London: Routledge, 2001.

Montola, Markus, Jaakko Stenros and Annika Waern, *Pervasive Games: Theory and Design*, San Francisco, California: Morgan Kaufmann, 2009.

November, Valérie, Eduardo Camacho-Hübner and Bruno Latour. 'Entering a Risky Territory: Space in the Age of Digital Navigation', *Environment and Planning D: Society and Space* 28 (2010): 581-599.

Pargman, Daniel, and Peter Jakobsson, 'The Magic Is Gone: A Critical Examination of the Gaming Situation' in Manthos Santorineos, *Gaming realities: A challenge for digital culture*, Athens: Fournos, 2006, pp. 15-22.

Perkins, Chris, 'Mapping golf: A contextual study', *Cartographic Journal* 43, no. 3 (2006): 208-223.

Perkins, Chris, 'Playing with Maps' in Martin Dodge, Rob Kitchin and Chris Perkins, *Rethinking Maps*, London: Taylor and Francis, 2009, pp. 167-188.

Perkins, Chris, 'Performative and Embodied Mapping' in Rob Kitchin, *International Encyclopedia of Human Geography*, Oxford: Elsevier, 2009, pp. 126-132.

Perkins, Chris, 'Plotting Practices and politics: (Im)mutable Narratives in OpenStreetMap', *Transactions of the Institute of British Geographers* 39, no. 2 (2014): 304-17.

Raessens, Joost, 'Playful Identities, or the Ludification of Culture', *Games and Culture* 1, no. 1 (2006): 52-57.

Perkins, Chris, 'The Ludification of Culture' in Mathias Fuchs, Sonia Fizek, Paolo Ruffino and Niklas Schrape, in *Rethinking Gamification*, Lüneburg: Meson Press, 2014, pp. 91-114.

Sicart, Miguel, *Play Matters*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2014.

Stacey, Jackie, *Star-Gazing: Hollywood Cinema and Female Spectatorship*, London: Routledge, 1994.

Stratford, Elaine, 'The Idea of the Archipelago: Contemplating Island Relations', *Island Studies Journal* 8, no. 1 (2013): 3-8.

Sutton-Smith, Brian, *The Ambiguity of Play*, Cambridge, Massachusetts: Harvard University Press, 2001.

Taylor, Laurie, 'When Seams Fall Apart: Video Game Space and the Player', *Game Studies: The International Journal of Computer Game Research* 3, no. 2 (2003).

Taylor, TL, 'The Assemblage of Play', *Games and Culture* 4, no. 4 (2009): 331-339.

Thrift, Nigel, *Non-Representational Theory: Space, Politics, Affect*, London: Routledge, 2008.

Wood, Denis, *The Power of Maps*, New York: The Guildford Press, 1992.

Wood, Denis, 'Cartography Is Dead (Thank God!)', *Cartographic Perspectives* 45 (2003): 4-7.

Wood, Denis, *Rethinking The Power of Maps,* New York: The Guildford Press, 2010.

Woodyer, Tara, 'Ludic geographies: not merely child's play', *Geography Compass* 6, no. 6 (2012): 313-326.

CHAPTER 2: GOGOGOZO: THE MAGIC OF PLAYFUL MAPPING MOMENTS

SYBILLE LAMMES, CHRIS PERKINS AND CLANCY WILMOTT

In their conclusion of *Rethinking Maps*, Dodge, Perkins and Kitchin[1] described three heuristic devices which could be used to better understand performative and ethnographic aspects of mapping: *modes, moments and methods*. Given the project of this book – to undertake a study of *playful* mapping – these three frames offer a useful entry-point into thinking about the relations between mapping and play. Conceptual relationships were outlined in the introduction of this book – especially in terms of playful mapping modes in the digital age – but implications of threading this theoretical framework through the design, outlay and analysis of playful mapping activities, play out through empirical exercises. How might notions of moments, as proposed in the mapping manifesto[2] work in case evidence, as practice unfolds in the playfield?

In this chapter, we focus on a case study of playful pedagogic mapping exercises, designed by the authors, undertaken annually with students on a field course on the island of Gozo from 2012-2016. Much of this field course focused on interdisciplinary encounters in the field, mediated by playful mapping methodologies in which groups and individuals engaged specific playful mapping modes, as a strategy for addressing different chosen themes. It reveals the extent to which mappers can shape their assemblages and networks through play – and whether this can be a productive way of encouraging students to become critical and reflexive thinkers. The mode that we devised as a team was specifically designed for learning in a field-based environment (with the particularities of Gozo in mind), using playful encounters with space, place and culture to stimulate flow, ingenuity and creativity. Play offers interesting ways to inspire informal learning[3], not only in situations with younger children, but also encouraging creative engagement for adult learners across a variety of contexts.[4] Playful activities underscore the role of students as active participants in learning, by giving them greater agency to explore and improvise, whilst lecturers or teachers take on roles of guiders, facilitators or mediators. These kinds of learning activities also reframe 'play' from a uniquely entertainment-based activity, to becoming a valuable exercise in engaging

1 Martin Dodge, Rob Kitchin, and Chris Perkins, in *Rethinking Maps: New Frontiers in Cartographic Theory*, London: Routledge, 2009.

2 Martin Dodge, Chris Perkins, and Rob Kitchin, 'Mapping Modes, Methods and Moments: A Manifesto for Map Studies' in Martin Dodge, Chris Perkins, and Rob Kitchin (eds) *Rethinking Maps: New Frontiers in Cartographic Theory*, London: Routledge, 2009, pp. 220-243.

3 Marc Prensky, 'Computer Games and Learning: Digital Game-Based Learning', *Handbook of Computer Game Studies*, 18 (2005): 97–122; James Gee, *What Video Games Have to Teach Us about Learning and Literacy*, London: Palgrave Macmillan, 2014; Constance Steinkuehler, 'Learning in Massively Multiplayer Online Games' in *Proceedings of the 6th International Conference on Learning Sciences*, Los Angeles: International Society of the Learning Sciences, 2004, pp. 521–528.

4 Simon McCallum, 'Gamification and Serious Games for Personalized Health', *Student Health Technology Informatics*, 177 (2012): 85–96; Joyce Neys and Jeroen Jansz, 'Political Internet Games: Engaging an Audience', *European Journal of Communication*, 25, no. 3 (2010): 227–241.

more 'serious' social issues. This potential is increasingly recognized and witnessed by the recent surge in popularity of citizen science games, political games and games for change[5]). Through encouraging creativity and collaboration, games and playful activities have the potential to engage and encourage problem-solving in ways that are especially empowering and accessible, to a generation of digital natives.[6]

The series of playful mapping activities designed for Gozo was grounded in this potential. During the ten day field course program students participated in various playful learning experiences. These ranged from a hybrid locative game designed to facilitate teamwork and island knowledge[7], to a competitive geocache, and more experiential sensory activities, including a smell walk (curated by smell-designer and researcher Kate McLean). In addition board games with island themes were played in the evening, and a playful presentation and game jam were held at the end of the course. Each playful activity fed into broader ludic and pedagogical outcomes of the course – which were then reviewed and fed into the next year in an iterative design process.

Of course, this meant that the exercise changed from year to year, in addition to differences that emerged from the social mix of new cohorts of students becoming involved. In 2012 we started with a comparative exercise between explorative and competitive play where students from a single discipline – human geography – were asked to undertake the exercise in two parts. The first part, a dérive, was inspired by the ambulations of the Situationist International (Sadler 1998) and required students to explore the island and a chosen theme through chance, encounter and detour – points were awarded for completing tasks in new and interesting ways. The second part was structured as a kind of competitive treasure hunt, where students were asked to go and collect data pertaining to their chosen theme and rush towards a final meeting location – points were awarded for speed, the collection of the data (rather than its qualities), and for being the first group to arrive at the final destination. The next year, the course involved students from five different European universities (Manchester, Utrecht, Olomouc, Warwick, and Malta) and from diverse (inter)disciplinary and cultural backgrounds. Due to the expanded course, and interdisciplinary nature of the groups, the competitive part was dropped and the dérive was implemented alongside two other exercises: a hybrid geo-locative game (helped by the skills of our colleagues Jirka Pánek, Lukáš Marek and Vít Pászto) using *WhereIGo* (www.whereigo.com).[8] This gave students direct instructions when they approached particular zones on the island, with a view to encouraging methodological diversity and place knowledge, In addition a smell mapping workshop was run by olfactory designer-researcher Kate McLean using her smell walking exercises.

---

5 Kate McLean, 'Smellmap: Amsterdam—Olfactory Art & Smell Visualisation', *Leonardo*, 8 (January), 2016.

6 Paul Kingsbury and John Paul Jones, 'Walter Benjamin's Dionysian Adventures on Google Earth', *Geoforum* 40, no. 4 (2009): 502–513; Gwilym Eades, 'An Apollonian Appreciation of Google Earth', *Geoforum* 41, no. 5 (2010): 671–673.

7 Jirka Pánek, Alex Gekker, Sam Hind, Jana Wendler, Chris Perkins and Sybille Lammes. 'Encountering Place: Location-Based Games in Interdisciplinary Education', *Cartographic Journal*, in review 2016.

8 Jirka Pánek, Alex Gekker, Sam Hind, Jana Wendler, Chris Perkins and Sybille Lammes. 'Encountering Place: Location-Based Games in Interdisciplinary Education.'

Although not entirely faithful to the philosophy of the Situationists (students were asked to make each other commands, for instance), the dérive aimed to mold the principles of movement, surprise and detour into interactions with the field, their themes and with digital mapping media, such as GPS-enabled action cams, mobile phones and GPS trackers. The dérive was included as an introductory exercise, aiming to help students familiarize themselves with the island at large, while also allowing them to play, to be critical and to reflect on their assumptions about islandness, the themes, maps and play. Finally, in the most recent iteration, we deviated further from the concept of the dérive, by expanding into broader Situationist literature, in particular drawing on Debord's earlier notes on the *Report on the Construction of Situations*[9] than from the *Theory of the Dérive*.[10] Thus the mapping mode morphed. It was renamed *The Situation Game*, and was moved towards the end of the program, to help students build on their prior experience in the field. This was also designed to make the exercise more distinct from the more 'closed' ambulations enacted during the hybrid mapping game. Instead in the situation game the focus was on mapping and play as modes of research, emerging during the design of complex situations, rather than from dérive-based commands. Furthermore, in doing so, the emphasis of the exercise shifted away from the passive 'doing' of play to the role of students in constructively and creatively designing frameworks through which play and mapping could be engaged. During the last time that we ran the course, the smell mapping exercise became part of a broader sensory engagement and contrasted to a sound mapping workshop run by Costantino Oliva, and a kite-mapping workshop run by Pánek, Pászto and Jan Ciupa.

In this chapter, we focus on the thread of Situationist-based exercises as playful mapping modes, and moments – and draw on staff and student experiences of the dérives, and the Situation Game. We choose this subset of the Gozo experience because it offers a particularly rich variety of failures, rhythms, memories and creative engagements enrolled into playful mapping, but also deploy the case as a pedagogic exercise for critical thinking, and method of undertaking research. This chapter reflects on four such collections of moments – not because they are distinct in their occurrence – but because they are typical of the complexities, nuances and possibilities that can be afforded through this kind of work.

Mapping Moments: Failures, Rhythms, Memories and Creative Engagements

We discuss here several mapping moments, and highlight how these modes worked to interrupt and critique a variety of different factors during the learning process in the field. Moments are meaningful points in time during everyday mapping practices and this concept offers a useful way of approaching what actually happens during mapping and reflect upon what it means as a practice. Dodge, Perkins and Kitchin[11] suggest possible moments to

9 Guy Debord, 'Report on the Construction of Situations and on the International Situationist Tendency's Conditions of Organization and Action', trans. Ken Knabb in Ken Knabb (ed.) *Situationist International Anthology*, Berkeley: Bureau of Public Secrets, 1981, pp. 17-25.

10 Guy Debord, 'Theory of the Derive', trans. Ken Knabb in Ken Knabb (ed.) *Situationist International Anthology*, Berkeley: Bureau of Public Secrets, 1981, pp. 62-66.

11 Dodge, Martin., Perkins, Chris and Rob Kitchin, 'Mapping Modes, Methods and Moments: A

analyze in this respect and we deploy four of these to narrate particular mapping and placing stories: 'places and times of failures', 'time–space rhythms of map performance', 'the memories of mapping', and 'newly creative engagement with mapping practice'[12]. The manner and mode of these moments emerged in ways that depended on spatio-temporal settings, situated experiences and the backgrounds and interpretations of the students involved. Through these moments, we will further substantiate the claim we made in the introductory chapter that playful mapping can usefully be considered as a heterogeneous and situated practice – an event-based assemblage of moments that comes together in productive and unexpected ways to augur a complex and highly interesting set of translations.[13]

Moments of Failures: Cheating, Ambiguity and Improvisation

We approach mapping as a practice that can simultaneously contain Apollonian rationality as well as Dionysian playful excess.[14] The realm of Dionysian excess includes failures and messiness to the point where, in practice, failure is ever present in mapping and play.[15] Maybe paradoxically, we approached moments of failure in the dérives and Situation Games as having productive didactical potential – because such moments stimulate students to critically improvise, problem-solve and find new approaches through cheating. This, in turn, provides a crucial point of reflection for students – not just about the nature of play and mapping, but also about the way in which they design and undertake research. In other words, when things fell apart, profound moments of academic reflection became possible. We purposefully inscribed the possibility of Dionysian excess into the game, by making the dérives and Situations open-ended, sandbox like, and open to interpretation – allowing room to flow around and destabilize assemblages through critical failures. We also encouraged students designing the dérive commands and the situations to work with a loose assemblage of analogue and digital technologies and to embrace ambiguity and serendipity. Encountering places and times of failures was understood as an important element of playful mapping, and as central to the process of research and design.

Digital technologies augured their own failures. Some groups of students in the 2014 iteration of the game could not get their GPS device to work, and hence had problems tracking and tracing their paths across the island, and so had to rely on other forms of mapping to record their journey. Other groups could not get the 3/4G network to function in places

Manifesto for Map Studies'.

12 Dodge, Martin, Chris Perkins and Rob Kitchin, 'Mapping Modes, Methods and Moments: A Manifesto for Map Studies,' p. 234.

13 Sybille Lammes, 'Digital Mapping Interfaces: From Immutable Mobiles to Mutable Images', *New Media & Society* (2016); Valerie November, Eduardo Camacho-Hübner, and Bruno Latour, 'Entering a Risky Territory: Space in the Age of Digital Navigation', *Environment and Planning D: Society and Space* 28 (2010): 581-599; Chris Perkins, 'Plotting Practices and politics: (Im)mutable Narratives in OpenStreetMap', *Transactions of the Institute of British Geographers* 39, no. 2 (2014): 304-17.

14 Gwilym Eades, 'An Apollonian Appreciation of Google Earth'; Paul Kingsbury and John Paul Jones, 'Walter Benjamin's Dionysian Adventures on Google Earth.'

15 Sam Hind and Sybille Lammes, 'Digital Mapping as Double-Tap: Cartographic Modes, Calculations and Failures', *Global Discourse: An Interdisciplinary Journal of Current Affairs and Applied Contemporary Thought* (2015).

where they needed it, and so either saved files, photos and videos and uploaded them later – or, wandered around until they found somewhere with a strong enough signal or a Wi-Fi connection. Other moments of messiness or failure occurred when students did not 'properly' understand the commands on the card deck, or the parameters of the situation, or when they deemed the command or the situation to be unsuitable for their current location.

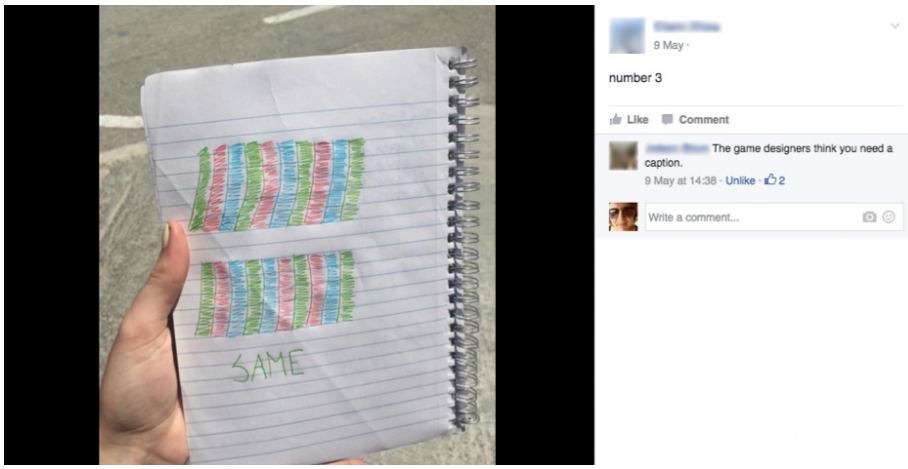

Figure 2.1 *Cheating with Cheating*. The Hunting group (2016) receives Situation instructions to return to a place where they had cheated, record themselves cheating again in three different media, and post the data on the Facebook group in order to achieve 'Likes'. On the third medium – drawing –, the designers of their Situations (Sacred Spaces) comment on the Hunting groups' failure to engage according to their expectations, underscoring the tensions between design and practice.

These minor issues often became combined with powerful influential Gozitan geography, particular the concentric model of roads leading inexorably in towards Rabat (or Victoria), and the mirrored pattern of the Gozitan public transport system. Missing the bus meant waiting for another bus, often for long periods of time, or finding alternative ways to complete the command, or construct the situation. These alternatives often involved cheating either through sheer languor or outright defiance. This led to a grouping of situations and dérive commands appearing at the bus station and the park in the center of Rabat.

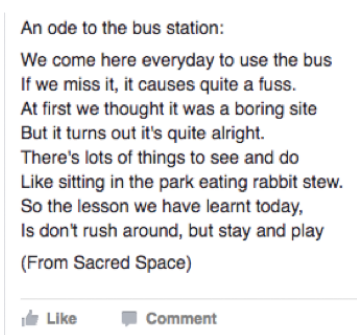

Figure 2.2 *An Ode to the Bus Station.* The Sacred Space group (2016) posts a languid poem to the Facebook group without context or explanation.

So some kinds of encounter became playful moments in each of the years when we ran the game. But these playful moments also generated a kind of fondness for certain places, turning the material contexts into allies (or partners in crime), as seen in the above poem written to the bus station by the Sacred Spaces group (2016). At the time of this piece being posted on the course Facebook group, it was unclear whether this was directly related to the Situation Game, or merely a way of passing the time with a playful distraction. However, a comment on the poem from a member of the Hunting group, about the prevalence of rabbit stew throughout the game, pointed to a particular tension in the intention and interpretation of the Situations. Furthermore, this lead to intergroup conversations – what were they doing, why did they post this, comments on the abysmal quality of the poem etc. Together these moments came together in a pedagogic and collaborative form of critique.

Furthermore, many students improvised to give their instructions a productive meaning through appropriating the spirit of the command or situation to fit their theme, their fitness level, or their preparedness to follow through on the task. In 2014, as part of the first dérive-based exercise, one student in the Gender group refused to follow the command given on the card deck instructing him to get a haircut. The intention behind this was to indicate the gendered nature of personal grooming and salons in general, and to ask the group to consider how this might occur in Gozo through action research. It was also, in some ways, less to do with playful learning and more with playful teasing, since the student in question was particular about his hairdressing choices. Even though the refusal might be considered as a form of cheating, it became a heuristic moment that later became quite significant in the group's research. Rather than following the instructions, the group decided to reinterpret this command as an instruction to compare the pricing for female and male haircuts and to ask the salon to explain the reasons for this difference. Thus, in later conversations this moment became a crucial point in which students considered gendered space on Gozo, but also reflected on their own embodied gender performativities and how they might shape their research.

Another kind of failure occurred when students lost their way, or got lost, which frequently happened during the dérive-based exercises, but also during the Situations. Again in a paradoxical way, as a playful mapping moment, this proved beneficial to the open-ended learning process engaged by these modes of playful mapping. Detouring is a very powerful principle of a dérive, as it gives participants the possibility to engage with environments in new and unexpected ways and to challenge the hierarchies of movement and flows through space[16]. Furthermore, the dérive is a very powerful example of a situation – one which is constructed to alter or shift the hegemony of the planners' gaze on the experience of spaces, and one which can also help to critique or contradict the hegemony of the researcher's gaze on the collection of data or material. Students became lost in space, and in their research (and often in tandem!). Some groups have ended up in distant and unfamiliar parts of the island (from standing on the tops of mountains, to sitting in a village waiting for a bell to sound, to visiting cliffs which serve as a hard edge to Gozo), with no idea why they are there and what they are doing. This could also be considered a mode of failure – of the game structure

16 Simon Sadler, *The Situationist City*, Massachusetts: The Massachussets Institute of Technology Press, 1998.

and the outcomes of the exercise – but the process of finding oneself in space and in the research resulted in a greater research clarity, and also increased possibilities that are laid out for students exploring the field.

So failure became a repeating 'moment' during iterations of the situations, and the dérive-based games. As these iterations coiled around each other, we began to approach failure – through technological breakage, cheating and ambiguity – as an initially powerful, and then central part of these games. Hence, our rule structure encouraged playing in, and with the map and with mapping, and the productive moments of failure that sometimes emerged sometimes generated most insight into research questions.

Time–Space Rhythms of Map Performance

Our case study also demonstrated that failure can have a direct correlation with time-space rhythms of playful mapping. A failure to understand the reason for a command or situation, could, for example, result in stillness, in the period between reading instructions, and subsequently deciding to cheat. By the same token, losing one's way could bring about an acceleration of movement (e.g. running to the hilltop to get an overview, and regain sense of control in an Apollonian mapping mode). This might also result in repetitive time-space rhythms, such as walking the same track over and over again. Furthermore, as students began to engage more and more with the Facebook group (as international roaming became cheaper, or in 2016, when we provided each group with a Maltese sim card) these time-space rhythms became dispersed across the island. They intersected online, gathering at certain points of waiting (such as the bus station) and shifting and teasing the rhythms of other groups.

Students had to move through diverse terrain and up and downhill. This variety of topographic experience depended greatly on the chosen themes and their interpretations of the commands or situations – and culminated in a diverse range of experiences across a range of different environments. Groups who chose religious or sacred spaces, for instance, moved from exploring the inside of churches in villages, to walking up steep hills in pursuit of Christian iconography, or statues. Groups who chose archaeological, tourism or cultural heritage themes often sped across the island on buses, but also ended up walking along cliffs, through ruins and trying to find Neolithic temples. The group who chose to research hunting on the island, however, primarily ended up in rocky fields high on cliffs at the edges of Gozo. Thus, rhythms varied as well in velocity, acceleration, stillness and the combinations of each. The GPS devices given to students not only recorded coordinates, but also time stamps and elevation. Playing with this information, students were able to create interesting narratives of their experiences and the way in which their data gathered from this space reflected their theme. Due to the nature of the triangulation between distance, elevation and time/speed, this also implied certain ideas about rhythm, the process of moving and island motility. For instance, figure 2.3 is a graph produced by the 'religion' group in 2014 and demonstrates the elevation of two religious spaces encountered in their walk. Yet, the relation between speed and going steeply uphill to the Citadel in Rabat, or to the Ġgantija Temples also became a key part of their explanation and their understandings of the site. Representation became an active part of performance.

Figure 2.3 *Playing with Mapping*. Elevation of the Citadel and the Temple, visualized by the Religion group in 2014.

A similar argument was reiterated by the Sacred Space group in 2016. They were fascinated by the rhythm of walking uphill following the Stations of the Cross, on the hill above Ta' Pinu. Linking embodied movement with the notion of embodied sacredness, they returned to the site during the Situation Game, filmed themselves walking down the hill and ran the footage backward as a mode of cheating, but also appreciation of the rhythm of moving up the hill.

Additionally, the card decks of the dérives, and the situation cards of *The Situation Game*, prompted teams to stop and read the commands – resulting in missed buses, lost time and rushing to make it up. The inclusion of other performative elements into their mapping assemblages also critically engaged a diversity of rhythms. For instance, the same 'gender' group in 2014 who refused to get their haircut, walked slowly across the town of Rabat with an imaginary pushchair, whilst the Boundary group in 2014 were asked to walk with their legs tied together (see figure 2.4) across a border.

Figure 2.4 *Three-Legged Walk*. Students following the command to walk with their legs tied together in 2014.

Deploying smartphones and GPS devices, also encouraged students to stop and look at the map rather than walking through the landscape and looking around. This was partially, we think, because their tracks could be displayed on the screens and afforded a particular kind of looking. The technology itself helped them to review the past trajectory of their paths, but also to plot this into the future. This showed how important links were between technology and playful mapping practice, comparably evident in the work of Laurier, Brown and McGregor.[17]

Memories of Playful Mapping, and Playfully Mapping Memories

The process of co-design also folded the time-spaces and rhythms of mobile mapping together, creating re-iterative circles of reflection, and auguring the construction of memories through material or game-based devices. Co-designing the decks of cards and the situations, was meant to stimulate dialogue between groups, bring some structure into the randomness of the dérive and to enable students to reflect on the process of making and interpreting research designs. It also gave students an opportunity to narrate their playful mapping experiences. The tasks themselves served as moments, and become objects through which dialogue and storytelling (and occasionally argumentation) occurred. As such, tasks not only became playful mapping moments, but also playful mapping memories. Tasks served as heuristics grounded with tagged GPS coordinates, photographs uploaded to the Facebook group, or time-stamped footage. Often, memories became bound with failures or rhythms, auguring the production of mementos, which were shared regardless of whether certain tasks, commands or situations had asked the students to do so. The Food Authenticity group in 2016 in figure 2.5 for example, uploaded an image of themselves eating 'authentic' Gozitan food for lunch – a period of lull, and for critical reflection.

Figure 2.5 '*Local Food for Lunch in the Garden!*'. The Food Authenticity group eats lunch next to the bus station in Rabat in 2016.

17 Barry Brown and Eric Laurier, 'Designing Electronic Maps: An Ethnographic Approach' in Liqui Meng, Alexander Zipf and Tumasch Reichenbacher (eds) *Map-Based Mobile Services*, London: Springer, 2005, pp. 241–257.

The notion of memory and the practice of remembering underscored for students how (playful) mapping calls possible futures into being but also fixes events in history and facilitates looking back.[18] Our pedagogic structures encouraged students to reflect on the dérive or the situations, by recounting their experiences afterwards and situating them in an academic context. Memories of mapping moments were gathered through post-dérive or post-situation conversations, across Facebook pages, and then narrated during group presentations. During these presentations, students deployed many different media-forms, including video shot on GPS-enabled action cameras, photographs taken with their smartphones, GPS tracks, digital mapping and data. They also rearranged, and reconstructed the narratives of these memories by playfully mapping their journeys, showing where their dérive commands or their situations were completed. This had the dual effect of re-engaging with the spatio-temporal process of reflection, but also situating their stories *in place* and *in time*. As seen in figure 2.6, places and times are at once pulled into, but also away from their situated relationship with the rest of the research process, as the Borders 2014 group tells the story of their dérive in 2014.

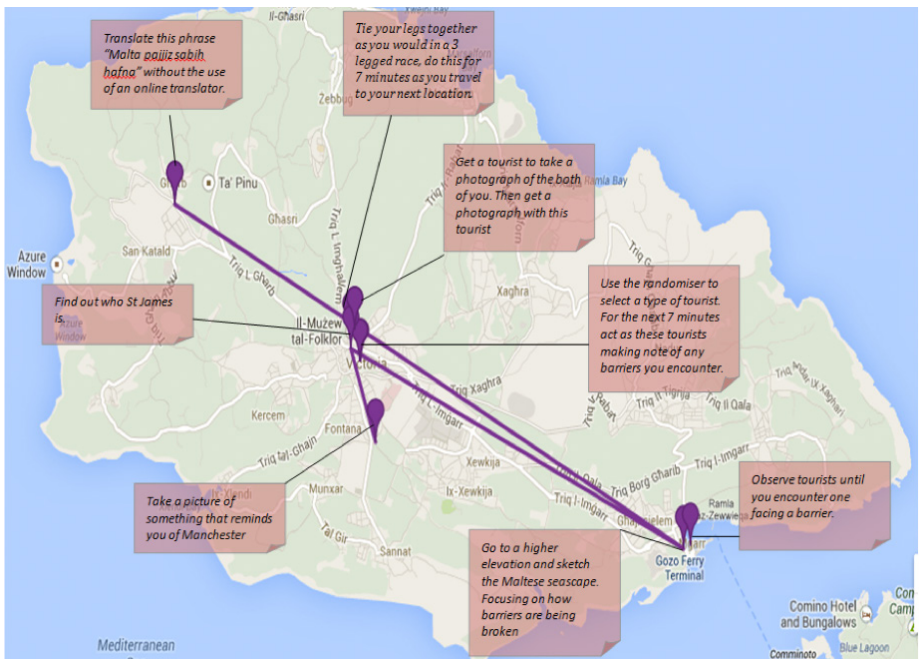

Figure 2.6 *Dérive Memories*. A memory map of a group enacting a 2014 dérive brings together tracks and dérive stack commands.

The mapping memories that students presented were a powerful part of the learning experience. Recounting events pushed them to look back and encouraged analysis of fieldwork materials. Students sought engagement with themes by designing playful exercises and

18 Chris Perkins and Martin Dodge, 'Mapping the Imagined Future: The Roles of Visual Representation in the 1945 City of Manchester Plan', *Bulletin of the John Rylands Library*, 89, no. 1 (2012): 247–276.

interventions, for example in the form of poems, board-games, or performative displays, which made these experiences more accessible and meaningful. Sharing with the audience of other students and teachers, helped them to re-enact field experiences, but also laid down new moments of mapping memories.

Newly Creative Engagements With Mapping Practices

Mapping is increasingly a collaborative, creative and playful pastime, evidenced in the current profusion of map art[19], and in location-based games described in chapter 3, such as *Pokémon GO* or *Zombies, Run!*. To reflect on the powerful potential of designing we also encouraged creative and playful engagement with mapping practice by inviting groups to *make* maps as well as deploying mapping in the field. Creative mapping moments emerged from this process.

One group in 2016 made a multi-mediated reflection on the links between digital and analogue worlds, and between sound and smell, making online and contrasting paper map versions of their experiences.

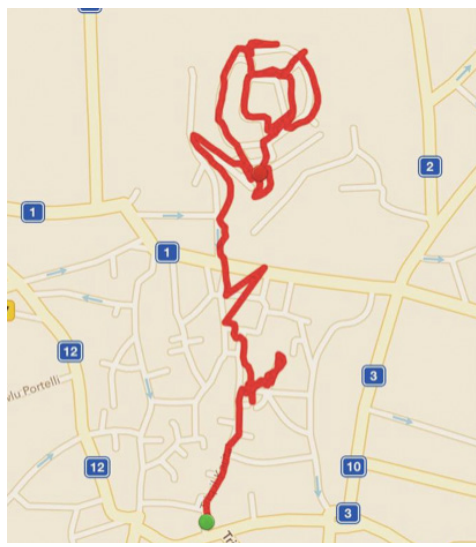

Figure 2.7 *An English Rose*. The Identity group in 2016 draws a rose using GPS and the street structure by going 'a little off-piste'.

Another emerged in 2015 in the form of a performative game about their reflections to drinking cultures on the island, in which other students were enrolled as competing participants. This game encouraged them to move from one conceptual island, to another, across the real seminar space.

19 Katharine Harmon and Gayle Clemans, *The Map As Art: Contemporary Artists Explore Cartography*. New York: Princeton Architectural Press, 2009.

Figure 2.8 *Ta' Frenc*. Students forming a *tableau vivant* as part of a dérive mapping game (2015).

This focus on creativity and enactment brought together mapping memories, multiple rhythms and situated failures together, and focused attention on the frequently messy pragmatics of research, mapping and playing. This pulling together demanded attending to multiple sources, and actions (see figure 2.8).

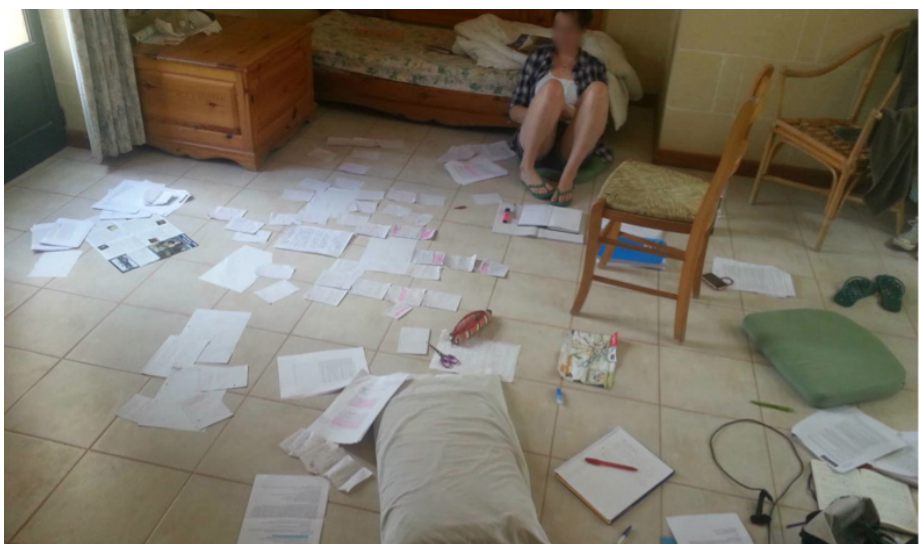

Figure 2.9 *Playing With Mess*. The situated, but messy, assemblage of creative remapping during the design of a remapping of experiencing borders in 2014.

Conclusion

Two of the authors recently concluded that 'playful mapping emerged in the case as a frequently useful ludic activity, deployed to do work but also played out, in situated island encounters, as an active part of a mutable assemblage, that was imagined, made, remade, enacted, and which was never complete'.[20] This situated quality inevitably means that interpreting our own experiences of playful mapping – and the learning outcomes for students – is only part of the overall remit of these experiments on the island of Gozo. The course also encouraged encounters with a real place, with inter-disciplinarity and with the construction and changing and iterative co-production of knowledge. However, the moments highlighted in this chapter suggest that playful mapping in this context is a far more complex tool than initially anticipated, whilst at the same time, producing powerful results that extend beyond the design, intent and to a degree, the research assemblage itself.

Using a case that we have produced, and that is still in production, allows us to trace one *process* of playful mapping, from inception, through different iterations, as it has been performed, re-performed, interpreted and reinterpreted and structured and restructured in the field. The process of reading and writing about these moments might have a freezing affect, privileging the heurist interpretation of the individual moment over the subjective, fluid and processual knowledge that emerges during field experiences. However, the case of Gozo shows the importance of the relationships between play and mapping – and highlights, the potential for playful mapping to generate novelty in performative and creative ways. It highlights the intersections between theories of playful mapping in design, and the messy process of enactment, which is purposefully and productively disruptive. In practice tensions inevitably characterize this processual disruption. Pedagogic and rule-based structures frequently came up against the potential of open-ended play; different interpretations arose from the diversity of learning styles, teaching styles, field experiences and disciplinary backgrounds; students and facilitators interpreted and engaged with the field in different ways. Quite simply the desire to just have fun sometimes ran up against the need to assess and grade.

It also highlights the limits of analysis. Playful mapping is not something that produces a static outcome in the form of maps, or writing or theoretical insight. As such knowledge is partial and outcomes provisional. As Dodge, Perkins and Kitchin[21] foreground in their performative-focus on modes, moments and methods – mapping is about doing and about thinking, processes that do not cease at the end of a field course, or at the completion of a case-study. The moments chosen in this chapter are designed to underscore the fluidity of using playful mapping in the field, while at the same time demonstrating the heterogeneous and personal outcomes that the decisive intertwining of play and mapping augur. The modes deployed during each of the moments show a significant personal investment by students

20 Sybille Lammes and Chris Perkins, 'Playful Mapping: Modes, Moments and Methods', *Environment and Planning A*, in review, 2016.

21 Martin Dodge, Chris Perkins and Rob Kitchin, 'Mapping Modes, Methods and Moments: A Manifesto for Map Studies'.

in the field. They were willing to approach and experiment with modes of mapping, and to engage in new ways with a novel pedagogic context that challenged previously taken for granted research methods. This active engagement was a fundamental component to the success of playful mapping as a pedagogical tool. It also showed how researchers and course facilitators can use playful mapping to set out the development of specific learning skills (while leaving critical room for detours, failures and resistance along the way). But the analytical answers are inevitably limited.

Perhaps above all, by situating and exemplifying mapping practice and setting this against conceptual arguments about the relations of mapping and playing we have highlighted the importance of mapping moments and modes as *framing devices* that can be used to understand the often complex and heavily situated evidence produced as part of playful mapping activities. The role of actually enacting (not just theorizing) playful mapping also informed conceptual understanding. Relations that would otherwise have been difficult to pinpoint, or to describe, erupted in powerfully telling moments. Tensions between pedagogic and rule-based structures sparked against the potential of open-ended play, arising from the diversity of learning styles, teaching styles, field experiences and disciplinary backgrounds. It also emerged in differences between students and facilitators as they interpreted and engaged the field through their experiences, the uneven process of grading and assessment and the desire to just have fun.

Finally, the temporality of playful mapping as a way of learning was also revealed to be thoroughly important in assessing the success of the design and implementation of the course. The strict boundaries around individual games and around the course bled into a hybrid experience of the course impacting not just on student's knowledge, but also onto their critical outlook of the world around them. Students probably have not changed the way they now encounter the world in everyday experiences – so in that sense the derives and the tasks they performed are likely to be of a limited impact– yet the boundaries of the field course are deeply porous, encouraged, we believe, by the team-building cooperative activities of playful mapping as an experimental mode of learning. In this way, playful mapping emerged in the case as a frequently useful ludic activity, deployed to do work but also played out, in situated island encounters, as an active part of a mutable assemblage, that was imagined, made, remade, enacted, and which was never complete.

References

Brown, Barry and Eric Laurier, 'Designing Electronic Maps: An Ethnographic Approach' in Liqui Meng, Alexander Zipf and Tumasch Reichenbacher (eds) *Map-Based Mobile Services*, London: Springer, 2005, pp. 241–257.

Debord, Guy, 'Report on the Construction of Situations and on the International Situationist Tendency's Conditions of Organization and Action' trans. Ken Knabb in Ken Knabb (ed.) *Situationist International Anthology*, Berkeley: Bureau of Public Secrets, 1981, pp. 17-25.

Debord, Guy, 'Theory of the Derive' trans. Ken Knabb in Ken Knabb (ed.) *Situationist International Anthology*, Berkeley: Bureau of Public Secrets, 1981, pp. 62-66.

Dodge, Martin, Rob Kitchin and Chris Perkins (eds) *Rethinking Maps: New Frontiers in Cartographic Theory*, London: Routledge, 2009.

Dodge, Martin, Chris Perkins and Rob Kitchin, 'Mapping Modes, Methods and Moments: A Manifesto for Map Studies' in Martin Dodge, Chris Perkins, and Rob Kitchin (eds) *Rethinking Maps: New Frontiers in Cartographic Theory*, London: Routledge, 2009, pp. 220-243.

Eades, Gwilym, 'An Apollonian Appreciation of Google Earth', *Geoforum* 41, no. 5 (2010): 671–673.

Gee, James, *What Video Games Have to Teach Us about Learning and Literacy*, London: Palgrave Macmillan, 2014.

Harmon, Katharine and Gayle Clemans, *The Map As Art: Contemporary Artists Explore Cartography*. New York: Princeton Architectural Press, 2009.

Hind, Sam, and Sybille Lammes, 'Digital Mapping as Double-Tap: Cartographic Modes, Calculations and Failures', *Global Discourse: An Interdisciplinary Journal of Current Affairs and Applied Contemporary Thought* (2015).

Kingsbury, Paul, and John Paul Jones, 'Walter Benjamin's Dionysian Adventures on Google Earth,' *Geoforum* 40, no. 4 (2009): 502–513.

Lammes, Sybille, 'Digital Mapping Interfaces: From Immutable Mobiles to Mutable Images', *New Media & Society* (2016).

Lammes, Sybille, and Chris Perkins, 'Playful Mapping: Modes, Moments and Methods', *Environment and Planning A*, in review, 2016.

McCallum, Simon. 'Gamification and Serious Games for Personalized Health', *Student Health Technology Informatics*, 177 (2012): 85–96.

McLean, Kate, 'Smellmap: Amsterdam—Olfactory Art & Smell Visualisation', *Leonardo*, 8 January, 2016.

Neys, Joyce and Jeroen Jansz, 'Political Internet Games: Engaging an Audience', *European Journal of Communication*, 25, no. 3 (2010): 227–241.

November, Valérie, Eduardo Camacho-Hübner and Bruno Latour, 'Entering a Risky Territory: Space in the Age of Digital Navigation', *Environment and Planning D: Society and Space* 28 (2010): 581-599.

CHAPTER 3: LOCATING PLAY IN CARTOGRAPHICAL INTERFACES

SYBILLE LAMMES AND CLANCY WILMOTT

Introduction

In this chapter we examine a specific type of Location-Based Game (LBG), played within a physical environment while mobile players use a digital map as their main game-board. As is the case with Chris Perkins' chapter in this book on golf, playful mapping is performed *in* the physical world and while being mobile with the map. Yet different from some of the cases that Perkins discusses, players are not limited to a delineated playground (the golf course), but can roam anywhere, using playful mapping as a means to add hybrid meanings to their neighborhood, city, holiday destination, school building, hiking trip or journey to work. Although the territory may be less pre-set than in golf games, the player has on the other hand less agency in making and designing maps compared with some of the cases Perkins discusses: the map in such LBGs can be overlaid with different information added by players, but it stays in essence the same. Layers can be added and surfaces can be overlaid with other info, including information from global positioning systems (GPS) and geographic information systems (GIS) while the base map stays unchanged.

The Digital Map as Game-board

As discussed in the first chapter of this book, the advent of the digital has given rise to new translations between mapping and playing. An example of this newly forged link is the use of digital maps for play, while players are on the move. Although playful mobile mapping is, in itself, far from new (e.g. orienteering, or golf maps[1]) the promulgation of Wi-Fi and GPS-enabled smart phones has brought about a whole new plethora of mobile games that use digital maps as a point of reference. Games like *Pokémon Go*[2], for instance, use a map derived from a topological Google Map, turned into 'semi-landscape'. This 'semi-landscape' adopts a birds-eye perspective, situating the player within a partially cartographic but also navigable game-board, where the blue dot indicates the position of the user who is 'trans-formed' into an avatar. However, the 'generic maps' that we examine in this chapter are specifically dissimilar to the ones used in *Pokémon Go*.

Although it is arguably difficult to establish the ontology of the map (cf. Kitchin and Dodge 2007), it is equally crucial to explain that the games we study do not make use of abstract and heavily-stylized maps as backdrops that only indirectly seek to reflect the physical space through which players move. Instead we are specifically interested in the relation between play and everyday maps like *Google Maps* or *Open Street Map*. The use of everyday maps,

1 Chris Perkins, 'Mapping golf: A Contextual Study', *Cartographic Journal 43*, no. 3 (2006): 208-223.
2 Niantic Inc., *Pokémon Go*, 2016.

such as these, results in a game board that retains the original elements of their functional cartographical visual design while doubling as a playful surface.

Similarly, this chapter also does not discuss the informal play[3] engaged by apps like *Swarm*[4] or *Grindr*[5]. Such social media apps can – and often do – include playful elements while using topological maps, but are less definable as games since they lack well-established rules. At the same time, by awarding badges to users, their status as games remains at least open to discussion.[6] Here, it is important to note that while playful mapping apps are not the specific focus of this chapter, some of our findings can obviously be used to get a better analytical purchase of their affordances. Lastly, games that use mini-maps, links, or side panels as an option to use during gameplay fall outside the scope of this chapter. However, this is touched upon in more detail in Alex Gekker's contribution, as well, to a smaller degree in Emma Fraser and Clancy Wilmott's chapter. Such maps, although important, are not necessarily central to the gameplay. Instead, they often act as supports or extensions. However, yet again, some of the conceptual framework set up in this chapter may help us understanding such more 'peripheral' maps as well especially in terms of interfaciality and mobility.

As such, in this chapter we concentrate on four games – *Paranormal Activity Sanctuary* (*PAS*)[7], *Resources*[8], and *Turf Wars*[9] – which we argue are some of the most quintessential digital *mapping* games. Each of these games ask players to use digital, unaltered topological maps (e.g. *Apple Maps*, *OSM* or *Google Maps*) quite literally as an interface *and* game-boards for navigation. In such cases, mapping is central to gameplay. In what we will call cartographical games, topological maps are used for wayfinding and navigation in the physical world as well as being central to gameplay. Specifically, the use of the map goes beyond the map being a backdrop, an abstraction or an option that can be toggled. We are particularly interested in how such playful mapping activities position its users differently, also because the physical movements of players are rendered visible *in* the digital map, as a kind of mobile and ludic 'spatial self'.[10]

This chapter wants to examine such cartographical games as to evidence the conceptual framework set out in the first chapter in this book. We will do this through using the triadic perspective of the quotidian, mobile and the casual. Similar to the chapter on playful driving

---

3 Brian Sutton-Smith, *The Ambiguity of Play*, Cambridge, Massachusetts: Harvard University Press, 2001.

4 Foursquare Labs Inc., *Swarm,* 2014.

5 Grindr Labs, *Grindr*, 2009.

6 Mathias Fuchs, Sonia Fizek, Paolo Ruffino, and Niklas Schrape (eds), *Rethinking Gamification*, Lüneburg: Meson Press, 2014; Sebastian Deterding, Miguel Sicart, Lennart Nacke, Kenton O'Hara, and Dan Dixon, 'Gamification. Using Game-Design Elements in Non-Gaming Contexts' in *Proceedings of the 2011 Annual Conference on Human Factors in Computing Systems (extended abstracts)*: Vancouver: Association for Computing Machinery, 2011, pp. 2425-2428.

7 Ogmento, Paranormal Sanctuary, 2010.

8 UN3X, *Resources,* 2016.

9 Mean Free Path LLC, *Turf Wars*, 2009.

10 Raz Schwartz and Germaine R Halegoua, 'The Spatial Self: Location-Based Identity Performance on Social Media', *New Media & Society*, 17, no. 10 (2015): 1–18.

by Alex Gekker and Sam Hind, we ask (1) how playful mapping can unfold in an everyday landscape and (2) which translations between play and mapping the game foregrounds or downplays.

By focusing on LBGs we tap into an already existing body of literature that has discussed such games in terms of the urban[11], spatial hybridization[12], archaeology and mobility[13] and strategy.[14] Furthermore, we also tap into literature on LBGs and pedagogy[15], which was addressed in more depth in the second chapter (focusing on the *GoGoGozo* game for fieldwork learning). We want to draw attention to how the cartographical can be a central trope in mobile playing during daily activities. In other words, how do play and mapping hybridize while we wait for a bus, run, have a lunch break or a 'free' day? Furthermore, we want to examine the central role of the interface in affording cartographical, performative and quotidian play.

Putting Play in the Map

In this chapter we will expand upon and evidence the potential of cartographical games by developing a conceptual framework and analyzing the games *Resources*, *Paranormal Activity Sanctuary* (*PAS*), and *Turf Wars*. Each of these are location-based games that use an unaltered topological map as a central interface and also have well-established rules and clear game mechanics. What we want to learn from these particular manifestations of playful mapping is how play can be more than a heuristic lens or method to understand mapping, but can also form a productive and transformative and intrinsic element of the practice of mapping by having the potential to morph, produce and renegotiate mapping experiences.

By putting play in the map, such games alter our spatio-cultural approach to and understanding of maps by asking us, as players, to engage with maps as game-boards. Thus the map becomes more than a scientific and geographic object[16] and transforms into a tool for forging playful encounters with and through environments. As ludic hybridizations, maps become rewritable socio-cultural play-things, tapping into and highlighting conceptual

11 Adriana de Souza e Silva and Larissa Hjorth, 'Playful Urban Spaces A Historical Approach to Mobile Games', *Simulation & Gaming* 40 no. 5 (2009): 602–25.

12 Adriana de Souza e Silva, 'From Cyber to Hybrid: Mobile Technologies as Interfaces of Hybrid Spaces', *Space and Culture* 9, no. 3 (2006): 261-278.

13 Jussi Parikka and Jaakko Suominen, 'Victorian Snakes? Towards a Cultural History of Mobile Games and the Experience of Movement,' *Game Studies. The International Journal of Computer Game Research*, 6, no. 1,(2006): http://gamestudies.org/0601/articles/parikka_suominen.

14 Louise Barkhuus, Matthew Chalmers, Paul Tennent, Malcolm Hall, Marek Bell, Scott Sherwood and Barry Brown, 'Picking Pockets on the Lawn: The Development of Tactics and Strategies in a Mobile Game' in *UbiComp 2005: Ubiquitous Computing (proceedings)*: Tokyo: UbiComp, 2005, pp. 358-374.

15 Daniel Spikol and Marcelo Milrad, 'Combining Physical Activities and Mobile Games to Promote Novel Learning Practices' in *WMUTE '08: Proceedings of Fifth IEEE International Conference on Wireless, Mobile, and Ubiquitous Technology in Education* (proceedings): Washington DC: IEEE, 2008, pp. 31–38.

16 J. Brian Harley, 'Deconstructing the Map', *Cartographica* 26, no. 2 (1989): 1-20.

issues that have been addressed in critical cartographic analysis over the last thirty years.[17] Most importantly, the playful mapping affordances of such games heighten our awareness of the performative nature of maps and emphasize that maps are always appropriated, authored, de-authored, read, erased, enacted, dormant, and performed *in situ*. Moreover, resonating with the Situationist International (see also chapter 2 in this book), a playful attitude to mapping also transforms the way in which maps are acted out, challenging the axiomatic binaries and dichotomies that seem to structure them. Surely it becomes untenable to conceptualize maps as a sheer representation or mimicry of 'real' physical space when an icon on the map can absorb the double meaning of battlefield and public toilet. By inviting users to hybridize touring and mapping[18] through playful navigation, the points on the map lose their fixed meaning, thus drawing attention to the ambiguity of references on the map. The mapping interface, the map reader and their moves merge and become an actual intrinsic part of the mapping process.[19] Defeating the boundaries of mapping as fixed and touring as mobile – as theorized by de Certeau[20] – a new navigational experience emerges, which foregrounds mapping as a processual practice that we call into being through our engagement with the mapping interface.[21] This situated position of the user prompts us to reconsider the ways in which maps are performative and can give rise to new meanings.

Play, Maps, Boards, Mobility

As a hybridized interface of game-board and map, such LBGs fit into a larger 'genre' of games that may not be digital but nonetheless use maps as central game-boards on which to put pawns, cast dice and as a surface of reference to develop strategies and maneuvers. Instead of being visualizations on our mobile screens, such cartographical board-games are made from wood, paper or other materials, and most commonly stationary – which, of course, has consequences for their transferability and mobility. A good example of such a game is the *Sandford* game – discussed in Sam Hind's chapter in this book – where the game itself may be stationary, but it still invites us to think of maneuvers and mobility.

Yet, how do such traditional board games exactly compare with digital cartographical games when we bring the physical mobility of the player into the equation – in other words, when analogue game-boards can be used by players while being on the move? Although such games do exist, they are quite rare. There are many mapping games that exist which can

17 Jeremy W Crampton, 'Cartographic Calculations of Territory', *Progress in Human Geography* 35, no. 1 (2011): 92–103; J. Brian Harley, 'Deconstructing the Map'.

18 Michel de Certeau, *The Practice of Everyday Life,* Berkeley, California: The University of California Press, 1984.

19 Sybille Lammes, 'Digital Mapping Interfaces: From Immutable Mobiles to Mutable Images', *New Media & Society*, [online first], 2016; Raz Schwartz and Germaine R Halegoua, 'The Spatial Self: Location-Based Identity Performance on Social Media'.

20 Michel de Certeau, The Practice of Everyday Life.

21 Rob Kitchin, Chris Perkins and Martin Dodge, 'Thinking About Maps' in Martin Dodge, Rob Kitchin, and Chris Perkins, (eds.), *Rethinking Maps: New Frontiers in Cartographic Theory*, London: Routledge, 2011, pp. 1–25; Thrift, Nigel. *Non-Representational Theory: Space, Politics, Affect*, London: Routledge, 2008; Paul Harrison and Ben Anderson, *Taking-Place: Non-Representational Theories and Geography*, Aldershot: Ashgate, 2012.

be carried around as pocket editions, yet game-boards that are designed to be mobile as a means to play are sporadic. Some examples exist, such as the American road game *Trek,* where an analogue map of an environment serves as a basis on which players put layers of information that shift according to their automotive activities. An obvious reason for the rarity of such games are, of course, that it is a rather cumbersome endeavor to drive, walk or cycle while using a map, pawns, pen, paper etc. Indeed, the crucial and practical difference between the ones under scrutiny here such analogue games described above is that the actual physical positioning of the player, indicators and inscriptions, have become an intrinsic part of the game-board (rather than just placed 'on top') and are thus easier to carry as a 'package'. The game-board becomes a transformative hybrid map, as players and their tools become inscribed into it as symbols and signs. This inscriptive element means that players move across this transformative hybrid map without much risk of the assemblage falling apart.

Figure 3.1 *Paranormal Activity, Sanctuary*. Screenshot[22] from PAS showing the map-as-gameboard.

Basically, in the cases that are central to this chapter, players use maps on the screens of their mobile phones as portable game-boards. Yet as it concerns digital games, players' moves become inscribed in the map, instead of being placed on the map. Echoing the analogue era, indicators can appear in the map in the shape of pawns or pins, yet now the movement of players, and other stuff (e.g. bots, points, things picked up) are absorbed in the digital game-board. In the now discontinued game *PAS*, for example (figure 3.1), players are encouraged to use their phone to hunt, hide from and exterminate demons. These demons are marked as moving targets on a Google map and so is the position of players. Additionally, spheres rendered in colour demarcate dangerous and safe areas. So while table-top games would rely on 'a logic of layering', using pawns, card decks and other material to indicate progress on the map, in digital mapping games we can speak of a *logic of hybridization*.

22 All game screenshots are made by the author[s].

This process can also be discerned in how material things are integrated in the game. In *PAS*, for example, a row of icons above the Google map gives the player also the option to use a pen and paper to draw a pentagram on a piece of paper. The player is then asked to take a picture of the drawing to cast a spell through the map, thus transferring material performances into the game-board.

This also presents us with an interesting comparison to outdoor pervasive games like *Geocache*. In *Geocache*, hand-drawn coordinates or a GPS device are used to quest for treasures stacked away in a physical environment. The found items are either put back where they have been found or can sometimes be swapped with another cache.[23] So elements found *en route* are picked up and left behind by players, but are not rapt in the mapping interface. If we compare this with *PAS*, we see a significant shift in how found items are handled. The map that is used for wayfinding, geographic searching and location has now become a portable game-board that constantly 'absorbs' the physical activities of players *also* what they pick up on their way.

From the Steam Age to the Digital Age

While the analogue cartographical game-boards used in games like *Conquest of the Empire* or *Age of Steam* can be marked as classical Latourian *immutable mobiles*[24], digital game-boards operate somewhat differently. Taking the map as his archetypical example, Latour defines immutable mobiles as techno-scientific things that can be transported, super-imposed (layered) and reproduced without losing shape[25]. Analogue cartographical game-boards fit this description perfectly. The cartographical game-board is super-imposed with dice, pawns and other pieces but the base-maps stays the same and can be transported to different environments to start the process of layering all over again.

Yet, in the case of digital cartographical games visual traces are left that are more difficult to wipe off the board. One could, of course, argue that all digital maps contain a degree of visual transmutability[26], and that this is even more apparent in community based mapping platforms like *OpenStreetMap*. Yet, as we will show here, the transformability of the map image is highlighted in a different way in LBGs. The players' awareness of the reciprocity of mobility and the map appearance is heightened precisely because the process is about *playing* with map images. In other words, through the movements of the player a hybridization emerges of game-board and playground that results in a mutable map *image*. This visual process goes beyond the paradoxical relation between mapping

23 Adriana de Souza e Silva and Larissa Hjorth, 'Playful Urban Spaces A Historical Approach to Mobile Games', *Simulation & Gaming* 40 no. 5 (2009): 602–25.

24 Bruno Latour, 'Visualization and Cognition: Drawing Things Together' in Michael Lynch and Steve Woolgar, *Representation in Scientific Activity*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 1990, pp. 19-68.

25 Bruno Latour, *An Inquiry into Modes of Existence*, Cambridge, Massachusetts: Harvard University Press, 2013.

26 Sybille Lammes, 'Digital Mapping Interfaces: From Immutable Mobiles to Mutable Images'.

(looking) and touring (going) as described by Michel de Certeau.[27] In cartographical LBGs touring and mapping truly merge as looking and going are played out through the same user interface. In the economical game *Resources* this hybridization is for example played out through *going* somewhere while *looking* out for and resources to exploit on a mutable mapping interface.

Figure 3.2 *Resources*. Screenshot showing the map in *Resources*.

Casual Mappers

To conceptually understand this everyday hybridization of touring and mapping, it is useful to acknowledge the casual qualities of cartographical LBGs. As game-scholar Jesper Juul signaled in his book on casual games, when games are part and parcel of quotidian routines and are combined with other daily practices, they become more dispersed, scattered and fragmentary.[28] Cartographical games that are played on the go do invite players to take up such a casual lusory attitude.

This hybridization of mapping and touring results in a player experience that is not only casual and vernacular, but also problematizes an approach towards maps as mimetic, or just representational things. Cartographical games heighten the players' awareness that the mapping interface is not so much a mimetic tool or surface, but rather a translator and hybridizer of playground, map and game-board. Bringing imagination and creativity into the map, a parking lot can also become a combat zone; riverbeds can become trenches; and bus stops, castles or alien ships. Such games actually draw attention to the processual

27 Michel de Certeau, The Practice of Everyday Life.

28 Jesper Juul, *A Casual Revolution: Reinventing Video Games and Their Players*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2009.

nature of 'doing maps'. They show that mapping interfaces are mediators that set into motion processes of mapping, rather than being representations alone.

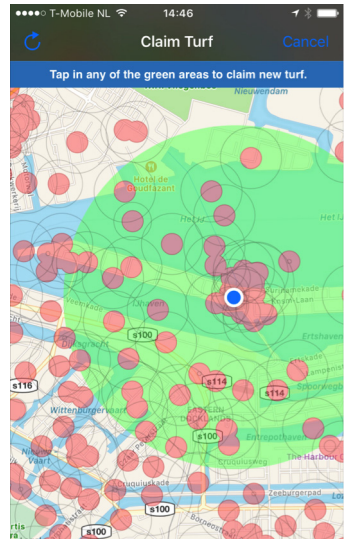

Figure 3.3 *Turf Wars*. Screenshot showing how the map becomes a site of gang war.

As 'unfolding mapping practices'[29] location-based games can be situated in a lager shift that occurred since the advent of the digital in our daily and public perception of maps. This is what November et al.[30] characterize as an understanding of maps as 'navigational' instead of 'mimetic'. Even more, the notion of risk that is crucial to the argument made by November et al.[31] is also highly important when we want to understand how we play with digital maps. As the authors rightly argue, digital mapping accentuates the risk in mapping, instead of giving the impression that maps are static and that risk lies outside of this mimetic status. Digital mapping undermines such an impression by putting risk *in* the map. Similar to play, we would contend, this shows the user that mapping is a performative navigational practice, which is not fully predictable and calculable.

As discussed in the forthcoming chapter by Gekker and Hind for example, a satnav mapping interface, like *Waze*, inscribes risk in the map by inviting drivers to warn each other of traffic congestion, accidents, or slippery roads, thus rather literally putting risks in the maps. As *Waze* – with its playful affordances – also shows, play is often engrained in risky territories of daily life. Indeed, following anthropologist Clifford Geertz[32], we would contend that the ludic always implies a certain degree of risk, which is most strongly pronounced when we

29 Rob Kitchin, Justin Gleeson and Martin Dodge, 'Unfolding Mapping Practices: A New Epistemology for Cartography', *Transactions of the Institute of British Geographers*, 38 no. 3 (2013): 480–496.

30 Valerie November, Eduardo Camacho-Hübner and Bruno Latour, 'Entering a Risky Territory: Space in the Age of Digital Navigation', *Environment and Planning D: Society and Space* 28 (2010): 581-599.

31 Valerie November, Eduardo Camacho-Hübner and Bruno Latour, 'Entering a Risky Territory: Space in the Age of Digital Navigation'.

32 Clifford Geertz, Deep Play: Notes on the Balinese Cockfight', *Daedalus* 101 no. 1 (1972): 1–37.

engage in 'deep play'.[33] Play and risk alike offer possibilities for users to consider maps of their environments as unfolding practices instead of representations. Both are foregrounded as qualities of mapping since the advent of the digital.

As part of this shift towards the digital, the cartographical games that we discussed in this chapter should be viewed as practices that put play in the map, thus pushing the player into a close engagement with the navigational interface that makes them aware of the alignment of assemblages that are involved in doing mapping. Or, as the first chapter of this books stated, there is now play in the mapping assemblage that can be further explored. Players can become actors within this assemblage and help to establish new, yet unstable, translations between the map and the territory through the navigational interface. During this process, players are also continually mindful of the physical environment through which they navigate and the way in which this is related to and conveyed by the mapping interface on their mobile phones. In *Claim Turf* for example, players have to constantly pay attention to 'real' physical risks, such as falling or being hit by approaching cars, while combining this with the in-game risk of being attacked by other gangs as displayed on the mapping interface. Players of LBGs are indeed akin to navigators at sea, sentient to the precarious relation between territory and map.[34] Yet using digital maps, the movements of the player (as well as other players in the game) are now rendered visible in the map. Via the interface, a hybridization occurs between the playground and map/game-board which 'is not mimetic (…) they do not divide in two, so as to form a real analogical "outside" and a mapping representational one "inside"'. [35] This positioning of players in the mapping process, makes players far more involved and attentive to how maps are outcomes of processes during which certain references prevail over others. As ludic actors, players become themselves involved in the production of space.[36]

References

Barkhuus, Louise, Matthew Chalmers, Paul Tennent, Malcolm Hall, Marek Bell, Scott Sherwood and Barry Brown, 'Picking Pockets on the Lawn: The Development of Tactics and Strategies in a Mobile Game' in *UbiComp 2005: Ubiquitous Computing (proceedings)*: Tokyo: UbiComp, 2005, pp 358-374.

Crampton, Jeremy W. 'Cartographic Calculations of Territory', *Progress in Human Geography* 35, no. 1 (2011): 92–103.

de Certeau, Michel, *The Practice of Everyday Life,* Berkeley, California: The University of California Press, 1984.

de Souza e Silva, Adriana, 'From Cyber to Hybrid: Mobile Technologies as Interfaces of Hybrid Spaces', *Space and Culture* 9, no. 3 (2006): 261-278.

33 Clifford Geertz, Deep Play: Notes on the Balinese Cockfight'; Brian Sutton-Smith, *The Ambiguity of Play*.

34 Valerie November, Eduardo Camacho-Hübner and Bruno Latour, 'Entering a Risky Territory: Space in the Age of Digital Navigation', 585.

35 Valerie November, Eduardo Camacho-Hübner and Bruno Latour, 'Entering a Risky Territory: Space in the Age of Digital Navigation' p.586.

36 Henri Lefèbvre, *The Production of Space* (Oxford: Blackwell, 1991).

de Souza e Silva, Adriana and Hjorth, Larissa 'Playful Urban Spaces A Historical Approach to Mobile Games', *Simulation & Gaming* 40 no. 5 (2009): 602–25.

Deterding, Sebastian, Miguel Sicart, Lennart Nacke, Kenton O'Hara, and Dan Dixon, 'Gamification. Using Game-Design Elements in Non-Gaming Contexts' in *Proceedings of the 2011 Annual Conference on Human Factors in Computing Systems (extended abstracts)*: Vancouver: Association for Computing Machinery, 2011, pp. 2425-2428.

Foursquare Labs Inc. *Swarm,* 2014, https://www.swarmapp.com/.

Fuchs, Mathias, Sonia Fizek, Paolo Ruffino and Niklas Schrape (eds) *Rethinking Gamification*. Lüneburg: Meson Press, 2014.

Geertz, Clifford, 'Deep Play: Notes on the Balinese Cockfight', *Daedalus* 101 no. 1 (1972): 1–37.

Glas, René, 'Cheating the Real: Exploring Advantageous Play in Foursquare' in *IR 11.0: Sustainability, Participation, Action (presentation)*: Gothenburg: University of Gothenburg/Chalmers University of Technology, Gothenburg, 2010.

Grindr Labs, *Grindr*, 2009. http://www.grindr.com/.

Harley, Brian, 'Deconstructing the Map', *Cartographica* 26, no. 2 (1989): 1-20.

Harrison, Paul and Ben Anderson, *Taking-Place: Non-Representational Theories and Geography*, Aldershot: Ashgate, 2012.

Juul, Jesper, *A Casual Revolution: Reinventing Video Games and Their Players*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2009.

Kitchin, Rob and Martin Dodge, 'Rethinking Maps', *Progress in Human Geography* 31, no. 3 (2007): 331-344.

Kitchin, Rob, Chris Perkins and Martin Dodge, 'Thinking About Maps' in Martin Dodge, Rob Kitchin and Chris Perkins (eds), *Rethinking Maps: New Frontiers in Cartographic Theory*, London: Routledge, 2011, pp. 1–25.

Kitchin, Rob, Justin Gleeson and Martin Dodge, 'Unfolding Mapping Practices: A New Epistemology for Cartography', *Transactions of the Institute of British Geographers*, 38 no. 3 (2013): 480–496.

Lammes, Sybille, 'Digital Mapping Interfaces: From Immutable Mobiles to Mutable Images', *New Media & Society*, [online first], 2016. doi: 1461444815625920.

Latour, Bruno, 'Visualization and Cognition: Drawing Things Together' in Michael Lynch and Steve Woolgar, *Representation in Scientific Activity*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 1990, pp. 19-68.

Latour, Bruno, *An Inquiry into Modes of Existence*, Cambridge, Massachusetts: Harvard University Press, 2013.

Lefebvre, Henri, *The Production of Space*, Oxford: Blackwell, 1991.

Mean Free Path LLC. *Turf Wars*, 2009. https://turfwarsapp.com/.

Niantic Inc. *Pokémon Go*, 2016 http://www.pokemongo.com/.

November, Valérie, Eduardo Camacho-Hübner, and Bruno Latour, 'Entering a Risky Territory: Space in the Age of Digital Navigation', *Environment and Planning D: Society and Space* 28 (2010): 581-599.

Ogmento, *Paranormal Sanctuary*, 2010 https://vimeo.com/20255956.

Parikka, Jussi, and Jaakko Suominen, 'Victorian Snakes? Towards a Cultural History of Mobile Games and the Experience of Movement,' *Game Studies. The International Journal of Computer*

Game Research, 6, no. 1 (2006): http://gamestudies.org/0601/articles/parikka_suominen.

Perkins, Chris, 'Mapping golf: A contextual study', *Cartographic Journal* 43, no. 3 (2006): 208-223.

Perkins, Chris, 'Plotting Practices and politics: (Im)mutable Narratives in OpenStreetMap', *Transactions of the Institute of British Geographers* 39, no. 2 (2014): 304-17.

Schwartz, Raz and Germaine R. Halegoua, 'The Spatial Self: Location-Based Identity Performance on Social Media', *New Media & Society*, 17, no. 10 (2015): 1–18.

Spikol, Daniel and Marcelo Milrad, 'Combining Physical Activities and Mobile Games to Promote Novel Learning Practices' in *WMUTE '08: Proceedings of Fifth IEEE International Conference on Wireless, Mobile, and Ubiquitous Technology in Education (proceedings)*: Washington DC: IEEE, 2008, pp. 31–38.

Sutton-Smith, Brian, *The Ambiguity of Play*, Cambridge, Massachusetts: Harvard University Press, 2001.

Thrift, Nigel, *Non-Representational Theory: Space, Politics, Affect*, London: Routledge, 2008.

UN3X, *Resources,* 2016. http://www.resources-game.ch/en/.

CHAPTER 4: HYBRID CLUBS?: PLAYING WITH GOLF MAPPING

CHRIS PERKINS

Introduction

Golf as a sport is replete with contradiction and enacted in changing contexts that invite playful approaches to the game. I contend that mapping and its relations to golf reveal the potential of a hybrid interpretation of this field. Building upon earlier research into the mapping of golf and golfing practices,[1] I argue that golf courses can be seen as once contrived non-places,[2] but also as carefully constructed and unique landscapes that are designed to afford play. This chapter explores a hitherto largely under-analyzed aspect of the sport, charting and contrasting practices revealed in two recent cases where digital mapping has been central, and where courses are being remade in virtual contexts. It explores how the mapping of golf at once contributes to the making of places associated with the game, but is also central with its playing. My arguments center on two things: the ambiguities of deploying digital mapping in this context, and the potential of different notions of play for understanding encounters in these digital contexts. For the former I adopt a processual view of mapping,[3] whilst for the latter I bring together Sutton-Smith's critique of play rhetoric,[4] with Sicart's notion of play[5] that strongly informs arguments in chapter 1 of this volume. I introduce aspects of golf on and off the course, and spell out appropriate ways of understanding mapping and the deployment of digital spatial technologies in the game. I then chart aspects of play theory that might be useful in interpreting this emerging motif, sketch out a brief genealogy for virtual relations between digital mapping technologies and the game, and explore how the case of golf mapping might speak to wider issues of playful cartographies charted elsewhere in this book, through a consideration of playing with digital mapping on the real course, and in virtual golf games. So this chapter offers something of a synthesis by embracing, but also critiquing, the hybridized nature of a game long-designed, newly digitized, and occupying a space between the digital and material and manifested in maps and mapping technologies.

---

1 Chris Perkins, 'Mapping golf: A contextual study', *Cartographic Journal* 43, no. 3 (2006): 208-223; Chris Perkins, 'The Performance of Golf: Landscape, Place, and Practice in North West England', *Journal of Sport & Social Issues* 34, no.3 (2010): 312–338.

2 Marc Augé, *Non-Places: An Introduction to Supermodernity*, London and New York: Verso, 2008.

3 See Rob Kitchin and Martin Dodge, 'Rethinking Maps', *Progress in Human Geography,* 31, no.3 (2007): 331-344.

4 Brian Sutton-Smith, *The Ambiguity of Play*, Cambridge, Massachusetts: Harvard University Press, 2001.

5 Miguel Sicart, *Play Matters,* Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2014.

Playing with Golf

Golf is also a sport played out on courses that frequently seek to evoke naturalness, but which in practice are strongly crafted and artificial playgrounds. So tensions exist between those who celebrate the unique history of a course that has been frequently changed to accommodate changing values and meanings of the game, but which evokes natural qualities of the 'linksland'[6] landscape, as against an artificial and modernist affirmation of control evidenced in sometimes placeless 'tracks' popularized in American target golf.[7] These playgrounds are no longer restricted to real environments – the virtual golf course is also designed with a capacity to evoke naturalness: game mechanics and aesthetics come together to simulate an imagined real,[8] in which impossibly green or pristine contexts frame gameplay. These 'gamescapes'[9] are experienced on many different platforms, from mobile devices, to GPS receivers, from PCs on desktops, to game consoles, from laptops to tablets. Web sites review real course designs, remediating an experience for wannabe course designers.[10] On the course mobile-based software tracks progress against digital map backdrops, and serves to relate statistical data of real world performance, to the ideal possibilities of perfection charted on a digital interface, telling the player that a 7 iron is needed, revealing the unseen bunker in front of the green, calling up mapped memories, but also evoking a futurity by increasing control over the inevitable risks implicit in the game.[11] And the places in which these new forms of play are enacted have diversified. The landscape architect's studio, the land use planner's office or council chamber, the living room, out on the golf course itself, in the car: different affordances emerge in playful mapping of the game. The round on a course is merely one of many different co-constructions, an embodied 'taskscape'[12] enrolling golfing bodies and nature. These taskscapes themselves change, and frequently in response to technological shifts. And in the virtual golf environment a convergence is taking place, where different technological forms are increasingly enrolled in assemblages that are no longer separate but operate 'within the same appliances... within the same franchise...within the same company...within the brain of the consumer... and within the same fandom'.[13] The designer of a real course may well be using the same software being deployed elsewhere to make a fantasy game-board across which online

---

6 Linksland comprises undulating, sandy, coastal terrain on which the first games of golf were played.

7 Jamie Black, Enhancing The Experience Of Golf Through Landscape Design And Environmental Psychology, http://www.golfclubatlas.com/opinionblack.html, 2000.

8 Jesper Juul, *Half-Real*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2005.

9 Gamescapes comprise physical landscapes transformed into playgrounds across which game play can take place, see also chapter 7 this volume and Geoff King and Tanya Krzywinska, *Tomb Raiders and Space Invaders: Videogame Forms and Contexts*, London and New York: I.B. Tauris, 2006.

10 See for example golfcourseatlas.com.

11 See Valérie November, Eduardo Camacho-Hübner and Bruno Latour, 'Entering a Risky Territory: Space in the Age of Digital Navigation', *Environment and Planning D: Society and Space* 28 (2010): 581-599.

12 Tim Ingold, *The Perception of the Environment: Essays on Livelihood, Dwelling and Skil*l. London; New York: Routledge, 2000.

13 Henry Jenkins, 'The Cultural Logic Of Media Convergence', *International Journal Of Cultural Studies,* 7, no.1 (2004): 34.

players compete. The crowd might map courses from Google maps that they will never play on. The course manager may well use mapping from a company that also markets digital on course assistance to players. The analogue technology and game of golf itself continues, to be deployed, but in association with digital technologies which are in tension with, and remediated by its virtual offspring. The convergence highlighted as a cultural trend by Jenkins is certainly evident in the golfing world.

The sport is explicitly concerned with spatiality. Mapping the terrains and practices of golf is called into play to achieve many different tasks: designing and constructing a course; marketing and managing facilities, and to help in various aspects of playing the game, such as informing players about hole layout and yardage, or as an object in the recollection of memories about particular golfing places and experiences.[14] The affordances that are facilitated by mapping vary from course to course, and according to the tasks in which mapping is enrolled. Courses are designed with different configurations of holes, threaded through varying terrain, and the process of mapping is central to the expert knowledge deployed by course designers.[15] Arguably every environment across the globe now includes a course, from rainforests to heathland, from flat deserts to mountains, from cliff-tops to archetypal undulating sandy links-land, from marshlands to islands, from windy plateaus to parkland. Every golf course has a unique spatiality, in terms of the combinations and sequences of holes, which are together designed and mapped out with varying lengths, topographies, hazards and layouts. The aesthetic qualities of these designs are also important, in the sense that designs relate to broader landscape contexts. Experiencing this spatiality depends in part upon the political economy of courses: a resort course catering for rich vacationeers evokes different kinds of experience to those enjoyed on a private member's club, or to the mass participation of an urban or municipal course layout.[16] Ownership and power impacts on wider perceptions of the game as exclusive, and on the image of the game as run for rich white and old men, where business deals take precedence over widening participation. The political economy also impact on day-to-day play. Experiencing a round at the Trump-owned Turnberry resort on the Scottish coast is likely to be different from a low investment and community owned layout on a remote Scottish island. It has however also been suggested that this spatiality might best be approached by considering golfing practices, with the temporalities of individual rounds reflecting rhythms evoked by hole configuration, topography, vistas and sociality.[17] So instead of golf displaying any inevitable essence, every course holds an emergent potential, calling into play new emotions, experiences, rhythms and memories. The spatiality of every round is hence always mediated by a varying temporality, and by the spatial stories[18] enacted and

14 Chris Perkins, 'Mapping Golf: A Contextual Study'.

15 Robert Muir Graves and Geoffrey S. Cornish. *Classic Golf Hole Design: Using The Greatest Holes As Inspiration For Modern Courses*, London: John Wiley & Sons, 2002.

16 Bradley S. Klein, 'Cultural Links: An International Political Economy Of Golf Course Landscapes'. In Randy Martin and Toby Miller (eds), *Sportculture*, Minneapolis: University of Minnesota Press, 1999: 211-226.

17 Chris Perkins, 'The Performance of Golf'.

18 Michel de Certeau, *The Practice of Everyday Life.* Berkeley, California: The University of California

recalled by players, spectators, designers, owners, professionals, caddies, bar staff, or green-keepers.

Players ostensibly compete against each other whilst making these spatial stories, according to a number of different formats of play, but in practice compete with themselves, to improve their practice, whilst also frequently struggling across course terrain. The rules of the game are enshrined and carefully protected, but are constantly tested by an industry concerned with capitalizing on a sport facing falling global participation. The game is frequently hated by those who do not play it, whilst offering a context and cultural capital for participants as members of a golf club.

Players deploy technologies on and off the course which together make the sport possible: the apparently banal and taken for granted golf ball reveals at once spectacular technological achievement, but also the futility of human control.[19] Golf club design is carefully regulated. Behavior for players becomes disciplined in a rational Foucauldian process, in which institutions enact and regulate unruly golfing bodies.[20] The civilizing qualities of the game come together rendering golfers as unique subjects.[21]

Mapping Golf

Mapping in these contexts might also profitably be explored as hybrid, as a field of potential, part of an assemblage that responds to, and in turn impacts upon, many different actors, technologies, feelings, actions and processes. The mapping of golf, hence, can be thought of as having emergent qualities – with mutable meanings associated with different mapping moments on or off the course, and which in turn reflect particular mapping modes.[22] Contemporary digital mapping is a mode that seems particularly appropriate for this kind of processual thinking. The digital map appears to be less of an immutable mobile[23] than its hard copy predecessor, and digital map interfaces seems to afford more diverse ways of interacting with, and changing the medium, which can be clicked, or increasingly tapped and stroked into being.[24] There has also been a blurring of the boundaries between those

Press, 1984.

19 Harry Brown, *Golf Ball*, London: Bloomsbury Publishing, 2015.

20 David Collinson, and Keith Hoskin, 'Discipline And Flourish: Golf As A Civilising Process' in *Science And Golf II: Proceedings Of The 1994 World Scientific Congress On Golf*, London: Spon, 1994, pp. 620-625.

21 Monica Varner and David Knottnerus, 'Civility, Rituals, and Exclusion: The Emergence of American Golf during the Late 19th and Early 20th Centuries', *Sociological Inquiry* 72, no.3 (2002): 426–441.

22 See Martin Dodge, Chris Perkins and Rob Kitchin, 'Mapping Modes, Methods and Moments: A Manifesto for Map Studies', in Martin Dodge, Chris Perkins, and Rob Kitchin (eds) *Rethinking Maps: New Frontiers in Cartographic Theory*, London: Routledge, 2009, pp. 220-243.

23 See Bruno Latour, 'Visualisation and Cognition: Drawing Things Together', in Michael Lynch and Steve Woolgar, *Representation in Scientific Activity*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 1990, pp. 19-68.

24 See Sam Hind and Sybille Lammes, 'Digital Mapping as Double-Tap: Cartographic Modes, Calculations and Failures,' *Global Discourse: An Interdisciplinary Journal of Current Affairs and Applied Contemporary Thought* (2015); Sybille Lammes, 'Digital Mapping Interfaces: From Immutable Mobiles

who deploy digital maps, as against those who make and control the medium. In the sharing economy the digital map is much more hybrid.

It is suggested through this book that play offers a great potential for understanding these changing relations. A playful mapping can at once have an agency, and capacity to influence events, but also be part of broader groupings of social things. Mapping is performed and has hybrid characteristics in relation to the places it purports to represent, at once contributing to the making of places, but also strongly made by these places.[25] It has also been argued that a more ecological approach to the relations of people and mapping, focusing upon affordances[26] can yield useful insights. Meng suggests that:

> As a part of nature, the affordance is objectively measurable and independent of the individual's ability to recognize it. It does not have to be visible, known or desirable. A thing can have many affordances. For instance, a graphic display surface affords to see, touch and further actions such as carry, damage etc. However, from a pragmatic point of view, an affordance makes sense only when the individual can be aware of it and act on it, depending on his personal capability and the environmental constraints.[27]

So what emerges during the process of deploying a map is perceptual and social. The temporalities of mapping can evoke memories, contribute to a particular sequence, or anticipate possible futures by scripting action. Past present and future come together in mapping,[28] and it is the affordances of map deployment that can most usefully be explored to reveal mapping practice.

So my argument is thus that the mapping of golf is much more than representational.[29] The cases described in this chapter enroll complex sets of actors, and like the location based games described in chapter 3, they merge the physical and virtual worlds. They too depend upon a digital mapping of the world that changes players' relations to territory (see chapter 1). However, the mapping practices described below differ from location-based-games,

---

to Mutable Images,' *New Media & Society* (2016); Chris Perkins, 'Plotting Practices and politics: (Im) mutable Narratives in OpenStreetMap', *Transactions of the Institute of British Geographers* 39, no. 2 (2014): 304-17.

25 Vincent Del Casino Jr, and Stephen P. Hanna, 'Beyond The 'Binaries': A Methodological Intervention For Interrogating Maps As Representational Practices', *ACME: An International E-Journal for Critical Geographies,* 4 no.1 (2005): 34-56.

26 James J Gibson, 'The Theory of Affordances' in R. Shaw and J. Bransford (eds) *Perceiving, Acting, and Knowing - Toward an Ecological Psychology*, New York: Lawrence Erlbaum Associates, 1977, pp. 127-143.

27 Liqiu Meng, 'To See And See Through Graphics: Toward Affordance-Driven Geovisualization' in Virtual Geographic Environments- An International Conference On Development In Visualization And Virtual Environments In Geographic Information Science, 2008, Hong Kong: Chinese University of Hong Kong, 7-8 January 2008.

28 See Alex Gekker, Sam Hind, Sybille Lammes, Chris Perkins, Clancy Wilmott, and Dan Evans (eds) *Time Travellers: Temporality and Digital Mapping*. Manchester: MUP, 2017.

29 Lorimer, Hayden, 'Cultural Geography: The Busyness Of Being 'More-Than-Representational", *Progress In Human Geography*, 29, no.1 (2005): 83-94.

because of the ongoing history and culture of golf as a pastime, beyond the digital, with its rich and demarcated accumulation of traditions, rituals and commodities, and its crafted designed landscapes. Its spatial hybridity is complemented by links and juxtapositions between the real and the virtual. This hybridity blends digital and analogue technologies. It draws attention to the provisional qualities of mapping's claims to authority, and to partial and ambiguous links backwards and forwards across time, in which memory and habit are linked by navigation and strategy through mapping. It reflects affordances and perceived affordances. And approaching these affordances as fields of play involves, I suggest, deploying knowledge that is plural, and which draws on insights from many different theoretical positions, instead of privileging more narrowly defined positions.

Playing with Maps and Mapping Play

It is argued throughout this book that interesting relationships exist between playing and digital mapping. This chapter explores a different aspect of this relationship and suggests that mapping can be a productive lens through which to approach the game of golf. In this chapter the hybrid qualities of play are the central focus, alongside the ways in which these are wrapped up with digital mapping technologies in playful contexts on and off the course.

Foundational thinkers in play studies reflected on play as separate from other aspects of life, focusing, for example, upon the qualities of the magic circle.[30] Read in this way golf is a rule-bound game with clearly defined boundaries, separate from other aspects of society, played in contexts where golfers suspend their everyday concerns with workaday matters. As a game golf also clearly reflects Roger Caillois's game motivations of agôn, alea, mimicry and ilinx.[31] Agôn is reflected in competitive instincts of golfers; alea is the play of chance, the randomness of a ball finding a bad lie; mimicry is perhaps less central to golf with its emphasis upon roles and make believe; whilst ilinx concerns the play of physical sensations, experienced during a round, the elation of a perfect shot, the tired final drive etc. As such golf clearly sits as playful, but is rather different to free-form play. Players of golfing-based videogames might also be seen in this fashion as hermetically sealed from other media or pastimes. The interface or platform framing game play might limit affordances emerging from playing these games, and the sport of golf itself would be seen as related, but separate from video-game based re-mediations of the sport.[32]

However, more recent approaches to play have been much more willing to focus on the relations between a network of people, things, feelings, actions, technologies. Emblematic of this turn towards a more situated understanding of play is the work if Miguel Sicart.[33] Sicart views play as a mode of being human, citing diverse evidence relating to playing with toys, playing games, and exploring the relations of play to design and to technologies. He

30 Johan Huizinga, *Homo Ludens: A Study of the Play-Element in Culture*, Amsterdam: Amsterdam University Press, 1938.

31 Roger Caillois, *Man, Play and Games*, Urbana and Chicago: University of Illinois Press, 2001.

32 J. David Bolter, and Richard A. Grusin, *Remediation: Understanding New Media*, Cambridge, MA: MIT Press, 2000.

33 Miguel Sicart, *Play Matters.*

draws on notions of play as a portable tool, but also focuses on the world beyond play per se, which might be construed as being playful. As such this notion of a socially embedded understanding of play seems particularly appropriate for any consideration of golf mapping, and gels with recent emphases on the ludic turn in society.[34] Drawing on this more relational understanding of play Sutko and de Souza e Silva explore aspects of hybridity in two case examples of locative games.[35] They seek to 'understand games and play as activities intrinsically and inseparably connected to our physical spaces and to our daily lives by focusing on the interconnection between play and ordinary life, game community, and player identity'. They go on to suggest that 'play is thus best understood as an experiential activity that emerges from and intertwines with our ordinary daily experiences'. Richardson also argues for an approach to playful hybridity, which foregrounds the embodied, somatic and phenomenological aspects of game experience. She suggests that scholars have fixated too much on the limiting qualities of interfaces and framings that frequently define game studies interpretations of playful activities, arguing that these framings 'are ill-suited as descriptors for the complex layering of material and virtual contexts specific to mobile location-based and mixed reality gaming'.[36] They and other theorists of hybrid games reflect on how a more relational approach to the construct can inform our understanding of gaming practices enacted by participants in different games in the genre.

Once boundaries of play become recognized as being more fluid, so its more mutable and relational qualities become more evident. Playful technologies change the nature of participation and impact on places. Thrift argues strongly that artefacts associated with new kinds of play, which he terms 'supertoys', are far from neutral in the co-construction of playful spaces.[37] So the videogame impacts on many aspects of everyday life, and other aspects of real world golfing technology fundamentally alter the experience of play, but are in turn read and impacted in complex fashions during everyday practice. In sports a hybrid and ambiguous ethos can also be read in Michel Serre's reflections on the status of the ball as a quasi-object:

> A ball is not an ordinary object, for it is what it is only if a subject holds it. Over there, on the ground, it is nothing; it is stupid; it has no meaning, no function, and no value. […] The ball isn't therefore the body; the exact contrary is true: the body is the object of the ball; the subject moves around this sun. Skill with the ball is recognized in the player who follows the ball and serves it instead of making it follow him and using it. It is the subject of the body, subject of bodies, and like a subject of subjects.[38]

---

34 See Joost Raessens, 'Playful Identities, or the Ludification of Culture', *Games and Culture* 1, no. 1 (2006): 52-57.

35 Daniel M. Sutko and Adriana de Souza e Silva, 'Location-Aware Mobile Media and Urban Sociability', *New Media & Society*, 13, no.5 (2011): 807-823.

36 Ingrid Richardson, 'The Hybrid Ontology Of Mobile Gaming', *Convergence: The International Journal Of Research Into New Media Technologies* 17, no. 4 (2011): 419-430.

37 Nigel Thrift, 'Closer to the machine? Intelligent environments, new forms of possession and the rise of the supertoy', *Cultural Geographies* 10 (2003): 389–407.

38 Michel Serres, *The Parasite*, Minneapolis: University of Minnesota Press, 2007: 225.

In this chapter I suggest that these hybrid ideas can usefully be deployed to approach a wider variety of playful contexts beyond hybrid games per se. In so doing I pick up on the work of Brian Sutton Smith and his concerns with the ambiguities of rhetorics associated with play.[39] Sutton Smith identified seven rhetorics associated with play as a form. The *progressive* play of childhood can be seen as a normative process designed with a goal in mind. Sutton-Smith's play of *fate* reflects the role of chance impacting on playful experiences or outcomes. His *power* of play is clearly evident in the competitive ethos that pervades games. Play as a quality associated with *social identity* is an important fourth rhetoric, in which shared activity contributes to experiences. A more individual rhetoric concerned with *imaginative* notions of play highlights more creative possibilities. Individual innovation and individual expression emerge in rhetoric associated with the playful *self*, where players frequently define themselves and their identity, by their participation in a game. So too is *frivolous* play, reflected in the jocular participation, or subversion. These different rhetorics associated with cultural connotations of play frequently relate in an ambivalent fashion to shared conceptions of a game; they are argued over, and enacted in different ways in different places. The rest of this chapter explores the extent to which the mapping of golf conforms to these different approaches, highlighting the extent to which golf might also be regarded as a locative game, and the need for different kinds of hybrid understanding to emerge in this context. To make these links between concepts and practice, I first explore a genealogy of the emergence of golfing based videogames, highlighting how their affordances relate to aspects of mapping and playing that underpin this section. I then move on to contrast more detailed case evidence from a digital mapping application on real golf courses, as against a recently published and complex example of one videogame.

Golf Games

Computer-based golfing games have been readily available since the release in 1977 of *Miniature Golf* on the Atari 2600 platform. In October 2016 the Moby Games website listed a total of 427 different golf games, from a total of 4885 in the sports genre.[40] Very different affordances and game play are deployed in these contrasting examples of playful mapping, a sample of which is summarized in table 4.1.

Many of these computer, console and smartphone-based golf games are highly stylized, and only very loosely related to the real game of golf. Miniature golf for example involves putting, but is more akin to arcade games than simulating any real golf experience. However, many golf video games do depend upon some kind of mapping of the course, against which the game is played, reflecting Aarseth's Lefebvrian reading of the significance of spatiality for computer games.[41] Mapping in golf games serves as a representation of space, but also as symbolic imagery with aesthetic qualities, and as a powerful part of spatial practices. A hybrid blending of practice, backdrop and imagination emerges during game play and on the real course. Chesher also starts from the Lefebvrian triad in his comparison between the

39 Brian Sutton Smith, The Ambiguity of Play.

40 Mobygames is the most comprehensive listing of videogames (see www.mobygames.com).

41 Espen Aarseth, 'Allegories of Space: The Question of Spatiality in Computer Games' in Markku Eskelinen and Raine Koskimaa (eds) *Cybertext Yearbook 2000* Jyväskylä: University of Jyväskylä, 2000, pp. 152-171.

affordances delivered in sat navigation devices and computer games, and his conclusions about the sociality of mapping experiences also chime with the deployment of maps on the golf course itself, and with the deployment of game play on the virtual course.[42]

Gekker (this volume) suggests that interactivity and salience are important characteristics underpinning the affordances built into game maps, and his analysis draws in the main on open world character-based role-playing games, and shoot-em-ups. This typology also seems to work in golf games. Game-play takes place in and across a course backdrop that is increasingly immersive, with a player-centric perspective, and where simulation of the real extends to crowd noises, birdsong and the sound of clubs swinging. The verticality explored by Fraser and Wilmott (this volume) is also an important part of the player experience in many golfing games, just as it is on the real golf course. Temporality, however, is frequently under player control, in video games, often alongside a capacity to replay shots, something that many golfers desire on the course, but which is precluded by rules governing play. Navigation through a hole or course in golfing videogames, and strategy dictating shot selection, are frequently helped by deploying a full-sized map view, with a top down map-like perspective. The Cartesian qualities of the top-down and simplified map view of a hole on a course are also useful in games that support course design, and here the map serves as an artifact to be changed, a crafting of the real. So mapping in golfing games plays roles that are instrumental and useful, but are also both conceptual and associative. These hybrid and blended experiences reveal frequently complex rhetorics at play.

Game title	Year	Publisher	Affordance	Platform
CustomPlay Golf	2005	Fusion Software	Course design	Windows
InfiniTee Golf	2001	InfiniTee Golf	Course design and game play	Windows
Jack Nicklaus Perfect Golf	2016	Perfect Golf	Course design and game play	Windows, Mac and Linux
Let's Golf series	2009	Gameloft	Game play	Android, Blackberry, iPad, iPhone, Playstation 3

42 Chris Chesher, 'Navigating Sociotechnical Spaces: Comparing Computer Games and Sat Navs as Digital Spatial Media' *Convergence: The International Journal of Research into New Media Technologies,* 18, no.3 (2012): 315-330.

Game title	Year	Publisher	Affordance	Platform
Mario Golf	1999	Nintendo Co Ltd	Fantasy golf	Nintendo 64, Wii, Wi U
Mini Golf Matchup	2016	Scopely Inc	Mini golf	Android, iPad, iPhone
Miniature Golf	1977	Atari inc	Mini golf	Atari 2600
Outlaw Golf	2002	Hypnotix	Fantasy golf	X Box, Nintendo, GameCube, Playstation 2
PGA Tour Series	1990-1998	Electronic Arts	Game play	Amiga, DOS, Game Gear, Genesis, Mac, SEGA, Playstation, Windows
Rory McIlroy Golf Tour	2015	Electronic Arts	Game play	Playstation, X Box
Sid Meier's Sim Golf	2002	Electronic Arts	Course development	Windows
The Golf Club	2014	HB Studios	Course design and game play	Playstation, Windows, X Box
The Links Series	1990-2003	Microsoft	Game play	DOS, Mac, Windows, X Box
Tiger Woods PGA Tour Golf	1998-2013	Electronic Arts	Game play	Gamecube, Playstation, PS2, PSP, Windows, X Box
Vertiginous Golf	2015	Surprise Attack Games	Fantasy golf	Linux, Mac, Windows
World Tour Golf	1986	Electronic Arts	Course design and game play	Commodore 64, Amiga, DOS

Table 4.1 *Examples of Golf Games.*

In most of these games players compete against the course, or each other, in agônistic battles.[43] Some version of a simulation of a course appears on a screen in front of the player, whether PC, tablet, TV monitor, games console, tablet, or smartphone. An input device such as a mouse becomes the club, and clicks simulate the golf swing, striking the ball, which moves across the virtual layout of the course. Innovations since 2000 (such the *Nintendo Wii)* have introduced bodily action into player control, leading to a more immersive feeling, enhanced gameplay training potential and a more embodied experience. These immersive trends also reveal the limits of a purely representational view of the mapped course: instead, the course is best interpreted as part of the game, which is made through the bodily practices of the players. The controller becomes almost a quasi-quasi object,[44] where a simulated material action strands for an action in the real world – and where a number of different real objects (the golf ball, the clubhead, the player, the course landscape etc) become melded together into a hybrid assemblage of actions, affording impressions of participation in the real experience, whilst remaining obstinately artificial.

Sutton-Smith's critique of rhetorics of play can be seen across the genre. A progressive rhetoric of playing with simple golfing video games can lead to improved performance in the real game, by exposing players to simulation of real course management strategy such as club selection. In their evaluation of performance Fery and Ponserre concluded that 'if the user is engaged in a learning skill strategy, golf video games seem to be useful in sport skills acquisition.'[45] But the video game and the real sport are not isolated and relations between them together construct difference and new possibilities. Players are never completely in control in the virtual game or on the real course, a probabilistic engine partly determines the outcome of shots online, and a randomness pervades shotmaking in the real world. Sutton-Smith's play of chance strongly influences shot outcomes in many computer-golf simulations.[46]

In 2009 I outlined four contrasting examples of strategies taken by game designers towards the spatiality of golf, reflected in differing affordances and product designs, with varying ludological and narrative characteristics.[47] These can be summarized as comprising: games deploying stylized game play where little attempt is made to contextualize golfing environments; course management simulations; realistic emulations of existing courses; and user designed and shared courses.

The console and smartphone markets in particular are dominated by the first example. Game play is emphasized, as is competition between players, instead of the landscape and course on which the game is played. Minigolf games include 'Fantasy golf' abounds in titles such as *Mario Golf*, *Vertiginous Golf*, or the over-the-top, violent and comedic *Outlaw Golf*. The

43 Roger Callois, Men Games and Play.

44 Michel Serres, *The Parasite*.

45 Yves-Andre Fery and Sylvain Ponserre, 'Enhancing The Control Of Force In Putting By Video Game Training', *Ergonomics,* 44 no.12 (2001): 1025-1037.

46 Brian Sutton Smith, The Ambiguity of Play.

47 Chris Perkins, 'Playing with Maps' in Martin Dodge, Rob Kitchin and Chris Perkins, *Rethinking Maps*, London: Taylor and Francis, 2009, pp. 167-188.

cartoon-like characters, and extreme courses in these games actively subvert and parody the rather staid, conservative and regulated play of the real game, evoking the subversive and frivolous qualities of play highlighted by Sutton-Smith. Here mapping is a backdrop to the action – but little attention is paid to where the action takes place.

A second kind of golf game focuses on simulations such as *Sid Meier's Sim Golf* where mapping emerges gradually and under player control, and where the design of a successful facility is the aim. The aim is to build a map reflecting qualities that will attract customers to the course. Maps are the interface through which the player makes the course, rather than the ground on which the game is played. The level of hole-detail in this kind of game is limited: mapping animates success in attracting revenue. Realistic depiction of a golfing landscape is not the aim – a stylized depiction and isometric view depicts the emerging golfing landscape as the player makes the game.

A third strategy focuses on attempts to emulate the real game of golf, with photo-realistic depictions of course scenery. These games frequently simulate existing and famous real golf courses, with game play under user control, against a mapped or photo-like backdrop, and have dominated in terms of sales over the nearly forty-year history of the development of golf gaming. Long-running franchises of games include the *Links* series, released over the period from 1990 until 2003 by Microsoft; and franchises from Electronic Arts, the *PGA Tour series* (1990–8), the market leading *Tiger Woods PGA Tour Golf* (1998-2011), and the currently dominant *Rory McIlroy PGA Tour Golf*. Different course backgrounds have been supplied with games since the early days of the genre, emulating classic real golf courses such as Augusta, Georgia, or St Andrews. Users play on courses supplied with the software, or download or purchase new courses. The real blends with the virtual: vision and sound create a perceptual experience across which realistic competition can take place.

A final strategy is to emulate the landscape architectural qualities of course design, by giving players the ability to create and map out their own courses. The first course-editing suite to be made available with a game was released in *World Tour Golf* in 1986 from Electronic Arts. The *Links* series encouraged users to share courses, a trend continued in *Tiger Woods PGA Golf Tour*. Substantial numbers of user-designed courses are now available over the web. Other products trade on the novelty of being able to play on a new course at every game – for example with *InfiniTee Golf*. This more creative rationale for play was most developed in *CustomPlay Golf* where software sophistication overlapped with that deployed in the real world of golf-course architecture, and where making the course was marketed as being as important as playing on it. Sophisticated procedural course editing software forms the core of this kind of gameplay, and current examples such as *The Golf Club* from HB Studios, or *Jack Nicklaus Perfect Golf* trade on the overlap with real world deployment of software by consultancies designing real courses, and also deployed as engines for successful entries in amateur hole design competitions.[48]

48 Courseforge is used by leading specialist golf course design consultancies such as Nicklaus Design. The winning entry in the 2016 Golf Digest Amateur Architect competition was created using the Jack Nicklaus Perfect Golf CourseForge engine, see http://www.golfdigest.com/story/a-devoted-computer-

The affordances delivered in mapping interfaces deployed in these games have changed over time. Screen resolutions have improved and processor speed has increased, facilitating increasingly realistic depictions of landscape. Mapping has become more complex, with increasingly sophisticated landscape depiction and control over textures, models, sound effects and the ways these relate to game play. Early games simply offered vertical views onto the golfing landscape. Split-screen vertical and third-person perspective views of the course appeared in the mid 1980s in *World Tour Golf* series. Current games support multiple views, zooming in on characters and parts of the course, deploying default or user control. Three-dimensional displays allow panning and zooming around objects. There has been a shift towards incorporating multi-window designs, with zoomable maps, where the viewing angle can be changed. Users increasingly are able to control these map views, selecting whether to see the course from the player, audience, birds eye, or isometric perspective. The sophistication of game play has been greatly improved by the development of smoother animation and better modeling of the physics of shots and golf ball flight.

There has, as elsewhere in the gaming world, been a shift towards multi-player gaming, and towards multiple platform versions of the same game, which evoke Sutton-Smith's social rhetoric of play.[49] The web has facilitated online competitions and tours for nearly twenty years, which mirror the real world of golf competition. But just as wider notions of play are increasingly being studied as social and situated,[50] so has playing with golf maps become increasingly social. And the sociality underpins playful mapping on and off the course. A more detailed consideration of the practices around two golfing games reveals the importance of moving beyond function and representation.

Skycaddy

On a real golf course golfers need to know how far they are from a green or desired landing area, in order to select an appropriate club. With this knowledge shots are less likely to be wasted, an overall improvement in scores becomes more possible and play can become faster. The course can therefore be managed better. The spatiality can be controlled by a selective deployment of spatial technologies, and the risk of failure can be averted. So on-course deployment of mapping technology offers the progressive potential for this improvement in play.

Until 1999 technological support for this improvement was limited and mapping was separate from distance measurement. Laser-based rangefinders had delivered a precision of .5cm accuracy since the mid 1960s, but were separate from course mapping and expensive. Many clubs fixed markers into fairways to measure distances to the green, and also provided in-situ maps on tees to indicate a simple guide to each hole layout. Printed yardage books and hard copy course planners included mapping of individual holes that documented key locations important for course management and club selection, and indicated precise

game-golfer-wins-the-2016-armchair-architect-contest.

49 Brian Sutton Smith, The Ambiguity of Play.

50 See Jana Rambusch, *Situated Play*, Linkoping: Linkoping Institute of Technology, 2008.

locations of easily identifiable landmarks, such as significant trees, or bunkers as well as distances to the green.[51] So at the end of the millennium club choice still depended upon golfer perceptions of landscape.

With the release of *Golflogix* for Garmin-based GPS receivers in 1999 GPS signals came to be used in handheld devices for the first time on the course.[52] Three different kinds of Golf GPS devices are now available: handheld dedicated receivers, wristwatch-based displays syncing to mobile devices, and smartphone apps. *Skycaddy* from *SkyGolf* is now the market leader in this sector and supplements aerial coverage of holes with ground-based digital mapping, updating 5 000 courses a year, and with digital course mapping available for around 40 000 courses worldwide.[53] Its premium product The *SkyCaddy Touch* offers a colour touchscreen, with different mapped screen interfaces (see figure 4.1).

Figure 4.1 *SkyCaddy*[54] *Touch Interfaces.*

51 See Chris Perkins, 'Mapping Golf', for an analysis of a genre that has spread to cover the majority of courses across the world.

52 http://www.sporttechie.com/2013/10/15/trending/golflogix/.

53 http://newskycaddie.skygolf.com/content/welcome-skycaddie.

54 Source: http://www.golfalot.com/equipment-news/skycaddie-touch-2720.aspx.

A golfer can tap the birds-eye Interactive Holeview screen, to indicate distances to any point on the hole against the mapped backdrop. Or they can generate yardage arcs for display against the hole. Or when approaching the green the system delivers the capacity to view complex aspects of the green complex such as distances to the front, center and back. Distances update in real time as the golfer moves across the screen map. This is complemented by technology to accumulate analytic data relating to individual shots and hole performances, which can in turn be interfaced with other packages to improve swing. The style of the digital mapping, and affordances that it offers closely resemble isometric views offered in digital mapping by many golfing videogames, and the relatively late adoption of GPS technology on the course was able to learn from the virtual application of design, as well as from the style of earlier hard copy mapping of golf holes published in course planners. A convergence of technology has once again taken place, with a blending of hybridity enacted on course.[55] An online Cloud-based community of users can connect with other golfers, track scores, generate and analyze statistics, explore courses, download Trueground course maps, as well as sharing achievements and communicating with other users.

So this mapping application exists as part of an ecosystem of technologies and affordances emerging in different contexts. In a crowdsourcing of its precision and accuracy, course owners are encouraged to update local course maps when layouts change: the mapping is deployed to manage courses as well as improve play. There are however, political and cultural limits to this playful deployment. The regulated nature of the game limits its use. Until 2006 USGA / RA rule 14.3b prohibited the use of artificial devices in all competitions 'for the purpose of gauging or measuring distance or conditions that might affect play'.[56] Only after the relaxation of this rule from 2006, to allow courses to enact local exceptions, did the market for Rangefinders and GPS devices significantly pick up. Industry views of the benefits of the technology are boosterist – with current surveys suggesting that the devices improve shot confidence, lead to quicker play and to better scores.[57] But within the game not all golfers regard control or precision as the best way to improve their game, or to enjoy their rounds. There is a considerable opposition to a data-driven and digital route to golfing perfection.[58] The day-to-day deployment of the technology on the course may actually hinder better score making, by distracting attention from the 'feel' for a shot. By 2016 indications suggest that market saturation may have been reached for GPS receivers with free apps on smartphones eroding sales. So in practice the normative and progressive narrative associated with playing with maps on a handheld device on the course is strongly problematic. The rhetoric is rendered as a complex and mutable series of experiences, in the reality of the application of the technology. Devices such as *SkyCaddy* offer a hybrid bringing together many different technologies, and the hybridity extends to much more than digital mapping, leading to a frequently contested series of gradual changes.

---

55 See Henry Jenkins, 'The Cultural Logic Of Media Convergence'.

56 http://www.randa.org/Rules-of-Golf/MainRules/14-Striking-the-Ball/SubRules/3-Artificial-Devices-Unusual-Equipment-and-Unusual-Use-of-Equipment#14-3.

57 http://ngfdashboard.clubnewsmaker.org/Newsletter/1gz95ynihmt?a=1&p=2354955&t=410827.

58 See for example Geoff Shackelford, *The Future of Golf: How Golf Lost Its Way and How to Get It Back*, Seattle: Sasquatch Books, 2005.

The Golf Club

The Golf Club is a recently published and multi-platform game marketed by HB Studios, and branded as the next generation of golf sims, embodying as it does a sophisticated procedural generation of course layouts, but also a rich depth of social interaction during gameplay. The game was released in 2014, for PC, X Box and Playstation. A second version was released in 2016, with significant upgrading to the sociality of the interface.

A central and interesting feature of the game is the slick capacity to generate new courses across which tournaments can be played. The game's promotional web site summarizes these capabilities: 'The Greg Norman Course Designer gives you the ability to create from scratch or mould anything on the course. You can alter the terrain, move tees, move greens, move holes, delete holes, add holes, bunkers, rivers, ponds, trees, foliage, buildings, animals and other objects. During editing, you can play the ball from any spot to review holes and make changes as you see fit.' [59] Figure 4.2 shows an editing screen from this designer module. To date over 100 000 different courses have been created and shared amongst a growing community of users.

Figure 4.2 *Greg Norman Course Design Engine.*[60] Hole design tool.

A second important aspect of the game is no different from other multi-player platforms – a community increasingly shares and evaluates the courses that are playfully constructed during the design phase (see figure 4.3).

59 http://thegolfclubgame.com/2014/01/11/features-of-the-golf-club-game/.
60 Source: http://thegolfclubgame.com/2016/05/04/tgc-retrospective-greg-norman-course-designer/.

Old Beaver Creek

Designer: Bill Rader & Brian Jeffords

Date Added: 12/21/2014
Theme: Boreal
Type: Fictional
Par: 72
Yardage: 6829
Green Speed: Medium
Firmness: Medium
Difficulty: Easy
FPS Rating: Smooth
Likes: 77

Course Description:

Old Beaver Creek is a course that I kind of picture in the mountain/hills of northwest South Carolina or thereabouts. Lots of foliage, a lovely lake with some spectacular lake houses that are accessible by plane and boat only, old beaver creek itself... it's a great place to kick back, play a round, grab a pole and try to wiggle in a few big ones while you're out there!

Member Reviews:

The scenery and planting is exceptional on this course
Reviewed by: Todd Driver on 12/23/2014

Greens are fair. Excellent mix of long and short holes. Very creative short Par 4's. Very playable, but challenging. Great green complexes.
Reviewed by: Robert Davis on 12/24/2014

Canuck's Course Critiques

Dam Phenomenal Course

Pros
- Amazing hole design, not one "so so" hole.
- The planting of trees and rocks was superb.
- The creek that ran through the course and fed into the lake gave some spectacular views.
- Excellent bunkering and contouring.
- Basically everything...

Cons
- Umm..... I've got nothin'....

Verdict- Easy. Go play it. It will be on your favorites list for sure. My first full mark rating. Well done chaps. 5/5- Exceptional

Reviewed by: Andre Quenneville on 1/3/2015

Figure 4.3 *Review page for Old Beaver Creek*. The default easy course layout for tournaments at The Golf Club.[61]

61 See: http://www.tgctours.com/Course/Details/4358.

Why does a developer need to waste time honing pre-prepared course designs when it can successfully crowd-source the making of playful terrains to the customers who buy the software? All that is needed is to generate an interface that makes the successful completion of the game a central part of the ludic experience. This offers an increased number of possibilities for comparative performance, social capital for the top designers, and also a sense of control and creation. The designs are the property of the corporation, but shared amongst the playing community, and once again the sociality of the physical and virtual play is evoked.

It is the sophisticated blending of two genres that makes the Golf Club interesting, the strongly social gameplay is married to the iterative and creative possibilities for course design, delivering a hybrid of affordances to players. Earlier golfing games had also attempted this fusion, but had been hampered by technical limits in interface design.[62] A further hybridity emerges in the affordances offered by the procedural dynamics. These are sufficiently sophisticated to be deployed by designers of real courses[63] – as well as by game players. The lucrative gaming industry that has spawned the game is seeking new outlets for its products, but the golf course design industry also sees advantages in associating its brand with a newly emerging market sector, and in particular in an age when fewer and older golfers are playing on real golf courses.

So game play takes place across these terrains and is cross-referenced to the individual state of a course that is open for revision by anyone with a game license.

Conclusions

A hybrid experience emerges in the golfing cases discussed in this chapter. This hybridity comprises a blurring of analogue and digital experiences, a blurring of play and work, and a blurring of the playful affordances that emerge out of this context. In the first case the normative intent of designers concerned with deploying mapping to precisely fix and improve real world golfing practice, is subverted by golfing performances on course, by the political economy surrounding golf, and by playful rhetorics beyond the progressive, that are enacted by users of the technology on and off the course. Playful deployment of the app or GPS device subverts narrow technologist claims about the affordances delivered by adopting the technologies. In the second case hybridization characterizes the game design itself, and a competitive game play deploys mapping in ways that contrast strongly with the more creative making of the course maps across which tournaments may subsequently be enacted. Social elements of the gameplay enacted in a playing community in turn impact on the reception of individual course designs. But hybridization can also be seen in the way that different affordances are delivered as part of the same gaming environment. Using the game to design a virtual course is subtly different from using the game as part of the plans to make a new real world course. The real and virtual world of golf merge in a convergent ecology deployed in the Greg Norman Golf Designer.

---

62 See Chris Perkins, ‘Playing with Maps’.

63 See HB Studios, ‘Highly Realistic’ Golf Game Being Used to Design Real-World Golf Courses’, http://www.gamespot.com/articles/highly-realistic-golf-game-being-used-to-design-re/1100-6421142/.

But these cases are about much more than a phenomenological approach. I have also suggested that a blurring of thinking can be a useful way of approaching case evidence where a co-production of ideas emerges. I have used Sutton Smith's notion of rhetorics of play, in conjunction with Gibsonian approaches to ecologies of behavior, and Lefebvrian notions of spatiality, to begin to interpret what can most productively be read as a co-produced and hybrid emergence of mapping spaces and practices. This co-production has clear implications for any consideration of spatiality and therefore for the mapping practices that come to be enrolled into the case evidence. But it also has implications for how the cases unfold – for the ways in which possible futures are called into play and indeed for broader considerations of temporality and for processual understandings of digital mapping and play.

So the argument moves beyond concerns with hybridity evoked by play theorists interested in hybrid games[64] and instead focuses on interplays between contrasting and different contexts. The cases have highlighted how mapping technology might be deployed in a playful fashion in the real world, but outside of anything that could be defined as a video game, and secondly, by way of contrast, document a case where multiple actants come together in different aspects of a contemporary golf based video game, that is linked to the reality enrolled into locative games, but strongly differs from the first range-finding case. I have argued that we should pay attention to the practices across different versions of the game, and the affordances that these differing materialities facilitate.

My argument has been that the digital development of golf-based video games has followed a trajectory that is encouraging hybridization, and that instead of privileging one particular approach as yielding the 'best' explanations of practice on or off the course, we should instead deploy ideas in a creative fashion, blending insights from different approaches. As such the golf games described in this chapter are significantly different from other cases in this book. But they bring together concerns with the locative charted in chapter 3, and set these against playful engagements with the real world charted in chapters 2, 5 and 6, whilst also speaking to the more game related concerns of chapter 7 and 8. The success of hybrid clubs is mirrored in the potential of a hybrid approach to the apparently separate fields of golf, mapping and playing.[65]

References

Aarseth, Espen, 'Allegories of Space: The Question of Spatiality in Computer Games' in Markku Eskelinen and Raine Koskimaa (eds) *Cybertext Yearbook 2000* Jyväskylä: University of Jyväskylä, 2000, pp. 152-171.

64 See Daniel M. Sutko and Adriana de Souza e Silva, 'Location-Aware Mobile Media: Urban Sociability'; and Richardson, Ingrid, 'The Hybrid Ontology Of Mobile Gaming.'

65 Hybrid clubs merge some of the characteristics of irons with fairway woods, delivering a comparable loft of shot, but with an ease of use from fairway and rough alike. As such they also bring together interests of the golf industry and player demand, reflecting a market-led application of new technology to the game. An appropriate metaphor with which to close an argument for hybridity!

Augé, Marc, *Non-Places: An Introduction to Supermodernity*, London and New York: Verso, 2008.

Black, Jamie, *Enhancing The Experience Of Golf Through Landscape Design And Environmental Psychology*, http://www.golfclubatlas.com/opinionblack.html, 2000.

Bolter, J. David and Richard A. Grusin, *Remediation: Understanding New Media*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2000.

Brown, Harry, *Golf Ball*, London: Bloomsbury Publishing, 2015.

Caillois, Roger, *Man, Play and Games*, Urbana and Chicago: University of Illinois Press, 2001.

Chesher, Chris, 'Navigating Sociotechnical Spaces: Comparing Computer Games and Sat Navs as Digital Spatial Media' *Convergence: The International Journal of Research into New Media Technologies,* 18, no.3 (2012): 315-330.

de Certeau, Michel, *The Practice of Everyday Life,* Berkeley, California: The University of California Press, 1984.

Collinson, David and Keith Hoskin, 'Discipline And Flourish: Golf As A Civilising Process' in *Science And Golf II: Proceedings Of The 1994 World Scientific Congress On Golf*, London: Spon, 1994, pp. 620-625.

Del Casino Jr, Vincent J. and Stephen P. Hanna, 'Beyond The 'Binaries': A Methodological Intervention For Interrogating Maps As Representational Practices', *ACME: An International E-Journal for Critical Geographies,* 4 no.1 (2005): 34-56.

Dodge, Martin, Chris Perkins and Rob Kitchin, 'Mapping Modes, Methods and Moments: A Manifesto for Map Studies', in Martin Dodge, Chris Perkins, and Rob Kitchin (eds) *Rethinking Maps: New Frontiers in Cartographic Theory*, London: Routledge, 2009, pp. 220-243.

Fery, Yves-Andre and Sylvain Ponserre, 'Enhancing The Control Of Force In Putting By Video Game Training', *Ergonomics,* 44 no.12 (2001): 1025-1037.

Gekker, Alex, Sam Hind, Sybille Lammes, Chris Perkins, Clancy Wilmott and Dan Evans (eds) *Time Travellers: Temporality and Digital Mapping*, Manchester: MUP, 2017.

Gibson, James J, 'The Theory of Affordances' in R. Shaw and J. Bransford (eds) *Perceiving, Acting, and Knowing - Toward an Ecological Psychology*, New York: Lawrence Erlbaum Associates, 1977, pp. 127-143.

Graves, Robert Muir and Geoffrey S. Cornish, *Classic Golf Hole Design: Using The Greatest Holes As Inspiration For Modern Courses*, London: John Wiley & Sons, 2002.

Hind, Sam. and Sybille Lammes, 'Digital Mapping as Double-Tap: Cartographic Modes, Calculations and Failures,' *Global Discourse: An Interdisciplinary Journal of Current Affairs and Applied Contemporary Thought* (2015).

Huizinga, Johan, *Homo Ludens: A Study of the Play-Element in Culture*, Amsterdam: Amsterdam University Press, 1938.

Ingold, Tim, *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*, London; New York: Routledge, 2000.

Jenkins, Henry, 'The Cultural Logic Of Media Convergence', *International Journal Of Cultural Studies,* 7, no.1 (2004): 33-43.

Juul, Jesper, *Half-Real*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2005.

King, Geoff and Tanya Krzywinska, *Tomb Raiders and Space Invaders: Videogame Forms and Contexts*, London and New York: I.B. Tauris, 2006.

Kitchin, Rob and Martin Dodge, 'Rethinking Maps', *Progress in Human Geography,* 31, no.3 (2007): 331-344.

Klein, Bradley S, 'Cultural Links: An International Political Economy Of Golf Course Landscapes' in Randy Martin and Toby Miller (eds) *Sportcultures*. Minneapolis: University of Minnesota Press, 1999, pp.211-226.

Lammes, Sybille, 'Digital Mapping Interfaces: From Immutable Mobiles to Mutable Images,' *New Media & Society* (2016).

Latour, Bruno, 'Visualisation and Cognition: Drawing Things Together', in Michael Lynch and Steve Woolgar, *Representation in Scientific Activity*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 1990, pp. 19-68.

Lorimer, Hayden, 'Cultural Geography: The Busyness Of Being 'More-Than-Representational", *Progress In Human Geography,* 29, no.1 (2005): 83-94.

Meng, Liqiu, 'To See And See Through Graphics: Toward Affordance-Driven Geovisualization' in *Virtual Geographic Environments-An International Conference On Development In Visualization And Virtual Environments In Geographic Information Science*, 2008, Hong Kong: Chinese University of Hong Kong, 7-8 January 2008.

November, Valérie, Eduardo Camacho-Hübner and Bruno Latour, 'Entering a Risky Territory: Space in the Age of Digital Navigation', *Environment and Planning D: Society and Space* 28 (2010): 581-599.

Perkins, Chris, 'Mapping golf: A contextual study', *Cartographic Journal* 43, no. 3 (2006): 208-223.

Perkins, Chris, 'Playing with Maps' in Martin Dodge, Rob Kitchin and Chris Perkins, *Rethinking Maps*, London: Taylor and Francis, 2009, pp. 167-188.

Perkins, Chris, 'The Performance of Golf: Landscape, Place, and Practice in North West England', *Journal of Sport & Social Issues* 34, no.3 (2010): 312–338.

Perkins, Chris, 'Plotting Practices and politics: (Im)mutable Narratives in OpenStreetMap', *Transactions of the Institute of British Geographers* 39, no. 2 (2014): 304-17.

Raessens, Joost, 'Playful Identities, or the Ludification of Culture', *Games and Culture* 1, no. 1 (2006): 52-57.

Rambusch, Jana, *Situated Play*, Linkoping: Linkoping Institute of Technology, 2008.

Richardson, Ingrid, 'The Hybrid Ontology Of Mobile Gaming', *Convergence: The International Journal Of Research Into New Media Technologies* 17, no. 4 (2011): 419-430.

Serres, Michel, *The Parasite,* Minneapolis: University of Minnesota Press, 2007.

Shackelford, Geoff, *The Future of Golf: How Golf Lost Its Way and How to Get It Back*, Seattle: Sasquatch Books, 2005.

Sicart, Miguel, *Play Matters*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2014.

Sutko, Daniel and Adriana de Souza e Silva, 'Location-Aware Mobile Media and Urban Sociability', *New Media & Society*, 13, no.5 (2011): 807-823.

Sutton-Smith, Brian, *The Ambiguity of Play*, Cambridge, Massachusetts: Harvard University Press, 2001.

Thrift, Nigel, 'Closer To The Machine? Intelligent Environments, New Forms Of Possession And The Rise Of The Supertoy', *Cultural Geographies* 10 (2003): 389–407.

Varner, Monica K. and David Knottnerus, 'Civility, Rituals, and Exclusion: The Emergence of American Golf during the Late 19th and Early 20th Centuries', *Sociological Inquiry* 72, no.3 (2002): 426–441.

CHAPTER 5:'OUTSMARTING TRAFFIC, TOGETHER': DRIVING AS SOCIAL NAVIGATION

ALEX GEKKER AND SAM HIND

More than ever before city streets are a mesh of software and materiality.[1] As part of this and under the auspices of the 'smart city' and its underlying surveillances propositions, urbanization has been imbricated with technological control.[2] One aspect of such change that we wish to focus on in this chapter is tracing the way drivers interact with their own vehicles, the wider driving environment, and other road-users. Specifically, we highlight the ludic as an important factor in how this interaction takes place. Satellite navigation devices - perhaps the ultimate driving aids – are adept at capturing, storing, tracking, anticipating and visualizing the vast array of possible driving interactions, much more so than the traditional paper A-to-Z-style road atlas. This also opens up new playful affordances.

But just like the humble road atlas, such satellite navigation devices are called upon to adjudicate in everyday navigational matters. In this article we will look at how 'social navigation' – a term coined by the developers of a satellite navigation platform called Waze – is arguably changing the everyday nature of driving and translations between software and materialities through play. This work aims to build on an expansive literature that has interrogated the evolving socio-technical nature of automobility,[3] and continues with an interdisciplinary sensibility befitting a world in which engineers, technologists, advertisers, executives and lay people combine with pistons, onboard electronics, and social media campaigns to not only eradicate the clean distinctions between the production and consumption of such driving experiences, but also to prove further the emerging 'assemblage' of everyday mobility.[4]

Despite the propositions of some, especially those implicated in the automobile industry, such assemblages are always political[5] as seen in the deployment of fraudulent emission testing software by German auto-manufacturer Volkswagen. There, environmental, technological and economical concerns became interwoven into a scandal that affected the driving realities of more than 630,000 owners whose vehicles were recalled and subsequently

1 Rob Kitchin and Martin Dodge, *Code/Space: Software and Everyday Life*, Cambridge, MA: MIT Press, 2011.

2 Jennifer Gabrys, 'Programming Environments: Environmentality and Citizen Sensing in the Smart City', *Environment and Planning D: Society and Space* 32, 1 (2014): 30–48; Shannon Mattern, 'Mission Control: A History of the Urban Dashboard', *Places Journal*, 2015; Rob Kitchin, Tracey P. Lauriault, and Gavin McArdle, 'Knowing and Governing Cities through Urban Indicators, City Benchmarking and Real-Time Dashboards', *Regional Studies, Regional Science* 2, 1 (2015): 6–28.

3 Mike Featherstone, 'Automobilities: An Introduction', *Theory, Culture & Society* 21, 4–5 (2004): 1–24; 'Bodies, Cybercars and the Mundane Incorporation of Automated Mobilities', *Social & Cultural Geography* 8, 2 (2007): 175–97; Martin Dodge and Rob Kitchin, 'The Automatic Management of Drivers and Driving Spaces', *Geoforum* 38, 2 (2007): 264–75.

4 Tim Dant, 'The Driver-Car', *Theory, Culture & Society* 21, 4–5 (2004): 61–79.

5 Bruno Latour, 'From Realpolitik to Dingpolitik or How to Make Things Public', In *Making Things Public: Atmospheres of Democracy*, edited by Bruno Latour, 4-31. Cambridge, MA: MIT Press, 2005.

retrofitted. In the following pages we offer a conceptual framework to evaluate and analyze contemporary driving in terms of play and mapping. In order to do so, we proceed through three sections.

Firstly and close to the argument made in the first chapter of this book, we contend that 'ludic' approaches to analyzing digital technological networks can help to close lacunae in thinking on the possible reasons behind the insatiable take-up of new forms of cartographic displays by drivers around the world. By ludic approaches, we mean any analyses that take 'play' to be an inherent component in social relations. We then employ the notion of 'casual politicking' to orient new understandings of the ways in which drivers engage with digital interfaces. This term, we believe, appropriately encapsulates the kinds of moves being made in the automotive industry even ten years ago, when Nigel Thrift[6] made the claim that the experience of driving was slipping into our 'technological unconscious'. The naturalization of the mechanics of everyday driving has created the conditions for a subconscious, 'casual' form of politics; one formed through an interaction with digital devices. We then exemplify this in the next section with reference to the social navigation application mentioned above; Waze.

Here we take particular interest in three dynamics: the reporting of road hazards, the collaborative management of vehicle flow, and the addressing of latent map errors. Through this highlight the way ludic practices contribute to the emergence of a single ontological plane, that combines the map and the road. In the last section we anchor these exemplary cases in what Alexander Galloway calls 'ludic capitalism',[7] where social fabric of labor and compensation are threatened by utilizing play as a coercive device.[8]

Ludic Interaction: From Gamification to the Casual

The 'ludic turn' in new media studies has argued that play is a fundamental component of all human culture, even arising in the very domains often 'considered the opposite of play'[9] like education, politics, business and modern warfare. It is suggested that a ludic outlook pervades all manner of everyday practices and all kinds of interactions with digital devices, rather than being restricted to a specific game space, or 'magic circle'.[10] As Glas[11] suggests, after Consalvo,[12] this formalist separation between the play world and the 'real' world belies the pervasive nature of ludic activity throughout the whole of human life. Interaction with any kind of interface – be it a desktop computer in the workplace, a cash machine in a shopping

6 Nigel Thrift, 'Driving in the City,' *Theory, Culture & Society* 21, 4–5 (2004): 41–59.
7 Alexander R. Galloway, *The Interface Effect*, Cambridge: Polity Press, 2012, p. 40.
8 Tristan Harris, 'How Technology Hijacks People's Minds — from a Magician and Google's Design Ethicist — The Startup.' *Medium*, 18 May, 2016.
9 Joost Raessens, *Homo Ludens 2.0: The Ludic Turn in Media Theory*, Utrecht: Utrecht University, 2010.
10 Johan Huizinga, *Homo Ludens*, Boston, MA: Beacon Press, 1955; *The Game Design Reader: A Rules of Play Anthology*, Cambridge, MA: MIT Press, 2005.
11 Rene Glas, 'Breaking Reality: Exploring Pervasive Cheating in Foursquare', *Transactions of the Digital Games Research Association* 1, 1 (2013): 4.
12 Mia Consalvo, 'There Is No Magic Circle', *Games and Culture* 4, 4 (2009): 408–17.

center, a mobile phone on public transport, or a games console in the home - permits ludic behavior, contingent on the attitudes of the user and functionalities afforded by the machine's designer.[13] In many cases, as will be discussed, it is positively encouraged through the implementation of visual cues and feedback-rewarded behavioral loops that broadly fall into the realm of 'gamification'.[14] Advancing an understanding of how digital interfaces are being played with, and especially, as being played *casually and daily* (rather than in any 'magic' game space) has therefore become a primary scholarly concern. Interfaces are not simplistic windows into an isolated realm[15] but instead are enablers of general, social practices[16]. As such there is a politics to their design, functionality and deployment.

The notion of 'gamification' is a controversial term within the ludic turn, viewed by some as manipulation that takes into account the *appearance* of ludic activities without allowing for their *spirit.*[17] The adoption of game-like mechanics, rules, modes and structures for everyday tasks is now widespread, although only recently taken up in the field of digital mapping, for example. Those who contribute to collaborative mapping platforms such as *OpenStreetMap* (OSM) can use an application called Kort (figure 5.1) to carry out missions collecting 'koins' and badges to rise up a leaderboard, which in turn, improves the validity of the OSM database. Humanitarian volunteers looking to contribute in the aftermath of natural disasters can also now do so digitally via a platform called MicroMappers. Each case is a step-change from how the process of digital map editing has historically been performed.

But in the context of automotive practice, the possibility of 'cognitive distraction'[18] from mobile application interaction whilst driving has provided a level of concern not present in other debates,[19] even if legal rulings have deemed their use whilst driving acceptable under certain conditions[20]. Design prototypes such as Matthaeus Krenn's 'New Car UI'[21]

---

13 Miguel Sicart, *Play Matters*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2014.

14 Sebastian Deterding, 'The Ambiguity of Games: Histories and Discourses of a Gameful World.' in Steffen P. Walz and Sebastian Deterding (eds), *The Gameful World. Approaches, Issues, Applications*, Cambridge, MA: MIT Press, 2015, 23–64.

15 Lev Manovich, *The Language of New Media*, Cambridge, MA: MIT Press, 2001.

16 Galloway, The Interface Effect.

17 Ian Bogost, 'Persuasive Games: Exploitationware,' *Gamasutra*, 3 May, 2011; Sebastian Deterding, Miguel Sicart, Lennet Nacke, Kenton O'Hara, Dan Dixon, 'Using Game-Design Elements in Non-Gaming Contexts', in *Proceedings of the 2011 Annual Conference on Human Factors in Computing Systems (extended abstracts)*: Vancouver: Association for Computing Machinery, 2011, pp. 2425-2428; Ivan Mosca, '+10! Gamification and deGamification', *G|A|M|E* 1, 1 (2012); Deterding, 'The Ambiguity of Games.'

18 AAA, 'Measuring Cognitive Distraction in the Automobile,' *AAA Foundation,* 1 June, 2013.

19 Kevin Roose, 'Did Google Just Buy a Dangerous Driving App?', *NY Mag*, 14 June, 2013; Matt Richtel and Bill Vlasic, 'Voice-Activated In-Car Systems Are Called Risky', *NY Times*, 12 June, 2013.

20 The Californian Court of Appeal overturned an earlier conviction of a man originally found guilty for using his Apple iPhone map application whilst driving. See: http://articles.latimes.com/2013/apr/25/local/la-me-abcarian-distracted-driving-20130426 on an initial appeal, and the final Court of Appeal decision here: http://www.courts.ca.gov/opinions/documents/F066927.PDF.

21 Matthaeus Krenn, 'A New Car UI - How Touch Screen Controls in Cars Should Really Work', 2014, http://www.matthaeuskrenn.com/new-car-ui/.

suggest that new modes of interaction are necessary to combat this perceived distraction whilst driving. Such attempts join the discourse within academia and industry in enlisting cognition and neuroscience into a competing framework of behavioral governance.[22] 'Social navigation', then, is perhaps a tentative evolution stretching the limits of current statutory frameworks, cultural norms and acceptable levels of bodily attention.

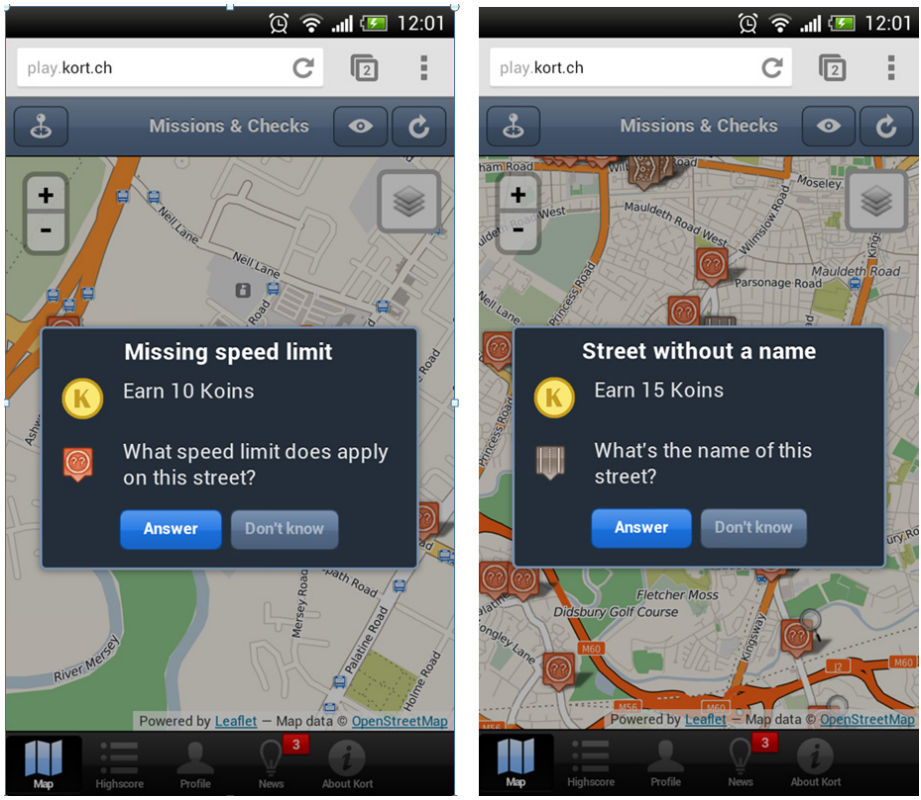

Figure 5.1 *Kort.* Screenshot[23] of Kort as smartphone-optimised OSM editing game.

A second, complimentary shift that the ludic turn has cast attention towards is the growing casualness of game-playing itself.[24] Distinguishing casual games from 'hardcore' games as Abt[25] and Ritterfeld et al.[26] have, has allowed for a deeper understanding of how 'gam-

22 Tiziana Terranova, 'Attention, Economy and the Brain', *Culture Machine* 13, 1 (2012): 1-19; *The Happiness Industry: How the Government and Big Business Sold Us Well-Being*, London: Verso Books, 2015.

23 All game screenshots are made by the author[s].

24 Jesper Juul, *A Casual Revolution: Reinventing Video Games and Their Players*, Cambridge, MA: MIT Press, 2009.

25 Clark C. Abt, *Serious Games*, Lanham, MD: University Press of America, 1987.

26 Ute Ritterfeld, Michael J. Cody, and Peter Vorderer (eds) *Serious Games: Mechanisms and Effects*, New York: Routledge, 2009.

ing capital' is built-up[27] and play conventions are acquired.[28] Typically, casual games are defined by low barriers to entry (easy to pick-up), incremental progress (lots of short levels), forgiveness towards player mistakes and the use of 'social mechanics', such as the option to invite or compare results with friends on social networking sites.[29] Additionally, they often include 'micro-payments' to unlock bonus content as opposed to traditional 'pay-once for everything' model.[30] The growth of mobile platforms – smartphones and tablets – has contributed greatly to their uptake. Playing the best-selling *Angry Birds* game for 2 hours a month, as creator Peter Vesterbacka suggests many did at the height of its success, would only amount to around 4 minutes of play a day.[31] A significantly lower figure than just almost any traditional console game, and one that suggests many simply play such games to 'kill time' in between other tasks, as Bouca[32] finds. As such, these casual gamers portray a relatively different set of attributes and interests to other long-form players. The titles they play stand at the far end of a long gaming continuum, with the vast, immersive (and 'hardcore') worlds of *Halo* and *Bioshock* at the other end.

Just as digital maps have allowed us to capture, track and store the records of quotidian interactions and expressions, so games have become embedded within, and arguably transformed, everyday life, constituting a gamification of common rituals (*Kort* as map editing *game*) and a casualness of the game-playing itself (*Kort* as a *smartphone optimised* editing platform). The fact that many games make use of maps as their playing boards (see Gekker or Perkins in this book), whether imagined (*Total War*, *Civilization*), through the utilization of location-based data (*Ingress*, *Zombies, Run!*) (see Lammes and Wilmott in this volume), or in the form of table top exercises (such as the fictional town of 'Sandford', discussed by Hind in this book), only underscores how digital mapping and gaming share common interface characteristics. The *Grand Theft Auto* (GTA) series is perhaps the most obvious example of this commonality. As Chesher[33] suggests, both satellite navigation interfaces and contemporary video games are primed to do three similar things; reify route-making, subjectively orientate action, and normalize the overlay of 'real-time' data. Gameplay in open world titles such as GTA is non-linear, allowing players to roam freely and complete tasks at will.

The adoption of touch-screen interfaces embodies a drastic turn in the nature of digital game-playing, map editing and technological driving assistance. The intuitive and ludic

---

27 Mia Consalvo, *Cheating: Gaining Advantage in Videogames*. Cambridge, MA: MIT Press, 2007.

28 Daniel Pargman and Peter Jakobsson, 'Do You Believe in Magic? Computer Games in Everyday Life', *European Journal of Cultural Studies* 11, 2 (2008): 225–44.

29 Jesper Juul, A Casual Revolution.

30 Holin Lin and Chuen-Tsai Sun, 'Cash Trade in Free-to-Play Online Games', *Games and Culture* 6, 3 (2011): 270–87; Elizabeth Evans, 'The Economics of Free Freemium Games, Branding and the Impatience Economy', *Convergence*, 1, 1 (2015): 1-18; David B. Nieborg, 'Crushing Candy: The Free-to-Play Game in Its Connective Commodity Form', *Social Media and Society* 1, 2 (2015): 1-12.

31 Elisabeth Braw, 'Angry Birds Creator Peter Vesterbacka.' *Metro*, 2011.

32 Bouça Maura, 'Angry Birds, Uncommitted Players,' *Proceedings of the International DiGRA Nordic Conference* 10 (2012): 1-13.

33 Chris Chesher, 'Navigating Sociotechnical Spaces: Comparing Computer Games and Sat Navs as Digital Spatial Media', *Convergence: The International Journal of Research into New Media Technologies* 18, no.3 (2012): 315-30.

nature of capacitive sensing technologies[34] as well as the possibility of tentative, probing and proximal interaction with such mobile devices[35] have led to their now-almost ubiquitous presence. In allowing for quicker and, arguably, more intuitive control in everyday situations (driving included) such interfaces utilize playful bodily action as a mechanism for increased coherence in habitual practices such as scrolling menus, issuing commands and selecting phenomena. A plethora of new tactile strokes, sweeps and taps are steadily and qualitatively replacing the metronymic and calculative clicks of computer mice, keys and other (car?) dashboard controls.

The touch-screen interface is a 'thin, but essential and visible membrane'[36] at once inviting seemingly inconsequential moves whilst actualizing wider cognitive, cultural and 'micro-political' potentialities. Both gamification and casualization are dependent upon this precept. The new driving landscapes that arise from such interaction are similarly transparent and innocuous, but nonetheless shape and direct the actions of everyday drivers. To illustrate, next we will examine the social navigation app Waze.

Hazards, Flows and Issues: Outsmarting Traffic Through Collaboration

Unlike standard GPS software, *Waze* populates the driving interface around a constellation of fellow drivers. As a smartphone application it competes with the standalone device market (*TomTom*, *Garmin* etc.) and other free turn-by-turn applications such as *Navfree*. In 2012, *Waze* had a global community of 36 million drivers, sharing a total of 90 million traffic reports, and driving a collective 6 billion miles. 65,000 map editors also made 500 million map edits, reflecting 1.7 million on-the-ground changes.[37] OSM by comparison, had just fewer than 100,000 editors in 2012 making 800 million edits.[38] By 2016, *Waze* – since then acquired by Google but kept as an independent entity – grew in size. The company claims to have 50 million monthly users, 360,000 map editors and maintains data-partnerships with 55 municipalities around the globe which provide real-time and expected traffic information.[39]

But it is not necessarily easy to make a clean split between those who 'produce' the map, those who 'edit' the map and those who 'consume' the map. It is easier, rather, to conceive of a kind of data feedback loop, where *Waze* users contribute – knowingly and unknowingly – through active driving, desktop editing and passive metadata collection. These feed back into future route-calculation. The data gleaned helps to not only build up a vast picture of the

34 Nanna Verhoeff, 'Grasping the Screen: Towards a Conceptualization of Touch, Mobility and Multiplicity,' in Ann-Sophie Lehmann, Joost Raessens, Mirko Tobias Schäfer and Sybille Lammes, *Digital Material: Tracing New Media in Everyday Life and Technology*, Amsterdam: Amsterdam University Press, 2009, 209–22.

35 Mark Paterson, *The Senses of Touch: Haptics, Affects, and Technologies*, Oxford: Berg, 2007.

36 Nanna Verhoeff, *Mobile Screens: The Visual Regime of Navigation*, Amsterdam: Amsterdam University Press, 2012.

37 Waze, '500 Million Map Edits in 2012,' *Waze Blog,* 2013.

38 OpenStreetMap, 'Editor Usage Stats - OpenStreetMap Wiki.' *OpenStreetMap*, 2013.

39 Waze, 'Waze Company Fact Sheet.' *Waze*, 2013.

journeys made with *Waze*, but also the state of the road network in general. It is this capability that is also driving the automated vehicle revolution, with rivals such as Tesla hoping to create a so-called 'fleet learning network'[40] comprised of a user-generated cartographic database.

The application's mechanics thus have a circulatory function, as user action builds a more comprehensive database. But as the database updates so does the digital map. The status of roads, the designation of speed limits, the set-up of junctions and vehicle restrictions are all changeable based on user data. Due to this active enrolment the digital map itself does not serve as a mere representation of the road ahead: it transforms the very driving world itself. It becomes a 'mutable mobile'[41] – an object capable of changing shape and moving across territory – rather than being an *im*mutable mobile (Latour, 1986) as maps have traditionally been conceived as. Other satellite navigation systems present the driving world as an immutable 'base map' upon which to plant the individual driver. But this world is bare and lifeless; phenomena are rendered foundational but unerringly quiet and impervious to change. The driver simply glides over the surface with no knowledge of what is 'below', let alone with the possibility of altering it. In the *Waze* world the digital map exists on the same ontological plane as the road environment itself – as a fluid, transportable object.

Road hazards, vehicle flow and map issues, for example – three dimensions of the *Waze* driving experience – all exist on this same active platform; open and malleable to the driver. They are dynamics that feed into this data loop between driver, database and map. Thus, this form of satellite-aided navigation is a performative act that does not relegate the map to a secondary level beneath the 'real driving world' of asphalt, traffic lights and junctions. Ludic mechanics are central to how our primary example encourages this performance with the mobile interface and reconfigures the act of driving. This reorganization, we argue, has a distinct political dimension as drivers are gifted the ability to fundamentally change the driving landscape as they travel through it, challenging the way in which we have historically relied on state agencies to provide us with information on road conditions.

Reporting Hazards

One of the main features of Waze is the ability to identify hazards. Spotting potential dangers for other users (or 'Wazers') is not just a handy addition to an otherwise social tool however, but a potentially valuable driving aid. These notifications ameliorate the disruption caused by three types of hazard: obstructions, distractions and anticipatory impediments. Obstructions provide direct dangers (debris, barriers), distractions are indirect and usually visual disturbances with the potential to become driving dangers (live animals, bad weather), whilst anticipatory impediments affect the ability of the driver to make upcoming judgments (stationary vehicles, missing road signs). Although these driving hazards are the product of loose interpretations, with their existence precarious, users are nevertheless instructed to

40 Chris Perkins, 'Tesla Is Mapping out Every Lane on Earth to Guide Self-Driving Cars,' *Mashable*, 14 October, 2015.

41 Rob Kitchin and Martin Dodge, 'Rethinking Maps', *Progress in Human Geography* 31, no. 3 (2007): 331-344; Sybille Lammes, 'Digital Mapping Interfaces: From Immutable Mobiles to Mutable Images', *New Media & Society* (2016): 1-15.

pin the incident down. Once submitted the hazard is placed on the map as a geo-located 'pop-up' message. This codification is vital for collective map use. It renders a (relatively) solid, isolated and verified incident upon which to act. As encouragement, *Waze* users receive a number of points for their contribution of a hazard, and similar to consumer reward schemes and videogame 'combo' moves, additional bonuses are available for greater contributions such as detailed descriptions, photo evidence and weekend notifications.[42]

Altering Flow

In addition, users can also collectively affect vehicle movement, direction and flow by closing existing roads, verifying nascent routes and opening up entirely new ones. Although traditional satellite navigation systems are capable of keeping users up-to-date with road information that adds to an already existing map (*TomTom*'s Live Traffic etc.), *Waze* is unique in its crowdsourcing of wholesale map recalibrations (figure 5.2). As mentioned earlier, users have to be live drivers to make changes, although passive (meta)data collection does, as mentioned earlier, take place.[43] Navigational assistance for other drivers is therefore grounded in the performative act of driving (or 'Wazing' as it is known), and alterations cannot be made either by desktop or without GPS and a data signal[44].

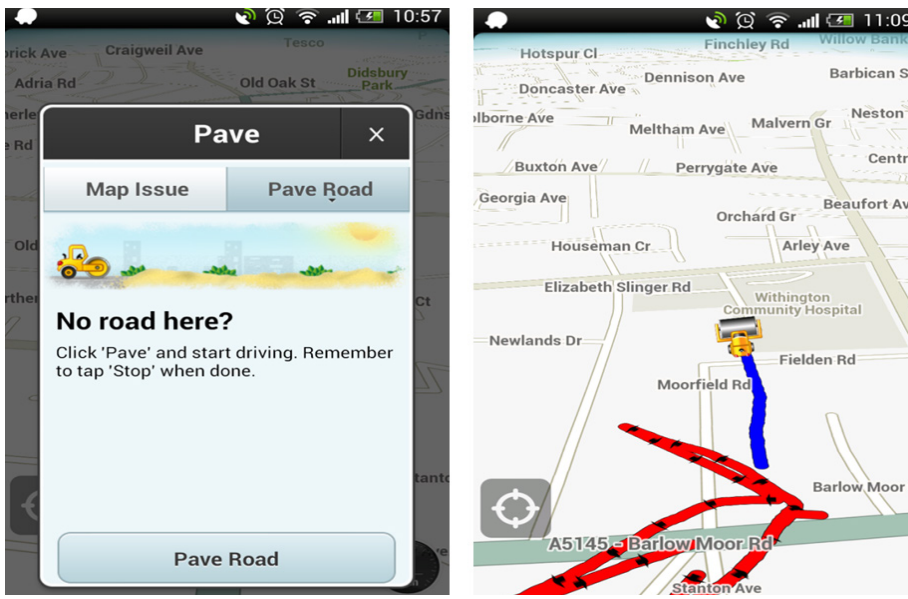

Figure 5.2 *Waze*. Screenshot of live road mapping in Waze.

42 Juho Hamari, 'Perspectives from Behavioral Economics to Analyzing Game Design Patterns: Loss Aversion in Social Games', *CHI 2011* (2011): 1-6.

43 Andrew Couts, 'Terms & Conditions: Waze Is a Privacy Accident Waiting to Happen', *Digital Trends*, 3 March, 2013.

44 Desktop edits can be made through the Waze Map Editor, but this is also dependent upon the locations driven in the past 3-4 months (Waze, 2013b).

This interaction between the existing (imperfect) map as noticed through the *Waze* interface and the unaligned driving world as seen through the vehicle windscreen, provides the catalyst for contribution. Road closures can be attributed to an on-road hazard (car crash, fallen tree), a construction job (road re-surfacing, underground repairs), or a local event (marathon, street party, protest march). Users make the selection by tapping the appropriate direction of the closure on the *Waze* driving map, and 'no entry' symbols notify others of the diversion. Unlike the previous hazard category, flow incidents are shown as linear overlays rather than isolated symbols. This allows active drivers to take heed of automatically re-calculated paths once the map is updated to reflect the changes. Wazers can also 'thank' the initial user reporting the issue in much the same way Facebook users can 'like' a post and Twitter users can 'favorite' messages. These tactile interactions on the smartphone screen render playful, casual interaction with the platform as default.

Wazers can bring new driving worlds into being directly through the 'road recording' function. Routes that have been imported into the *Waze* database or created in the *Waze* Map Editor can also be verified by drivers in a process called 'road munching'. In an unverified state these roads show up as sequential dots as opposed to a single, continuous line, but as drivers trace the route they 'munch' these dots akin to *Pacman* characters, successfully turning them into completed, verified and drivable routes for other users.[45] This in turn highlights the ludic attitude that the designer attempt to embed into the user interface, alongside the use of celebrity cameos in guidance voice packs, or the introduction of seasonal iconography for the driving screen. By comparison, OSM editors are required to do 'serious' work and use applications such as *OSMTracker* or a traditional GPS receiver to record new tracks, and edits still have to be uploaded through JOSM, *Potlach* or another OSM editor. Drivers using traditional satellite navigation devices do not possess this 'real-time' editorial capability, but *Waze* users are able to map new roads live and on the move.[46]

Wazing, road munching and road recording are actions populating, verifying and building a live navigational environment through collaborative driving performance. On this evidence *Waze* is more than simply an addition or 'aid' to the driving experience: it is a direct agent in the act of driving itself. The ability to open, close and verify roads on a map interface has heretofore existed as a preserve of either state agencies or satellite navigation companies. This shift in agency is therefore a significant one. Whilst many other aspects of society have been transformed by open, collaborative and citizen-led agendas, the driving world has come relatively late to the party. *Waze* represents the most advanced example of this shift to date.

Flagging Issues

As a final dynamic, users can also flag navigational issues. The *Waze* application allows users to report map errors whilst driving, with reports linked directly to the location of the error via GPS. These performative edits are based on the habitual know-how of drivers. If

45 Waze, 'FAQ,' *Waze* 2013.
46 Users are still prompted to add metadata via a desktop editor.

users believe the *Waze* map has a problem, they are permitted to raise a concern. Common issues ranging from forbidden turns and incorrect junctions to missing bridges, overpasses or exits are pre-listed, but users are also given space in order to detail a more specific, or irregular error. But unlike the 'external' hazards discussed previously, the 'internal' map issues function progressively updates the application itself.

Rather than dedicating time and energy to large swathes of track uploads as is routine in many collaborative mapping projects, users can clean up map errors as they drive. Although missing roads can be live-mapped by Wazers desiring to travel the unpaved route, the map issue function allows drivers to flag up potential errors for others to investigate. Rewards range depending on prolificacy, offering users a reason to alert others to errors they might otherwise ignore. As a specific example, *Waze* offers up candy treats (figure 5.3) for drivers willing to verify map data; planting bonuses in cul-de-sacs and other side-roads to tempt them, with the points contributing to the same general scoreboard as hazard reports, distance milestones and road munches. Once again, the users' avatars gobble these 'goodies' up in a *Pacman*-fashion, with varying totals based on the scarcity of particular treats.

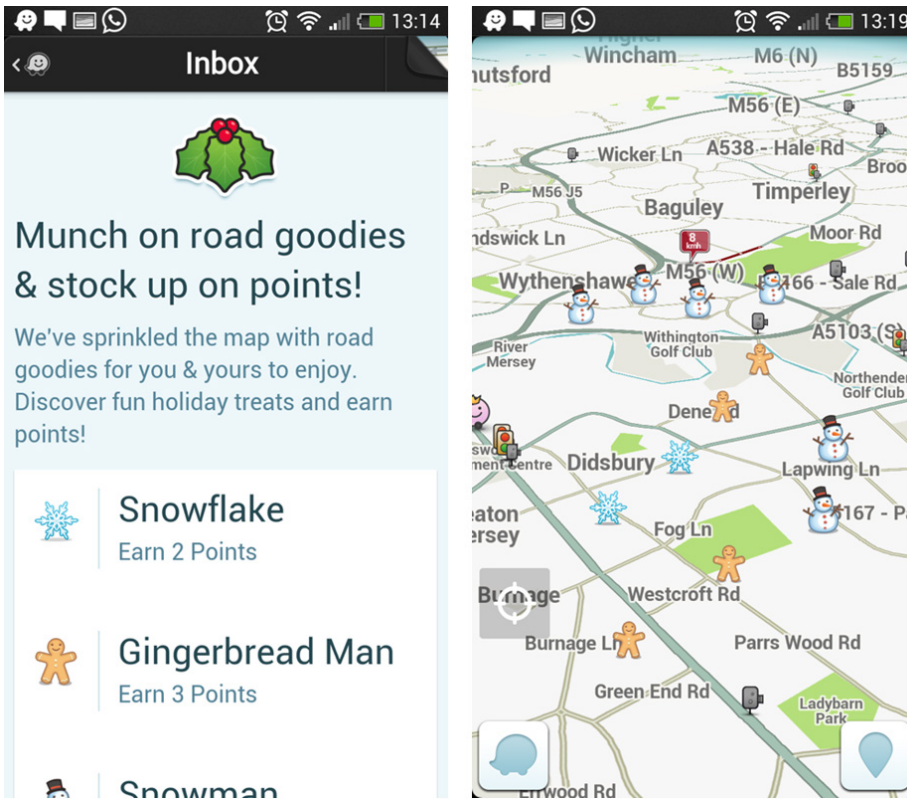

Figure 5.3 *Winter Waze*. Screenshot of festive-themed rewards for Waze users.

Casting a critical lens on this practice, it could be suggested that such 'gameful design',[47] rather than providing a kind of playful, emancipatory service, in fact simply masks a volunteered, mass data-collection practice for a major digital technology enterprise (*Waze* is now a division of Alphabet Inc., Google's umbrella corporation) as 'fun' and somehow socially rewarding. Participating in the mapping of road networks users are led to believe they are contributing to a common, driving public. Whilst messages received through the application imploring users to 'always drive with *Waze* open' might be characterized as helpful tips to aid use in the spirit of this common, driving public, they also, arguably, constitute efforts to ensure Wazers contribute full and extensive streams of driver data to the *Waze*/Google servers for exclusive advertising purposes.[48]

Alerting other drivers to accidents or hidden police vehicles, for example, are part of culturally ingrained driving practices. Such efforts to help collaboratively alert others to road accidents, render new routes, or flag map errors on a smartphone interface are simply seen as mere extensions of these historical actions. But courtesy of the game mechanics deployed in applications such as *Waze*, coupled with their casual use on a smartphone device, error reporting arguably becomes an embedded and naturalized interaction – a 'technological unconscious'[49] – rather than a forced action associated with traditional forms of labour. This hybrid practice being what Julian Kücklich[50] has famously termed 'playbour'. As a new field of politicized action, this ludic interactivity permits a wholly different – and perhaps pernicious – force.

Each of the above exemplifies a new kind of automobile tactic; a new way of attending to the disturbances, disruptions and hazards in the driving world. Historically drivers have been unable to have any effect on the collection, verification and visualization of road data, aside from passive participation in the network itself. But as applications such as *Waze* have embedded themselves into everyday spatial routines, collectively involving users in the creation of such publics, there have been radical alterations to the contemporary driving experience.

Mapping Futures

In this chapter we have suggested a rise of so-called social navigation. But as future driving worlds increasingly look fully-automated – with driverless vehicles, mechanical parking systems and all manner of sensor-mediated technologies – will this become somewhat oxymoronic? Or, as perhaps we argue, will the present technological preference for social platforms become further integrated into future driving experiences? Our two-fold analysis has enabled us to tease out the nascent dynamics. In the first instance, we have argued that ludic interaction is increasingly – thanks to the simultaneous rise of both touch-screen

47 Sebastian Deterding, Miguel Sicart, Lennet Nacke, Kenton O'Hara, Dan Dixon, 'Gamification. Using Game-Design Elements in Non-Gaming Contexts.'
48 Andrew Couts, 'Terms & Conditions.'
49 Nigel Thrift, 'Driving in the City.'
50 Julian Kücklich, 'Precarious Playbour: Modders and the Digital Games Industry', *Fibreculture* 5 (2005).

devices and social platforms – the default mode for automotive navigation. The multi-touch gestures routinely demanded by satellite navigation systems are replacing the metronomic clicks of plastic console buttons, or the circular motion of radio volume and airflow dials. As a way of engaging individuals, social navigation applications such as *Waze* incorporate many of the ludic features more commonly witnessed in the gaming world.

In the second, we have then contended that this ludic interactivity is breeding a new kind of political action; one premised on the everyday practice of driving-with-devices. Although we do not necessarily suggest that other political tropes (vehicle as inscribed status object, carbon emitter etc.) do not provide appropriate frameworks for automotive study, we do argue that the rise of social navigation is a novel development with the potential to provide rich empirically-focused work. As has been briefly detailed, *Waze* engages its user through a satellite navigation interface that prompts them to report hazards, alter flows and flag issues. Each dynamic affects the act of driving, as well as the constellation of other drivers. It brings new driving-worlds and 'driver-car' assemblages into being.[51] Thus it underlines the act of driving as materially political; as the practice of affecting the very geographical possibilities of automobile use through interactive play with the smartphone device.

It is through (active) playful user interaction, 'passive' fleet-level data collection, and municipal agreements that *Waze* generates capitalist value. Alexander Galloway[52] discusses a similar process in his critique of modern digital media assemblages. He notes the existence of:

> [a] new socio-economic landscape, one in which flexibility, play, creativity, and immaterial labor – call it ludic capitalism - have taken over from the old concepts of discipline, hierarchy, bureaucracy, and muscle. In particular, two historical trends stand out as essential in this new play economy. The first is a return to romanticism, from which today's concept of play receives an eternal endowment…. Game theory, ecology, systems theory, information theory, behaviourism – these many scientific disciplines point to the second element, that of cybernetics.

To him, the entwinement of the romantic elevation of play with the seemingly objective language of cybernetics can explain the rise of various ludic practices. The automotive world provides a clear example of this, as consumers are bombarded with seemingly non-conflicting messages of vehicle's technical prowess, coupled with lifestyle choice. The gradual diminishing of agency experienced by the human driver, and its transfer onto the broader socio-technical arrangements implicated in driving will, without a doubt, create new demands for ludic engagement. If we are no longer to drive our cars fully, those who wish to sell us such cars will need to come up with ways to sell us *the experience* of driving, without actually enrolling us into it.

To understand these nascent processes we require a different hybrid view on the nature of driving, navigation and the social; one that takes into account the casual, habitual and the playful.

---

51 Tim Dant, 'The Driver-Car.'

52 Alexander Galloway, *The Interface Effect*, 27.

Acknowledgements

An earlier version of this chapter appeared in *Exchanges* 1, 2 (2014): 1-17.

References

AAA, 'Measuring Cognitive Distraction in the Automobile,' *AAA Foundation,* 2013, accessed 31 October, 2016. https://www.aaafoundation.org/sites/default/files/MeasuringCognitiveDistractions.pdf.

Abt, Clark C. *Serious Games*, Lanham, MD: University Press of America, 1987.

Bogost, Ian, 'Persuasive Games: Exploitationware,' *Gamasutra*, 3 May, 2011, accessed 31 October, 2016, http://www.gamasutra.com/view/feature/6366/persuasive_games_exploitationware.php/.

Braw, Elisabeth, 'Angry Birds Creator Peter Vesterbacka.' *Metro*, 2011, accessed 31 October, 2016, http://www.metro.lu/news/angry-birds-creator-peter-vesterbacka/.

Chesher, Chris, 'Navigating Sociotechnical Spaces: Comparing Computer Games and Sat Navs as Digital Spatial Media', *Convergence: The International Journal of Research into New Media Technologies* 18, no.3 (2012): 315-30.

Consalvo, Mia, *Cheating: Gaining Advantage in Videogames*. Cambridge, MA: MIT Press, 2007.

Consalvo, Mia, 'There Is No Magic Circle', *Games and Culture* 4, 4 (2009): 408–17.

Couts, Andrew, 'Terms & Conditions: Waze Is a Privacy Accident Waiting to Happen', *Digital Trends*, 3 March, 2013, accessed 31 October, 2016, http://www.digitaltrends.com/mobile/terms-conditions-waze-privacy-accident/.

Dant, Tim, 'The Driver-Car', *Theory, Culture & Society* 21, 4–5 (2004): 61–79.

Davies, William, *The Happiness Industry: How the Government and Big Business Sold Us Well-Being*, London: Verso Books, 2015.

Deterding, Sebastian, 'The Ambiguity of Games: Histories and Discourses of a Gameful World.' in Steffen P. Walz and Sebastian Deterding (eds), *The Gameful World. Approaches, Issues, Applications*, Cambridge, MA: MIT Press, 2015, 23–64.

Deterding, Sebastian, Miguel Sicart, Lennart Nacke, Kenton O'Hara and Dan Dixon, 'Gamification. Using Game-Design Elements in Non-Gaming Contexts', in *Proceedings of the 2011 Annual Conference on Human Factors in Computing Systems (extended abstracts)*: Vancouver: Association for Computing Machinery, 2011, pp. 2425-2428.

Dodge, Martin and Rob Kitchin, 'The Automatic Management of Drivers and Driving Spaces', *Geoforum* 38, 2 (2007): 264–75.

Evans, Elizabeth, 'The Economics of Free Freemium Games, Branding and the Impatience Economy', *Convergence*, 1, 1 (2015): 1-18.

Featherstone, Mike, 'Automobilities: An Introduction', *Theory, Culture & Society* 21, 4–5 (2004): 1–24.

Gabrys, Jennifer, 'Programming Environments: Environmentality and Citizen Sensing in the Smart City', *Environment and Planning D: Society and Space* 32, 1 (2014): 30–48.

Galloway, Alexander R. *The Interface Effect*, Cambridge: Polity Press, 2012.

Glas, Rene, 'Breaking Reality: Exploring Pervasive Cheating in Foursquare', *Transactions of the Digital Games Research Association* 1, 1 (2013): 1–14.

Hamari, Juho, 'Perspectives from Behavioral Economics to Analyzing Game Design Patterns: Loss Aversion in Social Games', *CHI 2011* (2011): 1-6.

Harris, Tristan, 'How Technology Hijacks People's Minds — from a Magician and Google's Design Ethicist – The Startup.' *Medium*, 18 May, 2016, accessed 31 October, 2016. https://medium.com/swlh/how-technology-hijacks-peoples-minds-from-a-magician-and-google-s-design-ethicist-56d62ef5edf3.

Huizinga, Johan, *Homo Ludens*, Boston, MA: Beacon Press, 1955.

Juul, Jesper, *A Casual Revolution: Reinventing Video Games and Their Players*, Cambridge, MA: MIT Press, 2009.

Kitchin, Rob and Martin Dodge, 'Rethinking Maps', *Progress in Human Geography* 31, no. 3 (2007): 331-344.

Kitchin, Rob and Martin Dodge, *Code/Space: Software and Everyday Life*, Cambridge, MA: MIT Press, 2011.

Kitchin, Rob, Tracy P. Lauriault and Gavin McArdle, 'Knowing and Governing Cities through Urban Indicators, City Benchmarking and Real-Time Dashboards', *Regional Studies, Regional Science* 2, 1 (2015): 6–28.

Krenn, Matthaeus, 'A New Car UI - How Touch Screen Controls in Cars Should Really Work', 2014, http://www.matthaeuskrenn.com/new-car-ui/.

Kücklich, Julian, 'Precarious Playbour: Modders and the Digital Games Industry', *Fibreculture* 5 (2005).

Lammes, Sybille, 'Digital Mapping Interfaces: From Immutable Mobiles to Mutable Images', *New Media & Society* (2016).

Latour, Bruno, 'From Realpolitik to Dingpolitik or How to Make Things Public', In *Making Things Public: Atmospheres of Democracy*, edited by Bruno Latour, 4-31. Cambridge, MA: MIT Press, 2005.

Lin, Holin, and Chuen-Tsai Sun, 'Cash Trade in Free-to-Play Online Games', *Games and Culture* 6, 3 (2011): 270–87.

Manovich, Lev, *The Language of New Media*, Cambridge, MA: MIT Press, 2001.

Matt Richtel and Bill Vlasic, 'Voice-Activated In-Car Systems Are Called Risky', *NY Times*, 12 June, 2013, accessed 31 October, 2016. http://www.nytimes.com/2013/06/13/business/voice-activated-in-car-systems-are-called-risky.html.

Mattern, Shannon, 'Mission Control: A History of the Urban Dashboard', *Places Journal*, 2015, accessed 31 October, 2016, https://placesjournal.org/article/mission-control-a-history-of-the-urban-dashboard/.

Maura, Bouça, 'Angry Birds, Uncommitted Players,' *Proceedings of the International DiGRA Nordic Conference* 10 (2012): 1-13.

Mosca, Ivan, '+10! Gamification and deGamification', *G|A|M|E* 1, 1 (2012).

Nieborg, David B. 'Crushing Candy: The Free-to-Play Game in Its Connective Commodity Form', *Social Media and Society* 1, 2 (2015): 1-12.

OpenStreetMap, 'Editor Usage Stats - OpenStreetMap Wiki.' *OpenStreetMap*, 2013, accessed 31 October, 2016, http://wiki.openstreetmap.org/wiki/Editor_usage_stats.

Pargman, Daniel, and Peter Jakobsson, 'Do You Believe in Magic? Computer Games in Everyday Life', *European Journal of Cultural Studies* 11, 2 (2008): 225–44.

Paterson, Mark, *The Senses of Touch: Haptics, Affects, and Technologies*, Oxford: Berg, 2007.

Perkins, Chris, 'Tesla Is Mapping out Every Lane on Earth to Guide Self-Driving Cars', *Mashable*, 14 October, 2015, accessed 31 October, 2016, http://mashable.com/2015/10/14/tesla-high-precision-digital-maps/.

Raessens, Joost, *Homo Ludens 2.0: The Ludic Turn in Media Theory*, Utrecht: Utrecht University, 2010.

Ritterfeld, Ute, Michael J. Cody, and Peter Vorderer (eds) *Serious Games: Mechanisms and Effects*, New York: Routledge, 2009.

Roose, Kevin, 'Did Google Just Buy a Dangerous Driving App?', *NY Mag*, 14 June, 2013, accessed 31 October, 2016, http://nymag.com/daily/intelligencer/2013/06/did-google-just-buy-a-dangerous-driving-app.html.

Salen, Katie and Eric Zimmerman (eds) *The Game Design Reader: A Rules of Play Anthology*, Cambridge, MA: MIT Press, 2005.

Sheller, Mimi, 'Bodies, Cybercars and the Mundane Incorporation of Automated Mobilities', *Social & Cultural Geography* 8, 2 (2007): 175–97.

Sicart, Miguel, *Play Matters*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2014.

Terranova, Tiziana, 'Attention, Economy and the Brain', *Culture Machine* 13, 1 (2012): 1-19.

Thrift, Nigel, 'Driving in the City,' *Theory, Culture & Society* 21, 4–5 (2004): 41–59.

Verhoeff, Nanna, 'Grasping the Screen: Towards a Conceptualization of Touch, Mobility and Multiplicity,' in Ann-Sopie Lehmann, Joost Raessens, Mirko Tobias Schäfer and Sybille Lammes, *Digital Material: Tracing New Media in Everyday Life and Technology*, Amsterdam: Amsterdam University Press, 2009, 209–22.

Verhoeff, Nanna, *Mobile Screens: The Visual Regime of Navigation*, Amsterdam: Amsterdam University Press, 2012.

Waze, '500 Million Map Edits in 2012,' *Waze Blog,* 2013, accessed 16 December, 2013, http://www.waze.com/blog/500-million-map-edits-in-2012/.

Waze, 'FAQ,' *Waze*, 2013, 16 December, 2013, http://www.waze.com/wiki/index.php/FAQ.

Waze, 'Waze Company Fact Sheet.' *Waze*, 2013, accessed 25 October, 2016, https://assets.brandfolder.com/o4vb2e-fove2o-8o8m3r/original/Waze%20Company%20Fact%20Sheet.pdf.

CHAPTER *6*: TERRITORIAL DETERMINISM: POLICE EXERCISES, TRAINING SPACES AND *MANOEUVRES*

SAM HIND

In 1983, a table-top game was developed in the UK.[1] In 2003, a Specialist Training Centre (STC) opened.[2] Each was designed to allow police officers to prepare, plan, and train for real-world public order incidents such as protests and riots, by enrolling them in 'wargames'. Although there is a well-documented history of military and entertainment wargames[3], far less has been said on *police* wargames. In both the table top game and the STC, the act of playing acts as a disciplinary device scripting future, possible maneuvers – much like the mutable full-sized game maps discussed in chapter 8. From the 1960s onwards, I argue that there has been a 'shift' and a 'switch' in policing tactics, consistent with a '(para-) militarization' of protest policing within the UK over the last 30 years,[4] affecting the nature of such *manoeuvres*.

Up until the last 15 years or so, the main objective in the deployment of such (para)military tactics has been to *disperse* protesters. The original identification of this shift marked the start of an intense, public debate on the changing role of the police in public order situations. Northam argued in *Shooting in the Dark*[5] that these decisions were rooted in a strategic, organizational and tactical cross-fertilization between colonial police officers, forces and protocol and mainland British equivalents. 'Short-shield tactics', 'batons rounds' and 'snatch squads' – three of these new strategic, organizational and tactical protocols – originated in British colonial outposts in Hong Kong and Northern Ireland. Decades later, these public order policing experiments – executed in colonial spaces – were reimported back onto mainland Britain as a solution to urban riots.

---

1 Gerry Northam, *Shooting in the Dark: Riot Police in Britain*, London: Faber and Faber, 1988.

2 BBC News. 'New £50m Police Training Centre Opens,' *BBC News*, 15 April, 2003, http://news.bbc.co.uk/1/hi/england/kent/2948855.stml.

3 Patrick Crogan, 'Wargaming and Computer Games: Fun with the Future', *Proceedings of the 2003 DiGRA International Conference* 2 (2003): 1-10; Pat Harrigan and Matthew G. Kirschenbaum (eds), *Zones of Control: Perspectives on Wargaming*, Cambridge, MA: MIT Press, 2016.

4 Donatella Della Porta and Herbert Reiter (eds), *Policing Protest: The Control of Mass Demonstrations in Western Democracies*, Minneapolis, MN: University of Minnesota Press, 1998; 'Policing, Protest, and Disorder in Britain', in Donatella Della Porta and Herbert Reiter, *Policing Protest: The Control of Mass Demonstrations in Western Democracies*, Minneapolis, MN: University of Minnesota Press, 1998, 35–48; Peter Waddington, 'Towards Paramilitarism? Dilemmas in Policing Civil Disorder', *The British Journal of Criminology* 27, 1 (1987): 37–46; Peter Waddington, 'The Case Against Paramilitary Policing Considered', *The British Journal of Criminology* 33, 3 (1993): 353–73; Tony Jefferson, 'Beyond Paramilitarism', *The British Journal of Criminology* 27, 1 (1987): 47–53; Tony Jefferson, 'Pondering Paramilitarism: A Question of Standpoints?',*The British Journal of Criminology* 33, 3 (1993): 374–81; Northam, *Shooting in the Dark*; Alice Hills, 'Militant Tendencies', *The British Journal of Criminology* 35, 3 (1995): 450–58.

5 Northam, Shooting in the Dark.

The table-top game developed in the UK in 1983 was designed to act as a 'model environment' in which new, public order policing strategies could be tested. The game itself was based around a fictional town known as 'Sandford', and developed in response to the Brixton riots (1981).[6] In 1985 it assumed real-life relevance, as a template for the police response to the Broadwater Farm riots in north London. Despite the spatial similarity between Sandford's 'Carruthers Estate' and Broadwater Farm, the latter posed challenges of a *vertical* nature to the police operation, akin to in-game vertical challenges mentioned later in chapter 7. The various pedestrian walkways comprising the estate, meant police officers were forced to direct their attention in multiple directions. Whilst the Sandford game prepared them for a particular set of possible encounters with protesters, Broadwater presented unanticipated ones. In the words of Coleman[7], it became an 'indefensible space'.

Conversely, the STC is, as I also argue, designed to prevent particular kinds of *mobile* public order situations more prevalent since 2003. In the years since, the police 'containment' or 'kettle' manoeuvre has been liberally deployed during protest events in order to corral and contain protesters to prevent disruption. The spatial layout, building density and architectural style of the STC thus narrows the range of possible territorial responses to emergent threats manifested during demonstrations or riots. Sandford thus acts as 'simulator' of public order situations, whereas the STC performs as an 'emulator' of urban *spaces* in which public order situations are played out. Despite this categorical difference, both assist in the 'anticipation'[8] of future actions during public order incidents. Namely, they operate to aid police officers in predicting, and responding to, possible activist 'manoeuvres' executed to ensure ongoing disruption to quotidian life during moments of civil disobedience.

In both cases, as I conclude, this leads to a 'territorial determinism' in which 'live' public order policing reproduces the training scenarios as practiced in advance of such events. In this sense, the training space de-limits the range of operational possibilities that can be anticipated, presenting issues for how police officers deal with public order situations. This has implications for both the police and protesters.

Wargaming and Exercises

Wargaming has a long history beginning with Carl von Clausewitz' *On War*.[9] As Crogan[10] notes, its emergence in the 1800s is concomitant with the rise of modern forms of warfare that demanded innovative techniques for modelling military outcomes:

---

6 Lord Scarman, *The Scarman Report: The Brixton Disorders, 10-12 April 1981.* Harmondsworth: Penguin Books, 1982.

7 Alice Coleman, *Utopia on Trial: Vision and Reality in Planned Housing*, London: H. Shipman, 1985.

8 Ben Anderson, 'Preemption, Precaution, Preparedness: Anticipatory Action and Future Geographies', *Progress in Human Geography* 34, 6 (2010): 777–98; Pete Adey and Ben Anderson, 'Anticipating Emergencies: Technologies of Preparedness and the Matter of Security', *Security Dialogue* 43, 2 (2012): 99–117; Louise Amoore, *The Politics of Possibility: Risk and Security Beyond Probability*, London: Duke University Press, 2013.

9 Carl von Clausewitz, *On War*, London: Nicholas Trübner, 1873.

10 Crogan, 'Wargaming and Computer Games'.

> Adopted as a method of training for military officers, wargaming contributes a new technique to the equipment available to improve the conduct of war, that most unpredictable and potentially lethal future possibility.[11]

What drives the deployment of the wargame is, as Crogan[12] further suggests: 'the potential to offer a rational basis for predicting and therefore controlling the future'. Specifically, as he also mentions, such developments were not tactical innovations as to the performance of warfare itself but *strategic* and *logistical* ones designed to aid the overall oversight of, and deployment of troops within, particular military engagements. As such, the wargame was originally – and continues to be – orientated towards a mapping of possible events. The playing of the wargame, therefore, becomes the mode through which this future can be articulated.

But whilst wargaming has a longer history stretching back to Clausewitz[13], it has had a more contemporary resurgence in the form of civil emergency planning. As Adey and Anderson[14] contextualizes:

> Emergency planning is a modality of future-orientated security that sits within much broader and diverse nested approaches towards the anticipation and governance of events that have their origin in World War II, the emergence of civil defence and air-raid precautions, and the subsequent Cold War context of thermonuclear threat and industrial instability.

In 2004, the *Civil Contingencies Act* came into force in the UK, updating a variety of previous Acts of Parliament deemed insufficient to legislate for modern responses to terrorist attacks and floods. Although categorically different to public order incidents, these 'civil emergencies' share the same strategic training significance as the former; with techniques and protocols developed for responses to outbreaks of civil disobedience also applicable to civil emergencies. Indeed, much public order policing has adopted the formats for training and preparation as laid down in response to the *Civil Contingencies Act*.

For example, the Central Government Emergency Response Training (CGERT) course, 'designed to equip people with the knowledge, skills and awareness necessary for their role in crisis management at the national strategic level', was devised to ensure 'all organizations are fully prepared for all types of emergencies'.[15] The CGERT course identifies three types of exercises: discussion-based, table top and live. The first of these is the 'cheapest to run and easiest to prepare'.[16] Most often, 'they are based on a completed plan [on how to respond to a civil emergency] and are used to develop awareness about the plan through

---

11 Crogan, 'Wargaming and Computer Games', p. 5.
12 Crogan, 'Wargaming and Computer Games', p. 4.
13 Clausewitz, *On War*.
14 Adey and Anderson, 'Anticipating Emergencies,' p. 101.
15 Cabinet Office, 'Emergency Planning and Preparedness: Exercises and Training', 11 November, 2014, https://www.gov.uk/guidance/emergency-planning-and-preparedness-exercises-and-training.
16 Cabinet Office, 'Emergency Planning and Preparedness'.

discussion'.[17] Ordinarily, then, discussion-based exercises are not designed as simulation tools or emulation spaces. Instead, they allow participants to become aware of extant civil emergency preparedness plans.

Table top exercises, on the other hand, 'are based on simulation' and 'involve a realistic scenario and a time line, which may be real time or may speed time up'.[18] As the Cabinet Office continue:

> Usually table tops are run in a single room, or in a series of linked rooms which simulate the divisions between responders who need to communicate and be co-ordinated. The players are expected to know the plan and they are invited to test how the plan works as the scenario unfolds.[19]

This is how the Sandford exercise was designed. Although often 'not…literally around a table top',[20] the Sandford version was indeed 'spread out on a table-top'[21] with the game equipment, control kit and computer all based in the same or an adjoining space. What marks a table top exercise apart from a discussion-based exercise is that whilst the latter is merely a tool for communication, awareness and discussion; the former allows participants to engage practically with possible event scenarios. As the Cabinet Office[22] suggest, '[t]his type of exercise is…useful for validation purposes, particularly for exploring weaknesses in procedures'. In other words, to allow participants to test envisaged, desired, and 'idealized' responses to civil emergencies.

Live exercises are a 'live rehearsal for implementing a plan'.[23] 'Such exercises are particularly useful for testing logistics, communications, and physical capabilities'.[24] Whereas table top versions test idealized responses, live exercises allow responders to put into practice these idealized civil emergency plans. Whilst table top exercises usually only involve a small number of officials – usually senior, strategic personnel – live exercises ordinarily use a combination of actual staff (officers, paramedics, doctors, etc.) and volunteers (victims, passengers, etc.).

The difference I make here, however, is not strictly between table top and live exercises. Instead, it is between a table top *game* or *map*, and a live exercise *space*. The reason for this is to enable a distinction between a simulation and an emulation. The Sandford table top game and map enable an execution of 'higher-level' activities, whilst the STC enables the performance of 'on-the-ground' activities. Nevertheless, both (ideally) serve as anticipatory devices designed to stimulate particular kinds of territorial responses by police officers.

---

17 Cabinet Office, 'Emergency Planning and Preparedness'.
18 Cabinet Office, 'Emergency Planning and Preparedness'.
19 Cabinet Office, 'Emergency Planning and Preparedness'.
20 Cabinet Office, 'Emergency Planning and Preparedness'.
21 Northam, Shooting in the Dark, p. 3.
22 Cabinet Office, 'Emergency Planning and Preparedness'.
23 Cabinet Office, 'Emergency Planning and Preparedness'.
24 Cabinet Office, 'Emergency Planning and Preparedness'.

Further, whilst I have used the CGERT literature to provide definitions of these various training exercises, there are still some notable differences between the governing of civil emergencies and public order situations. Firstly, CGERT ensures practitioners are equipped to deal with specific types of emergencies. As Anderson[25] suggests; 'UK preparedness emerged after a series of disruptive events, including Y2K, the fuel crisis and foot-and-mouth disease'. Whilst public order situations can also be defined as 'disruptive events' they ordinarily occur at a 'sub-sovereign' level. Secondly, CGERT is designed to enable the coordination of multiple organizations, with the *Civil Contingencies Act 2004* introduced to enable a facilitation of eight key principles: anticipation, preparedness, subsidiarity, direction, information, integration, cooperation, and continuity.[26] In essence, to enable appropriate, efficient and effective response to otherwise complex, sovereign events. Conversely, public order situations are treated, in the first instance, only by the police. Both of these differences matter for how the exercises are practiced, and what strategic, tactical and logistical decisions are made.

These distinctions are necessary in order establish the purpose of both the Sandford wargame, and the STC. Manoeuvres performed in each are *not* carried out at a sovereign level, nor do they occur with the cooperation of various organizations. As such, it is necessary to both limit discussion to evolving police strategy, tactics and organization, and to focus attention on a period of time pre-dating the *Civil Contingencies Act*. This is despite of the obvious import of preparedness protocol into contemporary public order policing strategies.

Shooting in the Dark

The fictional Carruthers Estate only exists on a table top game developed in order to train police officers in public order scenarios. It is, in essence, a wargame in which police officers must respond to, as well as anticipate various incidents as they occur. As Northam[27] explains:

> The backstreets of the Carruthers Estate are known to policemen from all over Britain. Uniformed officers have trained in their thousands in the escalating violence of Sandford on a Saturday night. To a senior officer – Chief Inspector upwards – the names of the four entrances to the Carruthers Estate are as familiar as the Old Kent Road and Park Lane (from a different board game). They are: Polygon Close where the public house is set on fire [in this scenario], Wren Close, Robin Close and Snow Close where the shooting starts.

The town of Sandford itself became a model space through which specific riot scenarios could be played out, and senior officers could be trained in how to respond to their ever-evolving nature. Common parts to this riot scenario included football-related violence, pub estate-based arson, and firearms incidents. Materially, the game consisted of, as Northam details:

---

25 Anderson, 'Preemption, Precaution, Preparedness', p. 791.

26 Cabinet Office, 'Emergency Response and Recovery: Non Statutory Guidance Accompanying the Civil Contingencies Act 2004', 28 October, 2013, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/253488/Emergency_Response_and_Recovery_5th_edition_October_2013.pdf.

27 Northam, Shooting in the Dark, 2.

> …a large map of Sandford to be spread out on a table-top; a box full of wooden police vans and little wooden crowds with numbers of rioters printed on them (from 15 up to 600); another box of coloured wooden counters with codes on them indicating units of the Sandfordshire Constabulary a handful of senior officers, also made of wood and labelled CH INSP or SUPT [Chief Inspector or Superintendent]; and a control kit listing all the possible complications to the basic story which the computer could generate in response to hasty decisions by the commanders under training. They also had four wooden dogs, each labelled DOG.[28]

In order to make it as realistic as possible, as Northam suggests, the permutations in each scenario were generated by a computer. 'The Facilitator'[29] was the official title of the senior officer in charge of the game itself, and responsible for both relaying time-specific computer-generated information to the playing officers, as well as adding additional strategic details into the scenario mix too. Examples of these include: previous disorders in the fictional town, recent events (football games etc.), information on housing stock and the social make-up of Carruthers Estate residents. Northam also notes another material objects in the game: the so-called 'deployment board' which allows senior officers playing the game to 'show at a glance which police units are on stand-by around Sandford throughout the trouble to come'.[30] Unlike the wooden table top map, the deployment board is magnetic. This assemblage of computer-aided event generator, wooden table top map, magnetic deployment board and human facilitator and player make-up the public order wargame as devised and deployed around the UK in the early 1980s.

As Northam again details:

> The whole of Sandford was created in 1983 by a small committee of senior officers from different police forces who devised a training programme for every part of the country to prepare for real-life rioting of the kind which broke out in London, Liverpool, Manchester, Bristol and elsewhere in 1980-81. Their job was to ensure that riot police from each force are trained in exactly the same way, so that men form anywhere can be sent as reinforcements to disturbances anywhere else. At that stage, in 1982, none of those involved talked about taking on pickets in any industrial dispute or fighting a convoy of hippies. It was riots that worries them, and Sandford could stand for any of the tense real-life inner-city areas where they might break out.[31]

Up until this point (1983) it was argued that police forces were ill-equipped to respond to public order situations. In 1981 when various urban riots began, there was no national training program in public order policing, and as such, no established, universal approach to policing public protests, demonstrations or riots across the UK. As Northam

---

28 Cabinet Office, 'Emergency Response and Recovery, p. 3.
29 Cabinet Office, 'Emergency Response and Recovery, p. 3.
30 Cabinet Office, 'Emergency Response and Recovery, p, 4.
31 Cabinet Office, 'Emergency Response and Recovery, p. 2.

suggests above, at this stage there was no consideration that the scenarios played out in the fictional town of Sandford would be played out under different circumstances altogether.

The Broadwater Farm Estate in Tottenham, north London bore a striking similarity – in design and in social make-up – to the fictional Carruthers Estate. Yet as Northam suggests, this 'marked resemblance'[32] between the two is emblematic of the supposed geographical terrain senior police officers expected public order incidents to occur across at the time: the urban council estate.

Like many social housing developments built in the 1960s, the Broadwater Farm Estate was a Le Corbusierian experimentation in high-density, high-rise living. The concept of 'streets in the sky' – as opposed to low-rise or terraced housing – had radically altered urban life for residents. They were intended as all-encompassing estates comprising of every amenity necessary for residents, as well as a general mix of tenants. Yet the familiar story is that many of these high-rise, 'deck-access' developments – Park Hill, Sheffield; Balfron Tower and Robin Hood Gardens, East London; the Southgate Estate in Runcorn New Town; Hulme Crescents, Manchester – quickly deteriorated. A general mix of poor quality building materials, ill-functioning service facilities such as mechanical lifts and refuge chutes, and the increasing presence of drug dealers and criminals who, supposedly, used the various interconnected networks of above-ground streets to evade the police, conspired to make them undesirable, generally uninhabitable and 'indefensible'.[33]

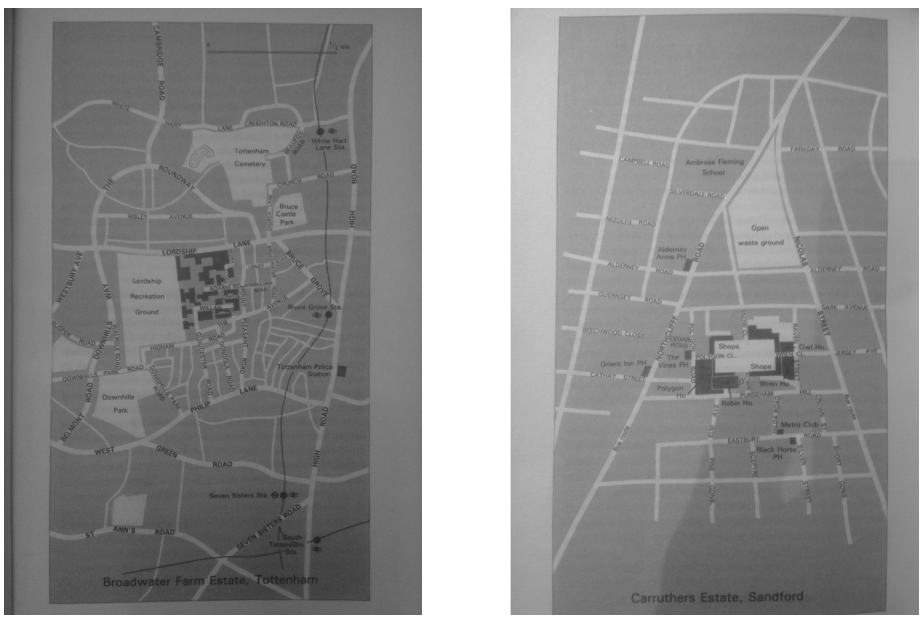

Figure 6.1 *Estate Maps*. Broadwater Farm (left) and Sandford (right) maps.

32 Cabinet Office, 'Emergency Response and Recovery, p. 26.
33 Coleman, Utopia on Trial.

The reasons for their perceived failure are complex, not least because many, such as Hulme Crescents (1972-1994) in Manchester, were built as cities in general were suffering endemic decline across the UK and Europe. It is perhaps of no coincidence that 'the Crescents' were effectively abandoned by Manchester City Council in 1984: the same year as the Sandford wargame training began. The estate's reported failures, not only in Hulme but across the UK, centred on build quality and integrity. In reality, they became not simply indicative of wider socio-political problems – poverty, inequality, diminishing race relations – but *actual battlegrounds* over which these issues were fought, defensive strategies formulated, and for which the Sandford wargame was designed to simulate.

The feature of these estates – high-rise and above-ground – made interactions between police, residents and young people remarkably different in form to those in previous eras. It meant that the police were forced to abandon their vehicles and patrol by foot. As Northam describes, the layout of the fictional Carruthers Estate lends itself only to the latter form of movement:

> 'Let me just tell you something more about the Carruthers Estate,' says the Facilitator. 'You have some fears about it from the information you got from Father Brown [a reliable community mediator] and the local councillor. That centre quadrangle there is about the size of a football pitch, and tends to be a *pedestrian-type area* with trees, waste-paper bins, benches, etc. There are one or two shops but no more than that in the centre quadrangle. It is not a shopping precinct. Snow House, where you have got one of your observation posts, is a fourteen-storey block of flats, as is Robin House across the other side. Polygon House, Owl House, Wren House are again high-rise of six or eight storeys…[34]

Although the Carruthers Estate is never explicitly referred to as a typically 'streets in the sky' arrangement, it is clear from the description that it shares similarities. There is a central 'pedestrian-type area' that serves as a community meeting point common to high-rise, multi-level developments such as the Brownfield Estate in East London, the Golden Lane Estate in the City of London, or the aforementioned Hulme Crescents. Although the surface differed for such – sometimes concrete flagstone, other times grass – they served the same purpose, and generally included local convenience-style shops (off-licenses, general food stores, and pharmacies), playgrounds, and educational/medical facilities, although the Crescents incidentally lacked the latter.

Also noted in the description above are the varying 'houses' of different heights; some with fourteen-storeys (Snow and Robin House) and others with 'six or eight storeys' (Polygon, Owl and Wren House). Indeed, as a design concept 'streets in the sky' was deployed in a decidedly loose fashion by architects and planners, broadly in homage to the ideas executed by Le Corbusier during the 1950s, especially in his famous Unité d'habitation developments in Marseille, Nantes-Rezé and Berlin. Some were single-unit blocks containing all possible amenities (such as the Unité d'habitation), others were multi-unit developments with

34 Northam, *Shooting in the Dark*, pp. 6-7.

local amenities close-by, or incorporated into the wider estate. Perhaps the more accurate depiction of these various developments is their commitment to separating vehicular and pedestrian traffic. This resulted in various multi-level designs in which vehicles would be allowed to use ground-level access roads and pedestrians would traverse elevated walkways, escaping the pollution at ground-level and reducing the interface between vehicles and people. As the facilitator continues:

> The four entrances into the estate are Wren, Robin, Polygon and Snow Close. They have *concrete pillars cemented into the ground to prevent vehicle access*, with the exception of one which has collapsible metal barriers to allow fire brigade or other emergency vehicles into it. High-rise and low-rise, generally low-class type dwelling, and generally speaking, a place where the local police officer is received, but not a place where he is well received.[35]

The pedestrianization of urban estates and city centres themselves is a common feature of many UK cities. Estates, as microcosms of urban life, became playgrounds in their entirety, partly due to this human-scaled (rather than vehicular-orientated) environment. The pedestrianization of public space, and the hosting of events (carnivals, festivals, firework displays, New Year celebrations, religious occasions, sporting celebrations etc.) within such, or the re-designation of non-pedestrianized roads for the *purposes* of pedestrian-centered events is a hallmark of contemporary urban planning and governance that has roots in urban estate design from the 1950s onwards.

That a strategic wargame or table top exercise was devised in order to train and prepare officers in the policing of these new environments – in both 'everyday' circumstances and 'riot' situations – is indicative of the radical threats perceived by urban police forces during the 1980s. Sandford is the first known table top exercise to be deployed in training for UK police officers. The critical component of its design – despite being identical to Clausewitzian wargames in formal, mechanical terms – is that it allowed players (senior officers) to anticipate future possible incidents such as the throwing of projectiles, the damage of property, or the injury to officers.

Specialist Training Centre

The Metropolitan Police Service (MPS) STC in Gravesend, Kent is a contemporary space in which actual manoeuvres, rather than strategic decisions, are practiced. In a tabloid news article on the centre photographer James Rawlings is quoted as saying that '[i]t was fascinating to observe people 'playing war' in the same way we might play a computer game, but much more physically true to life'.[36] In other words, the training centre provides

---

35 Northam, Shooting in the Dark, p. 7.

36 Gemma Mullin, 'I Predict a Riot! Inside the Fake Kent Town Where Police Come Face to Face with Angry Mobs Armed with Petrol Bombs and Bricks to Help Them Train', *Mail Online*, 8 January, 2015, http://www.dailymail.co.uk/news/article-2902278/I-predict-riot-Inside-fake-Kent-town-police-come-face-face-angry-mobs-armed-petrol-bombs-bricks-help-train.html.

the opportunity for officers to learn various manoeuvres they would otherwise be unable to learn in a simulated environment or through discussion-based, or table top exercises.

Spatially, the STC is laid out just like a modern, British town. Plans of the site, visible on OpenStreetMap (OSM), show it as a compact location comprised of a number of generic, yet instantly recognisable urban features. These include a typical and aptly named 'High Street', other parallel and intersecting roads ('Oliver Way', 'Vickers Way', 'Farrance Street'), an open green space, and a railway station. Its layout is markedly different from the fictional Carruthers Estate in Sandford. There is no central, 'quadrangle' lined with shops. Instead, there is a dense network of vehicular routes either designed for one- or two-way travel. In James Rawlings' photo series *Control* (2014) other features such as junction railings, post-boxes, pelican crossings, grass verges lined with young trees can be seen. A fictional pub ('The Roebuck') and a takeaway ('Pizzaland') are also visible. The majority of building types are double-story terraced houses or split retail-flat arrangements. Sightlines are limited to the length of these streets, offering 'differential visibility' (such as the in-game maps noted in chapter 7) and there is a limited verticality within the landscape (i.e. no elevated walkways).

By comparison, the Carruthers Estate contains a number of high-rise apartments blocks, as mentioned previously, each flanked by access roads (or, 'closes') into the quadrangle. Four pubs (The Vines, Orient Inn, Black Horse and Alderney Arms) are located on the fringes of the estate and in the wider town itself. The difference in spatial layout between the STC and the Carruthers Estate are marked. As such, the manoeuvres practiced in each are performed in, and respond to, vastly different environments.

Figure 6.2 *Control*. By James Rawlings (2014).

In a Channel 4 documentary, *Ready for a Riot* (2009), as Sgt. Adam Nash of the MPS notes, 'you can't recreate incidents on the street but this is as close as we can get to doing it, so when we are called upon to respond to any public order incidents, they've [police officers] got as much training and time that we can give them'[37] What is different between the Sandford wargame and the Gravesend emulation space is that the former was designed as a strategic aid to teach commanding officers appropriate meta-techniques to ensure proper officer deployment, concentration and approach. In other words, to define the context within which manoeuvres would be deployed; not to teach the manoeuvres themselves.

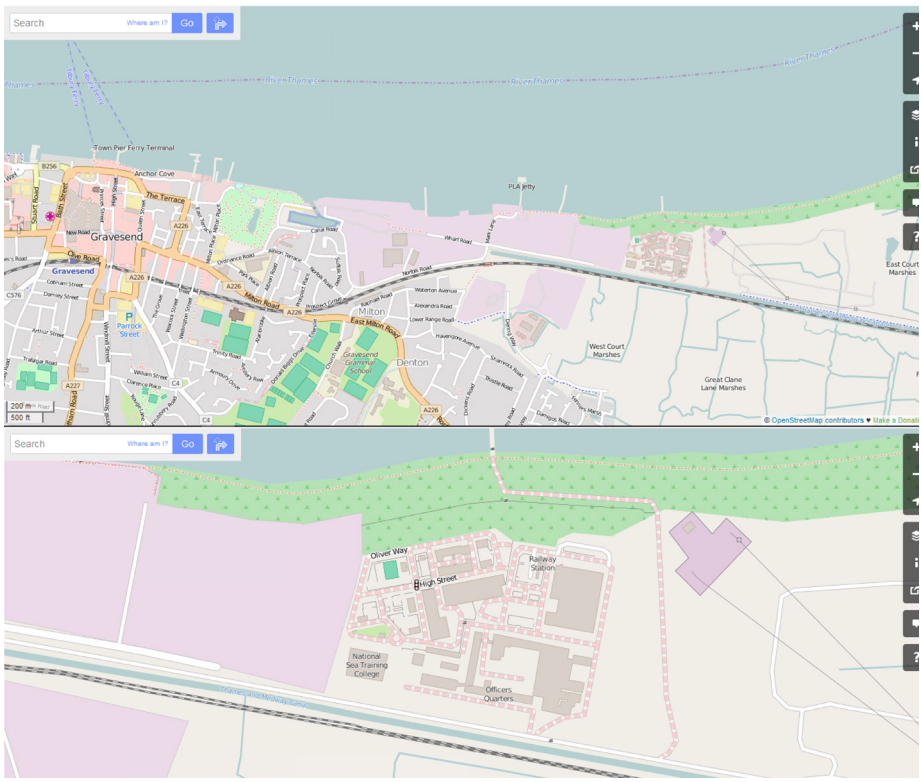

Figure 6.3 *Specialist Training Center.* Screenshot of Specialist Training Center on OpenStreetMap (author screenshots).

Dispersal to Containment

Since the development of the Sandford wargame in 1984, public order policing training has advanced. However, up until 1983 three tactical manoeuvres deployed against the Northern Irish and Hong Kong populations, now in the wider repertoire, had never been used on the mainland before. These were: non-lethal 'baton rounds', short-shield units and arrest or so-called 'snatch squads'. Each of these are tactics are designed to do two things. Firstly, to

37 Dispatches, 'Dispatches: Ready for a Riot', Channel 4, http://bobnational.net/record/16893.

disperse the gathered crowd. As such they are tools for direct territorial control in the entirely geographical, militaristic sense. Secondly, each is designed to strike fear into the crowd. As such they are psychological tools intended to give the police an upper hand in controlling those involved in the unrest, separating and splitting the crowd into unwilling factions.

Although non-lethal baton rounds or plastic bullets have only ever been authorized for use once on UK soil, (during the Broadwater Farm riots) they have never been fired. However, throughout the 1980s the deployment of short-shield units and snatch squads became commonplace. As John Alderson, previously Chief Constable of Devon and Cornwall, is quoted as saying, the short-shield tactics in the Association of Chief Police Officer's *Public Order Manual* (1983) were 'a carbon-copy of the Hong Kong riot squad'[38] who had brutally suppressed a leftist uprising in the colony in 1967. Their defining feature, rather obviously, were the small, light, round shields they carried with them. They were, and still are, also equipped with a 'striking baton'[39] in order to initiate offensive attacks. The manoeuvres short-shield units are expected to carry out, in essence, are an array of roving arrest actions (4-man, 2-man) or baton charges (with or without long-shield protection).[40] The names of these manoeuvres suggest, rather definitively, a kind of paramilitary operation; 'if a British short shield unit were dressed in khaki shorts instead of blue overalls, they would indeed be the Hong Kong riot squad as it appeared in the late sixties'.[41]

The snatch squads are, as Northam[42] suggests, a 'direct import from the British Colonial Police, perfected twenty years ago in Hong Kong' and now 'part of a sophisticated armoury of public order tactics which the Royal Hong Kong Police have taught officers in Britain since 1981'. Technically, they are a variation on the short-shield unit only with the express aim of entering into the crowd to perform an arrest, rather than to disperse those within it. As long-shield units are incapable of performing arrests due to the cumbersome nature of their equipment, it is down to snatch squads to carry them out.

Thus, the Sandford wargame was designed with dispersal in mind. The lineage of the various tactics put into practice during the Broadwater Farm riots can be traced back to the British colonial era. The paramilitarization of public order policing during the 1980s went hand-in-hand with the development of the wargame, as it codified particular types of responses made permissible in a public order situation. In other words, it sanctioned the use of these various tactics and allowed for particular manoeuvres to be performed, imposing them onto an imperfect landscape.

The STC was built for a new era in public order policing. Although dispersal tactics are practiced within this space, containment manoeuvres assume primacy. Peter Waddington suggests the tactic was developed in response to the Poll Tax Riot (1990), during which

38 Northam, Shooting in the Dark, p. 95.
39 Northam, Shooting in the Dark, p. 95.
40 Northam, Shooting in the Dark, pp. 188–91.
41 Northam, Shooting in the Dark, p. 95.
42 Northam, Shooting in the Dark, p. 23.

dispersal tactics used on the day were largely 'counter-productive', succeeding in 'spreading the disorder that had occurred in Trafalgar Square throughout the West End', rather than diminishing it.[43] However it was only in 2001 that the manoeuvre morphed into a more recognizable form when deployed during a May Day demonstration, to contain 1,000 protesters at Oxford Circus.[44]

Figure 6.4 *Control.* By James Rawlings (2014).

Sørli[45] identifies four different kinds of containments. The first of these is a 'police kettle' (*polizeikessel*) and refers to the most common, static containment. The second is the 'wandering kettle' (*wanderkessel*); a type of moving containment in which the police 'arrange themselves in front of, to the sides of, and behind protesters as they march'.[46] In such a manoeuvre the police have control over the territorial extent of the protesters encircled, resulting in the ability to exercise this spatial power as and when desired. The third type identified by Sørli does not have a direct German translation, but is referred to as a 'hyper kettle' and also rather ominously as a 'compression machine'.[47] In this the police 'link arms, push forward firmly, compressing people against each other and any available building facades', or as Joyce and Wain describe, such a manoeuvre involves the police 'containing protesters in a cordon and gradually decreasing the space inside'.[48] 'Bridge kettling' is the final type of

43 Peter Waddington, 'Professor Defends 'Kettling' Technique Used at G20 Protests', *Birmingham Post*, 21 April, 2009, http://www.birminghampost.co.uk/news/local-news/professor-defends-kettling-technique-used-3947635.

44 The Guardian, 'The London May Day Protests at a Glance', 1 May, 2001, http://www.theguardian.com/world/2001/may/01/mayday.immigrationpolicy.

45 Scott Sørli, 'A Short History of Kettling', *Scapegoat*, 3 (2012): 2.

46 Sørli. 'A Short History of Kettling', p. 2.

47 Sørli. 'A Short History of Kettling', p. 2.

48 Peter Joyce and Neil Wain, Palgrave Dictionary of Public Order Policing, Protest and Political Violence,

containment, the earliest of which, according to Sørli 'occurred on the Pont de la Guillotière in Lyon, on 20 October 2010'.[49]

Whether in static, mobile, 'hyper' or 'bridge' forms, a containment is deployed to curtail the disruptive capacity of an assembled crowd by denying them territorial possibilities. Whilst the objective of 'confin[ing] rioters to a defined area' might have been listed in the original *Public Order Manual* (1984),[50] with various manoeuvres such as the 'wedge' and the 'cordon' noted, the more specific art of creating a containment in order to minimize disruption is a recent phenomenon.

It is these latter tactics, I argue, that define the more recent period after incidents during the G20 (2009), student demonstrations (2010-2011), and austerity protests (2011-2013) attest to. Between the development of the Sandford wargame and the building of the STC, public order policing in the UK has undergone a territorial 'switch' from dispersal to containment. Whereas previously officers were trained to disperse protesters in the first instance, spaces such as that in Gravesend are designed to train officers in various containment/management situations in order to prohibit movement. This has had a considerable effect on the nature of protesting in the UK.

Anticipation and Territorial Determinism

The STC is a space through which particular modes of anticipation can be practiced by officers. Notably, it is a space that also de-limits these modes of anticipation, 'affording' only particular kinds of anticipation as wrought in the urban landscape. As a *Guardian* article explains in reference to it:

> Dressed in full riot gear, the officers in training were to separate a mob played by senior officers in civilian clothing in five intersecting streets, complete with facades. 'It was quite intense,' [James] Rawlings says. They would really antagonize them and get them riled, as a riot mob would. There was no holding back. They threw a range of projectiles, too – glass bottles, wooden bricks, molotov cocktails. There is no other way of preparing them other than making it as real as possible.[51]

Officers training at Gravesend cannot anticipate vertical threats. Neither could, to further elaborate, senior officers trained in the Sandford wargame. The difference between them, however, is that vertical threats *did* materialize during the Broadwater Farm riots. As a result, officers were ill-equipped to deal with them having been trained in ground-level scenarios as played out across, and between, a singular housing estate. During the austerity era few vertical threats presented themselves. Instead, this period was dominated by *mobile* threats,

London: Palgrave Macmillan, 2014, p. 155.

49 Sørli, 'A Short History of Kettling', p. 2.

50 Northam, Shooting in the Dark, 183.

51 Abigail Radnor, 'Control, by James Rawlings', *The Guardian*, 20 June, 2014. Accessed 31 October, 2016, http://www.theguardian.com/artanddesign/gallery/2014/jun/20/police-james-rawlings-photography.

often referred to as 'cat-and-mouse' games.[52] As a result, I argue, officers trained at the STC were ill-equipped to deal with these threats without recourse to containment manoeuvres. In each case, there is a kind of 'blinkered' form of anticipation governing the suite of possible responses and reactions to situations presented.

As is explained in relation to civil emergencies:

> Anticipation is crucial in both the pre-emergency and post-emergency phases. Anticipation is commonly used to describe the first phase of the Integration Emergency Management (IEM) process, which sees organizations actively '*horizon-scanning*' for risks and potential emergencies. Anticipation is also a principle of effective response and recovery, and, at the strategic level, the risk focus must be forwards, upwards and outwards, with more operational risks being appropriately addressed at lower levels.[53]

Further, in relation to a badger cull in Gloucestershire in 2013, police officers ran a table top wargame in order to 'reveal…potential difficulties'[54] in how the police would manage the operation, keeping anti-cull activists apart from official marksmen. It was attempt, as the Bronze Commander of the operation suggested, to 'avoid surprises during the cull'.[55] In each of these quotes whether in relation to the STC, civil emergencies, or table top games; the aim of the exercises are to anticipate future events. Put otherwise, they are designed to 'respond to a series of disruptive future events'.[56]

It is this 'horizon-scanning' that de-limits possible responses to public order situations, both at a strategic level (as in Sandford) and an operational level (as in Gravesend). If possible outcomes are not presented during these initial phases, then they cannot be accounted for. Further, that if these possible outcomes are not, as in Sandford or Gravesend, scripted into (a) any scenario or (b) encoded into the space then the act of planning for future events becomes difficult. This argument is similar to one articulated, later on, in chapter 8: maps in videogames serve as constrictive devices determining possible action.

---

52 BBC News, 'Tuition Fee Protesters in 'Cat and Mouse' with Police', *BBC News*, November 30, 2010, http://www.bbc.co.uk/news/uk-11878897; Kevin Rawlinson, 'Cat-and-Mouse Game as Protesters Take to the Streets Again', *The Independent*, 1 December, 2010, http://www.independent.co.uk/news/uk/home-news/catandmouse-game-as-protesters-take-to-the-streets-again-2148023.html; Natalie Fahy and Graham Fitzgerald, 'Student Protests: 153 Arrested In London', *Sky News*, 1 December, 2010, http://news.sky.com/story/821607/student-protests-153-arrested-in-london; Lee Thomas, 'Anti-Capitalists Play Cat & Mouse with Police on London Streets', *Demotix*, 11 June, 2013, http://www.demotix.com/news/2145515/anti-capitalists-play-cat-mouse-police-london-streets#media-2145460.

53 Cabinet Office, 'Emergency Response and Recovery, p. 16.

54 Damian Carrington, 'Badger Cull Activists Can 'Bend the Rules' During Protests, Say Police', *The Guardian*, 13 June, 2013, http://www.theguardian.com/environment/2013/jun/13/badger-cull-activists-protests-police.

55 Carrington, 'Badger Cull Activists Can 'Bend the Rules' During Protests'.

56 Anderson, 'Preemption, Precaution, Preparedness,' p. 791.

As a result of this determinism, wargames are impossible without use of a cartographic device. As Crogan[57] details, there are a number of 'representational features' to the wargame that center on or around the map itself. These include:

> …individual pieces standing in for whole military units, the scale reduction of physical space to the dimensions of the game board or miniature terrain-analog, the formulas for calculating outcomes and losses, [and] the representation of uncertainty and unanticipated factors by means of dice throws…

Thus, like many games, there is the inclusion of various characters or teams (military units, responder organizations, police teams etc.), as well as mechanisms for unpredictable events to occur within such an activity. But both of these elements are nonetheless rendered useless unless in relation to a game space of some kind. Although this does not always have to be a map, in the case of the wargame this is a necessity bearing in mind the aim to simulate territorial warfare. But this is also the case with emulation spaces such as the STC. It functions as a 'miniature terrain-analog' much similar to the map – with various elements of the environment contributing to shaping idealized activities, manoeuvres and actions.

In *Zones of Control*, Dunnigan[58] suggests operations research (OR)-based wargames post-WWII 'created an *artificial world* where the possible outcomes fit the *preconceived ideas* of senior military and government leaders rather than *known reality*'. Further, as Klinke[59] adds, that 'Cold War strategic thinking mastered the art of condensing such war games into mathematical matrices'. Thus, whilst police exercises are designed to anticipate, prepare for, and preempt particular future, disruptive events, they also actively shape its coming-into-being. In other words, it is through the training exercise and training space, the simulation and emulation, that the future is acted upon. In so doing, however, it forecloses such a future by narrowing and 'locking' the specific type of responses deemed necessary to respond to the future. Unlike the 'ludic geopolitics' identified by Klinke,[60] such activities are not designed in order to execute play's disruptive possibilities, but to constrain them. The result is a kind of 'territorial determinism' in which the training exercise (Sandford) and the training space (STC) *prefigure* the manoeuvres to be performed during public order incidents such as protest events and riots, by *writing them into* the spaces themselves either on the map or in the architecture, street layout and building designation.

Conclusion

In this chapter I have sought to draw a conceptual genealogy between a police wargame and a training space. The former, colloquially referred to as 'Sandford' and the latter, the

57 Crogan, 'Wargaming and Computer Games: Fun with the Future,' p. 4.

58 James F. Dunnigan, 'The Paper Time Machines Goes Electric', In *Zones of Control: Perspectives on Wargaming*, edited by Pat Harrigan and Matthew G. Kirschenbaum, xxxii–xxxviii. Cambridge, MA: MIT Press, 2016, pp. xxxiii-xxix.

59 Ian Klinke, 'Self-Annihilation, Nuclear Play and West Germany's Compulsion to Repeat', *Transactions of the Institute of British Geographers* 41, 2 (2016): 1-12.

60 Klinke, 'Self-Annihilation, Nuclear Play and West Germany's Compulsion to Repeat,' p.2.

STC are designed to ensure police officers are trained in public order policing. Both employ play as a device *through which* possible future activities can be executed. However, there are marked differences in this execution. This is indicative of a shift in police tactics from the 1980s to the 2000s.

The Sandford wargame was developed to provide strategic training to senior police officers. The STC ensures junior officers are able to practice operational manoeuvres. Over the last 30 years there has been a 'paramilitarization' of public order policing in the UK and other liberal democracies (USA, France, Germany). Sandford was put into use during an early 'shift' in which colonial-era tactics were being re-introduced, codified and practiced in mainland police forces. The STC was built during a later 'switch' in tactics from dispersal to containment. The latter now assumes primacy in public order policing.

The rise of Civil Contingency planning has shaped the nature of public order policing, by codifying the nature of exercise types such as table top games and live demonstrations. Table top exercises, in the Civil Contingency literature, are designed to validate plans and probe weaknesses. Live exercises, on the other hand, are actual rehearsals of intended and idealized plans. They allow participants to become accustomed to performing the necessary activities post-emergency.

Whilst entertainment and activist wargames might claim to offer a 'ludic subversion' of 'spectacular capitalism'[61], the Sandford exercise aimed to manage sub-sovereign contingencies through a ludic engagement with emergent, governable phenomena. This is exemplified in various 'war' games devised by police forces in the UK for a variety of public order scenarios across a range of terrains from racially-motivated riots in inner-city estates (Broadwater Farm 1985), to student demonstrations in urban locations (London 2010-2011). It is only through playing in, on or *with* the map – *or* over an emulated territory – do such scenarios have the possibility of being anticipated and the spaces in which they occur to be suitably governed. This has a similarity to in-game maps as discussed later on in chapters 7 and 8. Moreover, that in basing these simulations over particular terrains, a cartographic determinism then limits the applicability of the manoeuvres practiced.

Whilst their form may change – from table top to digital to real-world – their articulation towards future possible events remains broadly the same: each orients the multitude of manoeuvres practiced in each towards a cartographic device in order to address 'the what-ifs'.[62] In each the map becomes an 'anticipation engine' for generating and responding to particular kinds of actions deployable during public order incidents. Thus, a relation is formed between the variety of manoeuvres practiced and performed; and the map upon which these manoeuvres are performed over, on and across.

---

61 Richard Barbrook, Class Wargames: Ludic Subversion against Spectacular Capitalism, Brooklyn, NY: Minor Compositions, 2015.

62 Adey and Anderson, 'Anticipating Emergencies,' p. 100.

The design of each exercise/space has had profound impact on the nature of manoeuvres performed 'live' during public order situations. As a result, the nature of anticipating future activities has become limited. This is what I have termed 'territorial determinism' – a determinism with marked effects on public order policing and protest. Yet, and most crucially, it is only through the playing of/in either that this deterministic relationship is realized. It is this dimension that marks play as intensely powerful, as explored in the introduction. Moreover, that there is a power imbued in the 'what-if'-ness: who has the power to anticipate? Who has the power to play?

References

Adey, Pete and Ben Anderson, 'Anticipating Emergencies: Technologies of Preparedness and the Matter of Security', *Security Dialogue* 43, 2 (2012): 99–117.

Amoore, Louise, *The Politics of Possibility: Risk and Security Beyond Probability*, London: Duke University Press, 2013.

Anderson, Ben, 'Preemption, Precaution, Preparedness: Anticipatory Action and Future Geographies', *Progress in Human Geography* 34, 6 (2010): 777–98.

Barbrook, Richard, *Class Wargames: Ludic Subversion against Spectacular Capitalism*, Brooklyn, NY: Minor Compositions, 2015.

BBC News, 'New £50m Police Training Centre Opens,' *BBC News*, 15 April, 2003. Accessed 31 October, 2016. http://news.bbc.co.uk/1/hi/england/kent/2948855.stm.

BBC News, 'Tuition Fee Protesters in 'Cat and Mouse' with Police', *BBC News*, November 30, 2010. Accessed 31 October, 2016. http://www.bbc.co.uk/news/uk-11878897.

Cabinet Office, 'Emergency Planning and Preparedness: Exercises and Training', 11 November, 2014. Accessed 31 October, 2016. https://www.gov.uk/guidance/emergency-planning-and-preparedness-exercises-and-training.

Cabinet Office, 'Emergency Response and Recovery: Non Statutory Guidance Accompanying the Civil Contingencies Act 2004', 28 October, 2013. Accessed 31 October, 2016. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/253488/Emergency_Response_and_Recovery_5th_edition_October_2013.pdf.

Carrington, Damian, 'Badger Cull Activists Can 'Bend the Rules' During Protests, Say Police', *The Guardian*, 13 June, 2013. Accessed 31 October, 2016. http://www.theguardian.com/environment/2013/jun/13/badger-cull-activists-protests-police.

Clausewitz, Carl von, *On War*, London: Nicholas Trübner, 1873.

Coleman, Alice, *Utopia on Trial: Vision and Reality in Planned Housing*, London: H. Shipman, 1985.

Crogan, Patrick, 'Wargaming and Computer Games: Fun with the Future', *Proceedings of the 2003 DiGRA International Conference* 2 (2003): 1-10.

Della Porta, Donatella and Herbert Reiter (eds) *Policing Protest: The Control of Mass Demonstrations in Western Democracies*, Minneapolis, MN: University of Minnesota Press, 1998.

Dispatches, 'Dispatches: Ready for a Riot', Channel 4. Accessed 22 June, 2016. http://bobnational.net/record/16893.

Dunnigan, James F. 'The Paper Time Machines Goes Electric', In *Zones of Control: Perspectives on Wargaming*, edited by Pat Harrigan and Matthew G. Kirschenbaum, xxxii–xxxviii. Cambridge, MA: MIT Press, 2016.

Fahy, Natalie and Graham Fitzgerald, 'Student Protests: 153 Arrested In London', *Sky News*, 1 December, 2010. Accessed 1 August, 2010. http://news.sky.com/story/821607/student-protests-153-arrested-in-london.

Harrigan, Pat and Matthew G. Kirschenbaum (eds) *Zones of Control: Perspectives on Wargaming*, Cambridge, MA: MIT Press, 2016.

Hills, Alice, 'Militant Tendencies', *The British Journal of Criminology* 35, 3 (1995): 450–58.

Jefferson, Tony. 'Beyond Paramilitarism', *The British Journal of Criminology* 27, 1 (1987): 47–53.

Jefferson, Tony. 'Pondering Paramilitarism: A Question of Standpoints?', *The British Journal of Criminology* 33, 3 (1993): 374–81.

Joyce, Peter and Neil Wain. *Palgrave Dictionary of Public Order Policing, Protest and Political Violence*, London: Palgrave Macmillan, 2014.

Klinke, Ian, 'Self-Annihilation, Nuclear Play and West Germany's Compulsion to Repeat', *Transactions of the Institute of British Geographers* 41, 2 (2016): 109–120.

Mullin, Gemma, 'I Predict a Riot! Inside the Fake Kent Town Where Police Come Face to Face with Angry Mobs Armed with Petrol Bombs and Bricks to Help Them Train', *Mail Online*, 8 January, 2015. Accessed 31 October, 2016. http://www.dailymail.co.uk/news/article-2902278/I-predict-riot-Inside-fake-Kent-town-police-come-face-face-angry-mobs-armed-petrol-bombs-bricks-help-train.html.

Northam, Gerry, *Shooting in the Dark: Riot Police in Britain*, London: Faber and Faber, 1988.

Radnor, Abigail, 'Control, by James Rawlings', *The Guardian*, 20 June, 2014. Accessed 31 October, 2016. http://www.theguardian.com/artanddesign/gallery/2014/jun/20/police-james-rawlings-photography.

Rawlinson, Kevin, 'Cat-and-Mouse Game as Protesters Take to the Streets Again', *The Independent*, 1 December, 2010. Accessed 31 October, 2016. http://www.independent.co.uk/news/uk/home-news/catandmouse-game-as-protesters-take-to-the-streets-again-2148023.html.

Reiner, Robert, 'Policing, Protest, and Disorder in Britain', in Donatella Della Porta and Herbert Reiter, *Policing Protest: The Control of Mass Demonstrations in Western Democracies*, Minneapolis, MN: University of Minnesota Press, 1998, 35–48.

Scarman, Lord, *The Scarman Report: The Brixton Disorders, 10-12 April 1981*. Harmondsworth: Penguin Books, 1982.

Sørli, Scott, 'A Short History of Kettling', *Scapegoat*, 3 (2012): 1–44.

The Guardian, 'The London May Day Protests at a Glance', *The Guardian*, 1 May, 2001. Accessed 31 October, 2016. http://www.theguardian.com/world/2001/may/01/mayday.immigrationpolicy.

Thomas, Lee, 'Anti-Capitalists Play Cat & Mouse with Police on London Streets', *Demotix*, 11 June, 2013. Accessed 1 May, 2015. http://www.demotix.com/news/2145515/anti-capitalists-play-cat-mouse-police-london-streets#media-2145460.

Waddington, Peter, 'Professor Defends 'Kettling' Technique Used at G20 Protests', *Birmingham Post*, 21 April, 2009. Accessed 31 October, 2016. http://www.birminghampost.co.uk/news/local-news/professor-defends-kettling-technique-used-3947635.

Waddington, Peter, 'The Case Against Paramilitary Policing Considered', *The British Journal of Criminology* 33, 3 (1993): 353–73.

Waddington, Peter, 'Towards Paramilitarism? Dilemmas in Policing Civil Disorder', *The British Journal of Criminology* 27, 1 (1987): 37–46.

CHAPTER 7: FROM UNDERGROUND TO THE SKY: NAVIGATING VERTICALITY THROUGH PLAY IN *TOMB RAIDER* AND *ASSASSIN'S CREED 2*

EMMA FRASER AND CLANCY WILMOTT

This chapter offers a brief analysis of maps in terms of explorative play and navigation in complex 3D game-space, using two examples played on the Playstation 3 (PS3). *Assassin's Creed II*[1] and *Tomb Raider*[2] are best-selling titles from the seventh generation of consoles (each receiving numerous Game of The Year nominations), and are representative open world (*Assassin's Creed*) and adventure/RPG (*Tomb Raider*) titles from that period. Both games also utilize detailed, yet unnecessarily traditional, mapping techniques to facilitate gameplay, and both games require a degree of navigation as a fundamental aspect of play (whether exploring, wayfinding, adventuring, or tracking).

As video games are increasingly becoming more complex in spatial and multi-dimensional terms, maps and navigational and directional tools for play are increasingly deployed; *Tomb Raider* and *Assassin's Creed II* will be used in this chapter as exemplars to consider the persistence of traditional (static and flat) mapping forms within otherwise dimensional and multifaceted game-spaces. The maps in open world games and adventure/RPGs share a degree of similarity – aiding explorative navigation of an obscured territory on foot, and often aesthetically modelled from paper maps, or basic GPS screens.[3] This is particularly characteristic of games that chart convoluted, volumetric and multidimensional spaces such as open world games like the *Fallout* series (*Fallout 3* and *4* in particular present entire city blocks as spaces to be explored); MMO RPGs like *World of Warcraft* (with their self-contained social and spatial worlds); and sandbox games like *Minecraft* (with near-infinite landscapes of play). While games, broadly, have expanded beyond the god-like cartographical gaze[4] which previously offered one of the few alternatives to 2D platform games, (wherein the game is played exclusively through a conventional top-down or birds-eye map[5] (*Civilization V* is a key contemporary example of this dwindling form)[6], the maps *in* games have generally remained unchanged.

---

1 Ubisoft Montreal, *Assassin's Creed II,* 2009. Ubisoft.

2 Crystal Dynamics, *Tomb Raider,* 2013. Square Enix.

3 These differ from games that reveal the full map at the beginning of a level (for example racing games), or games that don't use a map (skateboard games, most platform games). The chosen examples are gritty and hyper-realistic, and therefore also differ from games like *New Super Mario Bros. Wii* (2009), which, despite being a revival of the 2D platform genre, includes detailed 3D world maps (perhaps having more freedom to experiment, due to the cartoonish world and fairytale-like stories of the Super Mario series).

4 John Pickles, *A History of Spaces: Cartographic Reason, Mapping and the Geo-coded World,* London: Routledge, 2005.

5 Cf. Sybille Lammes, 'Terra Incognita: Computer Games, Cartography and Spatial Stories' in Marianne Van Den Boomen (ed.) *Digital Material: Tracing New Media in Everyday Life and Technology*, Amsterdam: Amsterdam University Press, 2009, pp. 223-238.

6 The original *Legend of Zelda*, *Grand Theft Auto*, *Final Fantasy,* and many other games were also top-

As 3D technologies develop, RPGs and open world games now involve complex agglomerations of dimensional space (a 360 degree world, with orders of above and below, inside and outside, behind and in front), for which real-world navigation is the most obvious referent, thus establishing more complex experiences of moving through – and exploring – space in games. Such spaces are augmented by the in-game acquisition (and use) of flat navigational maps, which seem to mimic the materiality of traditional maps (appearing aged or creased; resembling blocked out architectural plans; or mimicking a radar map, rather than a full locative street map, for example). This mimicry is more stylized than the maps discussed by Lammes and Wilmott (see *chapter 3* in this volume), but also replicate cartographic tropes within play in order to track previous paths, find objects, develop future strategies, complete quests, and travel quickly between game locations.

This chapter, then, investigates the playful mapping practices within video games that emerge in negotiating between the flat map and the volumetric landscape in *Assassin's Creed II* and *Tomb Raider*. The two games will serve as case studies, one set in a 'real' city, the other set in a fully imagined landscape. We consider how the process of moving through game-space and searching for things that are marked on the map (while not apparent on the visually apprehended landscape) reiterates many contemporary frictions in using maps, especially digital maps in dense urban environments[7]). We also consider how the absences on, and play within, the map allows a critical consideration of cartographic reason and situated knowledges.

The setting for *Assassin's Creed II* is developed from Fifteenth Century Venice, while *Tomb Raider* is located on a fictional Japanese island in the Devil's Sea. In both, the avatar is situated within a multi-level game-space[8], and play originates on the ground plane (the forest path or city street) and progresses vertically (higher and lower, as well as horizontally, through the space, which also progresses the story): up mountains or cliff faces, down into caves or bunkers, up walls and down stairs, along rooftops and across zip-lines. Playfulness within these games is substantially supported by open and explorable landscapes, facilitated by in-game maps, increasingly afforded through a combination of produced space and navigational activities. Play is thus inseparable from navigation – whether the orientation and location of the avatar throughout the game or the exploration of the game using a combination of in-game maps and visual cues in the landscape. Navigation also manifests in the player-controlled movement of the avatar through the game-space in which the navigation takes place (including the landscape and topography of that space).

down perspective games, which was the norm in Third and Fourth Gen, and some Fifth Gen, titles. The newer iterations in these series now present a more dimensional player view, making top-down views increasingly uncommon as technology advances. Despite this, new games from these classic universes still often use flat, planimetric maps.

7 Clancy Wilmott, Small Moments in Spatial Big Data: Calculability, Authority and Interoperability in Everyday Mobile Mapping', *Big Data and Society* 3, no. 2 (2016): 1-16.

8 There are various uses of the term, however, regarding space and exploration in games, we refer to the chapter on gamescapes in Geoff King and Tanya Krzywinska, *Tomb Raiders and Space Invaders: Videogame Forms and Contexts*, London and New York: I.B. Tauris, 2006.

There are two important points to be drawn from this. Firstly, given that video games do not have the same spatio-temporal restrictions on materiality that 'real' territories have, why are these maps presented in such a traditional, top-down, flat fashion – when three-dimensional models would be equally conceivable as 'maps', in digital spaces (see footnotes 3 and 5)? The maps in these games often simultaneously exist as almost nostalgic homages to cartography itself (containing meaningless coordinates; cardinal points; and irrelevant, or unreachable, territories); and as hints to mapping through in-game quests, rather than strict, 'objective' charts of the navigable game-space (or even immediate surroundings). This means that, secondly, these maps are often without clear explanations, requiring the player to have some *a priori* knowledge of cartography to be able to deploy them to their full potential. Practices of mapping within these games draw on cartographic conventions, but still require players to read through and filter the ornamental aspects (for instance, coordinates), which pertain to global systems of knowledge outside the localized spaces produced through the game, in order to use them.

The game-space of 3D RPG and open world games has therefore become extremely complex since the introduction of Seventh Generation consoles, being dimensional, explorable, vast, and implicitly navigable – however, as the chosen examples demonstrate, the in-game map itself maintains a flat, stylized form, despite these consoles having considerably more capacity for multidimensional mapping and added textual complexity than the two previous 3D systems (*Playstation* and *Playstation 2* for example). Through the given examples, this chapter considers how the development of mapped space in open world and RPG games from the seventh generation of consoles at once reasserts and also de-colonizes cartographic practices of mapping in lieu of complex space. This chapter then explores the implications of complex and open games continuing to use the relationship between maps and landscapes to assist the structure of play through navigation (or invisibility), but also the potential for game-space and play to challenge cartographic conventions.

Space; Games; Cartography

Space, as it manifests in games, has been described variously as allegorical[9], metaphorical[10], simulation or simulacra[11], architectural[12], and digital or virtual.[13] For the purposes of this chapter, game-space refers particularly to that which is navigable or explorable within

9 Espen J. Aarseth, 'Allegories of Space: The Question of Spatiality in Computer Games' in *Cybertext Yearbook 2000*. Jyväskylä: University of Jyväskylä, 2000.

10 Alison Gazzard, *Mazes in Videogames: Meaning, Metaphor and Design*, Jefferson, North Carolina, and London: McFarland & Company Inc, 2013.

11 Seth Giddings, 'Dionysiac Machines: Videogames and the Triumph of the Simulacra', *Convergence: The International Journal of Research into New Media Technologies,* 13, no.4 (2007): 417-431.

12 Ernest W. Adams, 'The Construction of Ludic Space' in *Proceedings of the 2003 DiGRA International Conference: Level Up*, Utrecht: DiGRA, 2003.

13 Chris Chesher, 'Navigating Sociotechnical Spaces: Comparing Computer Games and Sat Navs as Digital Spatial Media', *Convergence: The International Journal of Research into New Media Technologies* 18, no.3 (2012): 315-30; Adam Nash, An Aesthetics of Digital Virtual Environments' in Denise Doyle (ed.) *New Opportunities for Artistic Practice in Virtual Worlds*, Hershey, USA: IGI Global, 2015: 128-149.

a game, including the 'gameworld'[14], which is bound by the limits of the game-space, and comprised of textured landscapes (hills, cliffs, pathways) and 3D structures (walls, halls, doorways) – what players perceive to be the setting or location of play. Several theorists have recently grappled with the notion of digital space not as a representation or a replica, but as possessing the qualities of space as we understand them in the contemporary world[15] – produced, practiced – found, as much as built. To that end, this chapter presumes the production of navigable space in games, not through code, CPUs, polygons and pixels (or not these alone), but through the processual practice[16] of navigating a mapped world in-game; via playful exploration through movement across lines and paths which direct and orientate the player in the game-space.

To understand game-space in terms of cartography and mapping, it is necessary to consider contemporary work in human and cultural geography, particularly, that which specifically engages with the shaping of navigable and navigational spaces, that is: mappable and explorable spaces which are also traversable across multiple dimensions (specifically here, the vertical landscape)[17]. The notion of a navigable game-space (or game spaces[18]) originates from the spatial framing of art, literary and film theory in some respects – for example the discussion of diegetic, non-diegetic and extra-diegetic space[19], as well as on and off-screen space[20]. In this way, maps and space in games bear a historical relation to external structures of spatiality, diegetics and diesis, as Gekker expands in the next chapter. Game-space, as mappable territory, is therefore structured across lived experience (that is, geographical, situated), and visual representation (manifested through the image, on a screen, as landscape, objects, and the avatar).

---

14 Kristine Jørgensen, *Gameworld Interfaces*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2013.

15 James Ash, 'Emerging Spatialities of the Screen: Video Games and the Reconfiguration of Spatial Awareness', *Environment and Planning A,* 41, no. 9 (2009): 2105-2124; Paul Martin, *Space and Place as Expressive Categories in Videogames* PhD diss., School of Arts, Brunel University, London UK, 2011.

16 Gordon Calleja, *In-Game: From Immersion to Incorporation*. Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2011, p.10.

17 James Ash, 'Teleplastic Technologies: Charting Practices of Orientation and Navigation in Videogaming', *Transactions of the Institute of British Geographers,* 35, no. 3 (2010): 414-430; James Ash and Lesley Anne Gallacher, 'Cultural Geography and Videogames', *Geography Compass,* 5 no. 6 (2011): 351-68; Patrick Crogan and Helen Kennedy, 'Technologies between Games and Culture', *Games and Culture,* 4, no.4 (2009): 107-114.

18 Michael Nitsche, *Video Game Spaces: Image, Play, and Structure in 3D Worlds*. Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2008.

19 Alexander R. Galloway, *Gaming: Essays on Algorithmic Culture*, Minneapolis: University of Minnesota Press, 2006, p.7; Laurie N. Taylor, 'Video Games: Perspective, Point-of-View and Immersion', MA diss., University of Florida, 2002.

20 Mark J. P Wolf, 'Inventing Space: Toward a Taxonomy of on- and Off-Screen Space in Video Games', *Film Quarterly* 51, no. 1 (1997): 11-23; Mark J. P. Wolf, (ed.) *The Medium of the Video Game*, Austin: University of Texas Press, 2001.

The visually structured space of games (for example, the positioning of the camera or POV in relation to the avatar[21], or the kinds of looking-while-going in-game (see Lammes and Wilmott in this volume) is augmented by the navigational space of the game (whether as a map, or as the visually presented world (itself a digitally mapped territory). This further leads to the perception of gameworlds as navigational spaces, which are negotiated (or producer-controlled) via scopic regimes of visual perception.[22] Such scopic regimes are navigational – the screen constructs a specific temporality that encourages players to move through a diegetic space in what Verhoeff calls a 'performative cartography'.[23] Within digital spaces, and especially game-spaces, such performative cartographies expand from the level of in-game mini-maps and fullscreen maps described by Gekker in the next chapter, through to the wider discourses of cartographic ways of understanding space.

Therefore, this discussion reflects on practices in-game that at once playfully trouble and reify the cartographic gaze[24] – finding high points from which to gain a better understanding of a landscape, or rotating the POV camera to survey a space from multiple different angles without moving the avatar. Such practices also include navigating and playing from emergent maps, which appear through the processes of moving or looking (and link to the explorative elements of gameplay), and in-game maps that can be called up with the touch of a button, meaning that the player/avatar can at once be hiding around corners or underground and seeing above, behind and below through the map – the suggestion of an all-encompassing survey of the territory.

The ludic structures of both *Tomb Raider* and *Assassin's Creed II* make extensive use of the volumetric and vertical spatiality of each gameworld. The mountainous terrain of Devil's Island cannot be simply conceived as a backdrop to gameplay, or a surface across which play occurs. Rather (as comparably described by Lammes and Wilmott in this volume), the dimensionality of these spaces creates playful structures of exploration based upon the negotiation of orders of up/down, anterior/posterior, above/under, inside/outside, and so on. As this chapter will investigate, in-game maps, are often flat, highly stylised, and annotated according given tasks in-game, creating uneven patterns rather than relating to the structure of the space (showing the locations of objects or destinations, not the names of streets, for example). When players seek particular items, targets or paths, the game-space, as well as the in-game maps, often act as tricksters[25], rerouting or concealing entryways and needed tools, whether they are inside houses, behind walls, on the roofs of buildings or in caves

21 Laurie Taylor, 'Video Games: Perspective, Point-of-View and Immersion'.

22 Serjoscha Wiemer, 'Interface Analysis: Notes on the "Scopic Regime" of Strategic Action in Real-Time Strategy Games' in Johannes Fromme and Alexander Unger (eds) *Computer Games and New Media: A Handbook of Digital Games Studies*, Dordrecht: Springer, 2012; Martin Jay, Ways of Seeing at Forty', *Journal of Visual Culture,* 11, no. 2 (2012): 135-137.

23 Nanna Verhoeff, *Mobile Screens: The Visual Regime of Navigation*, Media Matters. Amsterdam: Amsterdam University Press, 2012.

24 John Pickles, *A History of Spaces: Cartographic Reason, Mapping and the Geo-coded World*, London: Routledge, 2005.

25 Donna Haraway, Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective', *Feminist Studies* 14, no. 3 (1988): 575-99.

beneath the visible landscape. Furthermore, verticality becomes central to this deception, creating multi-tiered and baroque landscapes that must be navigated up and down, inside and outside, around, above, through, and under – all the while using flat cartographic tropes. Thus, the volumetric structure of these landscapes can be considered central to aspects of playfulness and exploration, drawing on the key cartographic concepts of visibility/invisibility described by JB Harley.[26] In *Assassin's Creed II* and *Tomb Raider* such in-game maps – which flash or can be called up in-game but do not constitute the gameboard (discussed by Lammes and Wilmott previously) – are often flat, planimetric views which to a degree reify the god-like gaze of 'cartographic reason', and deploy certain kinds of cartographic symbolism (cf. Cosgrove and Daniels on iconography of the landscape[27]) to support them.

As games increasingly exploit or construct their spatial environments to play with notions of verticality, volume, bordering and bounding, new categories of relationality impact in-game navigational practices: inside/outside, up/down, under/above and behind/in front.[28] Verticality, in the sense of geographical literature[29] contains an implied volumetrics that is not usually well-represented by conventional cartographies.[30] Navigating volumetric game-space includes negotiating terraced space that operates at different levels and heights, as well as travelling paths that not only include backwards/forwards, left/right but also up/down, above/below and over/under. Within the game-space of *Tomb Raider* and *Assassin's Creed II*, such verticalities are embedded in level design, from towers to mountains, or in subterranean spaces like caves, vaults or tombs, as well as multilevel complexes of various types (commonly military bases/forts, cathedrals, and other buildings), accessed by stairs, jumping and climbing, swinging and rappelling, and so on. This vertical relationality creates multi-perspectivism, from the 'god trick'[31] of the top-down map, to the multi-dimensional navigational practices afforded by the game-space. This 'god-trick' at first implies a total objectivity – that all spaces within the game are equal and knowable, all experiences submit to the power of the map.

---

26 J. Brian Harley, 'Deconstructing the Map', *Cartographica* 26, no. 2 (1989): 1-20.

27 Dennis Cosgrove and Stephen Daniels, The Iconography of Landscape: Essays on the Symbolic Representation, Design and Use of Past Environments. Cambridge: Cambridge University Press, 1988.

28 The majority of contemporary games would be in the multi-dimensional category, but given the history of the study of games, it is worth noting that early 2D games may imply, rather than function through, such spatiality. Pong, for example, is structured on a flat plane, with neither interior/exterior, nor a fully formed territory (no forward back, no dimensional verticality beyond up or down onscreen). In this sense, Aarseth's argument that games are allegories for space is undoubtedly true (see note 8), though increasingly difficult to maintain as games become embroiled in both dimensionality (as 3D, open, and navigable) and lived architecture (see note 11).

29 Stephen Graham and Lucy Hewitt, 'Getting Off the Ground: On the Geopolitics of Urban Verticality', *Progress in Human Geography* 37, no. 1 (2012): 72-92.

30 Eyal Weizman, *The Politics of Verticality*. Open Democracy, 2002. https://http://www.opendemocracy.net/ecology-politicsverticality/article_801.jsp.

31 Donna Haraway. 'Situated Knowledges'.

Cartographic reason[32], or the grid-based Cartesian axioms that developed from the geometry of the Greeks and became discursive during the Enlightenment (or the modern age), is a useful notion here. Cartographic reason is the emergence of the belief that systems of geometric spatial order can be used to describe the complexity of space under a single, unified and rational system.[33] Franco Farinelli argues that the building of models to answer geographical or spatial questions is a key facet of cartographic reason, and the way in which cartographic symbolism manifests through repetition and equivalency. Top-down cartographic views are only one example of how cartographic reason may manifest in relation to spatiality in games. Coordinate systems, the establishment of universal rules of geometric perspective and aesthetic – or the cartographic eye[34] – are also typical of this mode of reasoning whereby all spaces become contained within homogenous rules about how lines should work and how spaces should be ordered. In deploying maps – both as texts, and as navigational tools – games similarly rationalize space under a unified system, even where the in-game map doesn't actually assist in the navigation of a given territory (for example, a chart that pinpoints your location without specifying how to get from point a to point b).

Yet, as game play unfolds, the multi-dimensional categories of the game mess with this perception of objective navigation through different levels of visibility determined by showing varying information between the in-game maps and the game-space. The friction between the god-trick of the in-game map and the multi-perspectivism of the game-space, arguably, in both games, uses the limitations of the masculine presumption of the god-trick to playfully augment the importance of situated knowledges[35] within the game. It is not merely the negotiation through game-space here that is particularly playful: as maps are used as aids for players to navigate and locate objects, it also becomes evident how the mediation between perspectives becomes playful, via categories of movement and of looking. Therefore, the abstracted and multi-dimensional nature of cartographic reason in the map, and looking/going in the game-space, becomes a site of play and playfulness within video gameworlds.

Through the relationship between play, map, and game-space, this chapter argues that maps and spaces are merged in innovative and playful ways, in cyclic productions of navigation and exploration, via scopic and interactive digital mapping.[36] This hybridisation (see also Perkins, this volume) is possible because of the relative complexity of gameplay set in mappable space, where landscapes in-game are made navigable only through spatial simulacra (they are recognisable to us as locations through which the avatar must be guided, whether walking, running, climbing, swimming and so on); and where many of these landscapes are traversed, and goals completed, using a map to guide the player.

---

32 Franco Farinelli, 'Did Anaximander Ever Say (or Write) Any Words? The Nature of Cartographical Reason', *Philosophy and Geography* 1, no. 2 (1998): 135-144; Gunnar Olsson, *Abysmal: A Critique of Cartographic Reason*, Chicago University of Chicago Press, 2007.

33 Franco Farinelli, *La Crisi Della Ragione Cartografica*. Torino: Einaudi, 2009.

34 Simon Ryan, *The Cartographic Eye: How Explorers Saw Australia.*, Cambridge: Cambridge University Press, 1996.

35 Donna Haraway. 'Situated Knowledges'.

36 James Ash, 'Teleplastic Technologies'; Chris Chesher, 'Navigating Sociotechnical Spaces'.

The relationship between these different levels of mapping can be framed by what Marc Bonner[37] has argued is an example of 'iconic code', where certain symbols are transposed across context and location within the game to produce navigable spaces, within which the activity of play (from solving puzzles, to exploring, to killing enemies) becomes meaningful; this territorial play can also be seen as a way to negotiate risk (cf November and Latour[38]). Furthermore, iconic code has been used elsewhere to describe the historical repetition of signification across cartographic practices.[39] As game environments are structured towards models of verticality, such negotiation is playfully integrated through iconic codes across maps and game-space, and exploiting the complexities involved in real-world navigation. We argue that, in the two games discussed, iconic codes are transposed across both game-spaces and in-game maps, creating links and detours to playful ends. This use of iconic code relies on the repetition of predictable symbolism (namely the coded/map and the iconic/landscape) in order to communicate locations, boundings, and other spatial elements to the player, who then moves the avatar through the game-space, within the gameworld.

Finally, the large-scale navigable gameworlds of *Assassin's Creed II* and *Tomb Raider* are also forms of produced space, which is brought into being and made playable by design practices. These practices are inherently wedded to the concept of mapping – whether the structuring of a level through 3D grids that bring the visual content of the game from code/image to navigable, iconographic landscape, or the very act of modelling spaces and producing mini-territories with structured landscapes so that the player understands that they are in Venice, or in a forest, or in a cave; walking down the street, climbing onto a roof, or running down a corridor. Yet, while it can be argued that the use of space and mapping in games replicates cartographic and imperial approaches to territory[40], it also potentially resists the scopic gaze of cartographic reason by obscuring parts of the territory, leaving them off the map - to be known only through play (or, often, never known by the player/avatar at all).

Since space in games extends possibilities of engagement, exploration, and understanding through movement practices in the game-space, (as in Bogost's notion of possibility space[41]), the traditional boundedness of space becomes subject to play-based practices in game-space[42], which we argue trouble the hegemonies of the traditional cartographic

---

37 Marc Bonner, 'Ambiguous Play Pattern: A Philosophical Approach to the *Prospect-Refuge Theory* in Urban Open World Games by Merging Deleuze/Guattari and De Certeau' in *The Philosophy of Computer Games Conference*. Berlin: International Conference on the Philosophy of Computer Games, 2015.

38 Valeria November, Eduardo Camacho-Hübner, and Bruno Latour, 'Entering a Risky Territory: Space in the Age of Digital Navigation', *Environment and Planning D: Society and Space* 28 (2010): 581-599.

39 Denis Wood and John Fels, 'Designs on Signs / Myths and Meaning in Maps', *Cartographica* 23, no. 3 (1986): 54-103.

40 Souvik Mukherjee, The Playing Fields of Empire: Empire and Spatiality in Video Games', *Journal of Gaming and Virtual Worlds,* 7, no. 3, (2015): 299-315.

41 Ian Bogost, 'The Rhetoric of Video Games' in Katie Salen (ed.) *The Ecology of Games: Connecting Youth, Games, and Learning*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2008, pp. 117-140.

42 Marc Bonner, 'Ambiguous Play Pattern'; Sybille Lammes, 'Terra incognita'.

gaze. These aspects also tie in with Michael de Certeau's mobility tactics[43] as they arise in games: rhythms for jumping, walking and climbing, which dictate the movement between 'places'; or practices intended to alter that way in which everyday space is perceived.[44] To jump from roof to roof in *Assassin's Creed II*, or scale a cliff-face in *Tomb Raider* has the capacity to remind the player of their own restricted movement and being in the modern metropolis (or indeed, national park), in much the same way that the beach beneath the street triggers the imagination of possibilities beyond the everyday.[45] By the same token, to travel an imagined volumetric space with a map that only directs you on the ground plane – or to explore an unknown territory that unfurls as you traverse it - is to trouble the logic that all things – all spaces – are mappable and knowable. Game-space and in game maps thus challenge, as much as reify, cartographic logics that universalise space.

Tomb Raider: Playing with Maps

The 2013 release of *Tomb Raider* heralded a shift in the focus of the franchise - less centered on completing complex spatial puzzles and traversing through self-contained individual levels hunting for idols, this title emphasised stealth, in avoiding, killing or tricking enemies – with the 'tomb raiding' partitioned-off in side quests. This was accompanied by a number of other quests that involved burning, collecting, shooting or lighting particular game elements such as flags or shrines. Furthermore, the scope of collectibles was expanded out of merely tomb-based relics and documents, health packs, and ammo, to include hunting animals, foraging for plants, scavenging for scrap metal and weapons parts, finding GPS caches, and other RPG elements and, most importantly for this chapter, the discovery of seven treasure maps.

Unlike *Assassin's Creed II*, *Tomb Raider* relies solely on the use of full-screen maps (see Gekker, this volume) in order to provide navigability towards certain collectible objects. Additional locational data of objects for these maps can be found through the collection of treasure maps within the game-space. Without the treasure maps, objects are only marked on the larger map at the moment when they are found, leaving the player to use other tools – like the survival instinct mode, which highlights objects and dangers in blue on the landscape. Treasure maps afford the possibility of looking for objects directly using the map by selecting an icon and then using a small arrow on the main screen to move towards the desired object. When an object or item is located, it is greyed out on the game map to indicate to the player that this item has been found. Thus, a cyclic practice of exploring and mapping begins to emerge between the in-game map and the game-space.

---

43 Michael de Certeau, *The Practice of Everyday Life,* Berkeley, California: The University of California Press, 1984.

44 Emma Fraser, 'Awakening in Ruins: The Virtual Spectacle of the End of the City in Video Games', *Journal of Gaming and Virtual Worlds* 8, no. 2 (2016): 117-196.

45 McKenzie Wark, The Beach Beneath the Street: The Everyday Life and Glorious Times of the Situationist International, New York: Verso, 2011.

Already, at this point of play, the use of maps in *Tomb Raider* then becomes a negotiation between visibility and invisibility (both on map and in game-space) as objects are found, or made visible on the map. Yet, when combined with the volumetric and vertical game-space, the tension between invisibility and visibility becomes inculcated with playful negotiations of moving, in terms of up/down, above/below and over/under. The top-down, functional maps used in *Tomb Raider* implicitly recreate cartographic tropes and practices of map reading between flat representation and volumetric navigable space, even though neither the game space – nor the use of cartographic aids – need be restricted to these cartographic traditions. This is because, while a flat map in the physical world can be folded and placed in your pocket (and a city model would be impractical to carry around as a navigational tool) there is no actual restriction on, for example, a 3D model in-game that pinpoints the chosen object both on the horizontal plane, and vertically - in the specific level on which it is located[46].

However, the point of playful negotiation erupts when the deployment of traditional maps in *Tomb Raider* actually results in ludic failure[47] between the flat in-game map and the volumetric landscape. For example, we can focus on one specific location in *Tomb Raider*: the Mountain Temple site which is located in area 4 in-game, situated as a pass-through point on the way up and down the mountain range in the centre of Devil's Island, in the early stages of the game. The mountainous terrain of the island is a particular example of the extreme verticality of the game in a non-urban context (unlike *Assassins' Creed II* which focuses largely on cities). The Mountain Temple location allows gameplay across multiple levels, including several multi-story temples and residential buildings, steep rock faces, stone staircases, and a river with two waterfalls running through the village. This requires, on the part of the player, complex navigational activities negotiating not only the horizontal/ground plane of the game, but also the vertical and multidimensional elements of the game-space.

The cartographic depiction of this particular verticality within the game, especially in this location, is somewhat bereft of useful detail. Figure 7.1 shows a screenshot of the map of the game with all the markers for all objects unlocked. The path through the village rises in a clockwork direction from the location of the tent (Base Camp). In the centre of the map is the location of a Treasure Map (the square icon) near the river that is needed in order to complete the game to a 100% level.

46 Indeed, some games (such as *DOOM* (2016)) do include multi-level maps, cycling through different floors of the same complex, for example; rarely, however, do these maps take the form of a 3D map, showing a path up a mountain as a fully vertical articulation of space, though a mini volumetric map would be possible.

47 Sam Hind and Sybille Lammes, 'Digital Mapping as Double-Tap: Cartographic Modes, Calculations and Failures', *Global Discourse* 6, no. 1-2 (2016): 79-97.

Figure 7.1 *Mountain Village.* Screenshot[48] of Tomb Raider in-game full screen map.

With the avatar, Lara Croft, standing in the village, looking up to the path ahead (figure 7.2), it is difficult for the player to cohere the spatial relationality posited by the in-game map with the spatial relationality that is constructed through the game landscape. The Treasure Map needs to be found to complete the game fully.

Moving forward (up the stairs, around the corner and over the bridge) brings Lara closer to the Treasure Map marker on the map, until she crosses over the marker near the top level of the building depicted on the right (see figure 7.2). At this point, the Treasure Map is nowhere to be found, despite appearing on the map as if it should be immediately present. Climbing through a complex vertical path to gain the top floor of the building, and guiding Lara around the roof tops also yields no results. The complicated negotiation, then, between the in-game map and the game-space results in a playful, if occasionally infuriating, exploration across multiple levels of the game. Looking upwards, it is possible that the Treasure Map may equally be on the roof of one temple up high, or within the confines of the one below.

48 All game screenshots are made by the author[s].

Figure 7.2 *Cave.* Screenshot of Lara Croft looking at the path ahead in game-space.

Yet, returning back down the path to the lower floors of the building also does not lead to the Treasure Map. The player then needs to move farther afield, searching for hidden paths in the landscape which may eventually lead back to the location on the map, through a track that has not yet been found: around the building, through the river and into a cave underneath. Eventually, returning back to the base camp, and scaling a small drop to the bottom of the lowest waterfall, reveals a gap behind the falling water. Here, squeezing through the space reveals a large cavern that trails some distance under the various structures of the terrain to the location of the Treasure Map (see the red circle on the screenshot in figure 7.2). This path is entirely invisible on the stylized, form-driven flatness of the map. This cave is a secret level of both verticality and also volumetricity, as the player must not only negotiate concepts of down and up, but also under, forward and below. Thus, while verticality is merged into a single plane under this cartographic god-trick, it is the situated space of the avatar, which reveals this gaze to be both accurate, yet also a trickster, in detouring and playfully challenging the player.

This playful mapping in *Tomb Raider* becomes a quixotic process of approximation, negotiating between the representational limitations of the map, and the fixed boundaries of the explorable parts of the game-space. As these boundaries are stretched and tested, playful relationalities emerge between two objects, reflecting different principles of cartographic reason: the flat god-trick of the map, and the volumetric rationalism of the game space. Here, playing with maps is also playing with space, as the bounding principles of in/visibility are tested – the verticality of the landscape is not shown on the map, despite the fact that vertical space *is* part of the navigable game-space through the game. At the same time, the vertical landscape of the game obscures elements that are pinpointed on the map, such as the GPS cache. Both of these affects are undoubtedly (whether designed or accidental) maintained in the game in order to extend the playful explorative qualities of navigating through Lara's gameworld, as the game-space is manufactured, detailed and

laid out during the design processes, in addition to – as Gekker describes – the in-game map. This interaction between avatar/player, space, map, and the ground/vertical plane, is more than a haphazard coincidence – it is deeply embedded in the mode of playing the game through explorative navigational practices. Through cartography and verticality, part of the play element is manifested through mapping the negotiation between different dimensionalities, symbolisms and ways of reading space.

Assassin's Creed II: Mapping with Play

The first *Assassin's Creed* game was released in 2007. Taking on the role of various assassin characters, the game asks players to undertake a number of stealth activities, including collecting items, avoiding enemies or assassinating targets. It is based on an open world style platform, modeling the game-space from historic cities such as Florence, Venice, Istanbul and Boston. For this analysis, we focus on the final sections of *Assassin's Creed II*, set in an imagined recreation of the renaissance town Venice (Venezia) – a city that has not changed significantly in the historic center since the time period in which the game is set. The structure of the game-space focuses on multiple dimensions of verticality: underground tunnels, canals with boats, street level interactions, hidden walled courtyards, awnings and overhangs, roof tops of varied height, and tall church spires, towers, defense fortifications, cathedrals, and castles. Furthermore, there are also a number of elements within the game which allow for a kind of concealment or invisibility, including hiding in hay bales, produce carts, and wells, or 'blending in' to groups of non-playable characters in the game.

Within the game, there are two kinds of cartographic tools (see also Gekker, this volume) which assist in navigation: a small local 'mini-map' in a window on the bottom right hand side of the screen showing immediate surroundings, and a larger 'full-screen' map which can be called up through the player menu to show a general overview of the entire city. Unlike *Tomb Raider*, however, the larger map gradually emerges through the process of moving through space, unfolding topographic game detail across a geometric tessellation. Where the *Tomb Raider* map has hard edges and a clear outline, because of the gradual unfolding of the cartographic information through in-game movement the maps used in *Assassin's Creed II* are fuzzy at the edge, hinting at a broader space beyond the diegetic space of the game.

In an echo of colonial means of cartographic ordering, to unlock the topographic information for a larger region it is possible climb up to a tall point (generally a tower) and synchronize the map from the highest points of the city. These points are symbolized on both the mini and full screen maps by the image of an eagle floating over a given viewpoint (figure 7.3, screenshot with mini-map) and are also marked within the game space by a circling eagle (see Figure 7.3, red circle), and accompanying eagle-call. Yet, neither the mini-map nor the in-game map depicts the vertical path to the top of the tower – only its location. The play is in navigating the upward path to the top of the tower through the game-space. Then, upon reaching the highest point, the map synchronizes and the full cartographic detail of the surrounding area is revealed in both maps, in a re-enactment of the 'god trick'[49].

49 Donna Haraway, 'Situated Knowledges'.

Figure 7.3 *Eagles and Viewpoints.* Screenshot of Assassin's Creed II with mini-map and vertical game-space.

Mapping in the game, then, becomes a playful negotiation across multiple perspectives, as iconic codes – such as the eagle – are replicated within the accompanying cartography of the game as well as the game landscape itself.

Verticality plays an interesting role in this navigation by expanding on the play of perspective. Where the 'god trick' offers the assumption or illusion of absolute objectivity embedded in the top-down (gendered) perspective, as with *Tomb Raider*, the translation of iconic codes and cartographic reason into the game-space reveals a 'coding trickster'[50], where the player is reminded of limitations of cartographic reason, and the impossibility of total, universal objectivity.

As in *Tomb Raider*, the navigational maps in *Assassin's Creed II* work from a flattened top-down cartographic representation. They highlight elements that are often hidden and obscured in the game landscape itself, including the approach of military enforcers or enemies, the presence of robbers, or the location of targets, side-quests or other objects. At the same time, the topdown maps only depict flattened paths through the game's cities, usually on the ground plane – the roads, bridges, canals etc. The map gives no reference whatsoever to the convoluted paths up turrets and towers which often circle around a building, backtracking in on themselves. The keys to these paths are embedded within a separate iconic code repeated throughout the game[51] – footholds and outcrops that are slightly more focussed, repetitious and obvious within the game itself. Here, the practice of mapping within the game becomes folded and cyclic: at once navigating using the landscape to reveal the map, while using the map to reveal parts of the landscape which in turn

50 Donna Haraway, 'Situated Knowledges', p. 596.
51 Marc Bonner, 'Ambiguous Play Pattern'.

lead to more navigable landscapes. This is a form of situated knowledge, embedded in the experience of moving and looking, rather than the homogenizing gaze of the trickster, or the supposed neutral background of the map.[52]

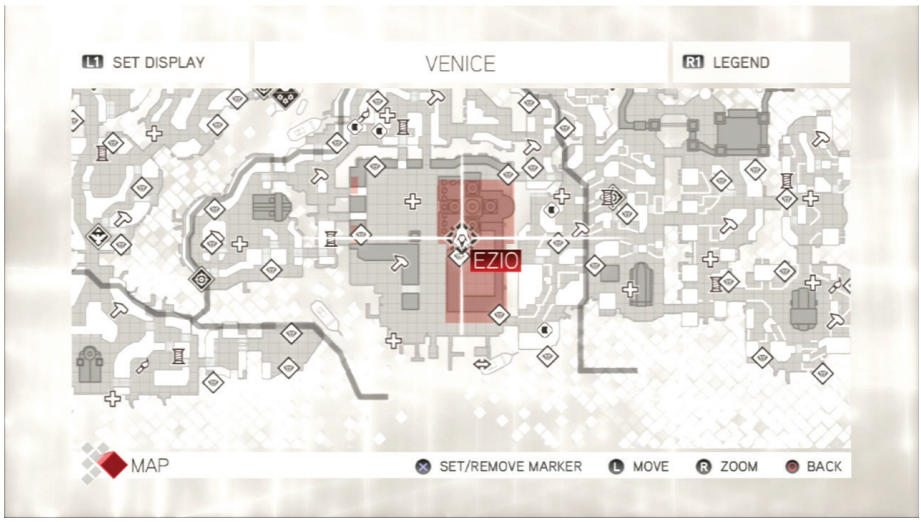

Figure 7.4 *Fuzzy Edges*. Screenshot of full-screen in-game map in Assassin's Creed II.

Using the map to hunt for secret doors, for example, becomes a complicated negotiation that frequently ends in unintentional actions or a detouring of game play. For instance, there is a secret entryway to the Basilica di San Marco within the Venetian section of the game (marked at 'Ezio' in the figure 7.4 screenshot). This must be found and completed in order to finish the game. A quick climb up a nearby turret, and subsequent synchronization reveals this location to be within the building of San Marco, a heavily restricted area in which, if you are caught, every nearby guard will attempt to kill the avatar. A quick reconnaissance around the building reveals no clear way in. An explorative test of walking through the front door results in injury to the avatar. Scaling the side of the building results in arrows being shot. Guards are marked across the in-game map – but it is difficult to tell from the in-game map alone if they are located inside the courtyard of the building, or are patrolling the rooftops above. A quick run around the roof of the building reveals that the guards are on the roof of the building, and there is fencing preventing entry into the courtyard from above. Returning to the map, there are no canals nearby via which the avatar may pass below the guards unseen.

Another journey around the building reveals, at the far back, a small cart with white sheets signaling the start of the vertical path. There is no indication of this on the map. However, following this path sees the avatar traverse the outside of the building and land on the roof looking down into the courtyard. Fencing still blocks entry, however. The map indicates a guard patrolling the roof below – shimmying down a ladder when the patrolman's back is

52 Brian Harley, 'Deconstructing the Map'.

turned (by way of searching for a path down) reveals that the secret entryway is not within the building, but rather on the roof underneath an archway (see figure 7.5).

Figure 7.5 *Vertical Space.* Screenshot of roof in Assassin's Creed II and vertical game-space.

As a result, much as in the *Tomb Raider* example, a significant aspect of play within the game is afforded through the negotiation between the navigable territory; the textual, flat map and the representation of space. Landscape and visual representations are structured through scopic regimes (whether visual perception through ways of seeing; looking-and-going; POV directionality, or iconic codes within the game-space); and the exploration of the vertical plane of the game. Yet, while the map itself offers a kind of masculinist god-trick, the point of 'objectivity' at the top of the tower, is limited in the way it might assist the completion of the game. The playful interference between the limitations of the map, and the possibility that such limitations offer, becomes situated through divergent possibility within the game play, as limits are tested and reified. This is a new kind of objectivity, more reflective of a feminist perspective, where objectivity is revealed to be 'about mutual *and* unequal structuring, about taking risks in a world where 'we' have become permanently mortal, that is, not in 'final' control'.[53]

Therefore, exploring the game-space is the only way in which to accomplish certain tasks, and the obscured elements within the game (whether staircases in towers, or subterranean hidey holes) substantially contribute to both the playable, multidimensional space and exploration itself as a mode of play. Once again, the playful qualities of situated exploration, and the risky, experimental knowledge of the gamespace, are compelled into conversation with the god-*tricks* of the map.

53 Donna Haraway, 'Situated Knowledges' p. 595-6.

Conclusion: Games as Map-spaces and Space-maps

In the games described in this chapter, the game-space/map relation produces sites of playful affordances that critique and play with the limitations of situated space (and by extension, experience and knowledge about the cartographic), as well as the omniscience lauded by the map. Through this volume, the spatial relations between mapping and playing have been described as controversial, hybridized and performative. This has often been based on the negotiation between the politics of space and the politics of the map, and the kinds of playful affordances that emerge between spatiality and representation. Yet, this chapter argues that there is a playful potential to the relationship itself, in the multi-perspectival, uneven and striated levels of information depicted by both game-spaces and in-game maps. Where traditional 2D games contained little scope for spatial play, 3D adventure/RPGs and openworld games produce game-spaces, which, in turn, present opportunities to play with maps and space, to the extent that explorative play is a foundational activity in-game. Furthermore, the question of the limitation of the map itself is also revealed to be playful in the circumstances of game-space, fully exploited by game designers to produce tricky landscapes that critique the power of cartographic reason (intentionally or otherwise), and sit within the very foundations of gameplay in open-world and 3D game-spaces.

This has been demonstrated in both of the examples discussed here – the retrieval of a GPS cache from within the mountainous cliffs in *Tomb Raider*, and the playful navigation up a baroque tower in Venice in *Assassin's Creed II*. Such practices are not so far removed from the tacit knowledges of space that underscore resistances towards and against overarching spatial rationalities like cartographic reason[54], and position the player as the navigator of situated knowledge.[55] The game-space becomes an object of 'making-do'[56] through mobility practices - the pursuit of hidden spaces or obscured paths up towers, around buildings, or along cliffs. Even where, arguably, the game itself is an enclosing, bounded entity that limits the choices of the player[57], the playful negotiation between maps and spaces engages and critiques cartographic reason through the use of iconic codes[58] that replicate and make a mockery of traditional mapping practices. Furthermore, against this kind of 'in-space' knowledge or reading of the landscape, many games offer maps as part of the puzzle or challenge of the game, hinting at the possibilities within the game-space, necessitating exploration of hidden spaces secreted or obscured in the landscape.

Paradoxically, in both *Tomb Raider* and *Assassin's Creed II*, as in many other recent games, maps both reproduce and trouble cartographic reason through the production of navigable space and the inclusion of maps that are frequently only partial; inaccurate; or limited in their use for the player. Despite the sophistication of these titles, which have no hardware or technical reason to limit maps to flat representations of a territory, the tendency towards

54 Cf. Michel de Certeau, 'The Practice of Everyday Life'.
55 Donna Haraway, 'Situated Knowledges'.
56 Michel de Certeau, 'The Pratice of Everyday Life', p. 29.
57 Cf. Graeme Kirkpatrick, *Computer Games and the Social Imaginary*, Cambridge: Polity, 2013.
58 Marc Bonner, 'Ambiguous Play Pattern'.

map use in such games is, to a large extent, predicated upon assumptions about navigating in the everyday world. Rather than being a chart that portrays a territory, many of these maps present partial – or even useless – information that hinders the player as much as it assists them in particular tasks or general navigation (in much the same way that maps have always been dysfunctional). This means that, while flat maps are embedded in the function and playfulness of each title, most in-game maps in RPG and openworld games never fully reveal all aspects of the world (despite the fact that all such detail is known to designers, and is dormant within the game) – this would cease to make the game fun by exposing all the elements there are to explore – now, or in future – and the ways in which these elements will be accessed.

What this tells us is that games depicting relatively open landscapes rely heavily on the task of exploring the territory – another colonial/cartographic discourse – in order to play the game. Whether in the tricky failures of the map to actually reveal desired items (as in *Tomb Raider*); or the hidden routes from the horizontal to the vertical that must be explored in order to be known in *Assassin's Creed II*, this in-game map-territory tension turns the game into a spatial puzzle, which must be solved ludically and exploratively, by unraveling the space of the game that exists beyond what the map reveals. This dynamic simultaneously re-inscribes maps and mapping practices within games, while delivering the clear lesson to never trust the map – that the player is 'mortal'[59] – to a degree. As games have adapted to ever-larger territories, and expanded into 360 degrees (up and down, in and out, through and around, as well as forward and backward), maps have become indispensible. Despite fundamental changes to game-space, in-game maps have retained an archaic form that replicates old-fashioned models of reason and universality. What this chapter has argued, however, is that this form plays a crucial role in the activity of play within the game-space, precisely because of its limited capacities, wherein the suggestion of universality is challenged by that which cannot be represented on the top-down map – the volumetric space of play.

List of Games Cited

Crystal Dynamics, *Tomb Raider*, Square Enix, 2013.

Ubisoft Montreal, *Assassin's Creed II*, Ubisoft, 2009.

Blizzard Entertainment, *World of Warcraft*, 2004-2016.

Bethesda Game Studios, *Fallout 3*, Bethesda Softworks, 2008.

Bethesda Game Studios, *Fallout 4*, Bethesda Softworks, 2015.

Mojang, *Minecraft*, 2011.

Firaxis Games, *Civilization V*, 2k Games and Aspyr, 2010.

References

Aarseth, Espen J. 'Allegories of Space: The Question of Spatiality in Computer Games' in *Cybertext Yearbook 2000*. Jyväskylä: University of Jyväskylä, 2000.

59 Donna Haraway, 'Situated Knowledges', p. 596.

Adams, Ernest W. 'The Construction of Ludic Space' in *Proceedings of the 2003 DiGRA International Conference: Level Up*, Utrecht: DiGRA, 2003.

Ash, James, 'Emerging Spatialities of the Screen: Video Games and the Reconfiguration of Spatial Awareness', *Environment and Planning A,* 41, no. 9 (2009): 2105-2124.

Ash, James, 'Teleplastic Technologies: Charting Practices of Orientation and Navigation in Videogaming', *Transactions of the Institute of British Geographers,* 35, no. 3 (2010): 414-430.

Ash, James and Lesley AnneGallacher, 'Cultural Geography and Videogames', *Geography Compass,* 5 no. 6 (2011): 351-68.

Bogost, Ian, 'The Rhetoric of Video Games' in Katie Salen (ed.) *The Ecology of Games: Connecting Youth, Games, and Learning*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2008, pp. 117-140.

Bonner, Marc, 'Ambiguous Play Pattern: A Philosophical Approach to the *Prospect-Refuge Theory* in Urban Open World Games by Merging Deleuze/Guattari and De Certeau' in *The Philosophy of Computer Games Conference*. Berlin: International Conference on the Philosophy of Computer Games, 2015.

Calleja, Gordon, *In-Game: From Immersion to Incorporation*. Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2011.

de Certeau, Michel, *The Practice of Everyday Life,* Berkeley, California: The University of California Press, 1984.

Chesher, Chris, 'Navigating Sociotechnical Spaces: Comparing Computer Games and Sat Navs as Digital Spatial Media', *Convergence: The International Journal of Research into New Media Technologies* 18, no.3 (2012): 315-30.

Cosgrove, Dennis and Stephen Daniels, *The Iconography of Landscape: Essays on the Symbolic Representation, Design and Use of Past Environments*. Cambridge: Cambridge University Press, 1988.

Crogan, Patrick and Helen Kennedy, 'Technologies between Games and Culture', *Games and Culture,* 4, no.4 (2009): 107-114.

Farinelli, Franco, 'Did Anaximander Ever Say (or Write) Any Words? The Nature of Cartographical Reason', *Philosophy and Geography* 1, no. 2 (1998): 135-144.

Farinelli, Franco, *La Crisi Della Ragione Cartografica*. Torino: Einaudi, 2009.

Fraser, Emma, 'Awakening in Ruins: The Virtual Spectacle of the End of the City in Video Games', *Journal of Gaming and Virtual Worlds* 8, no. 2 (2016): 117-196.

Galloway, Alexander R. *Gaming: Essays on Algorithmic Culture*, Minneapolis: University of Minnesota Press, 2006.

Gazzard, Alison, *Mazes in Videogames: Meaning, Metaphor and Design*, Jefferson, North Carolina, and London: McFarland & Company Inc, 2013.

Giddings, Seth, 'Dionysiac Machines: Videogames and the Triumph of the Simulacra', *Convergence: The International Journal of Research into New Media Technologies,* 13, no.4 (2007): 417-431.

Graham, Stephen and Lucy Hewitt. 'Getting Off the Ground: On the Geopolitics of Urban Verticality', *Progress in Human Geography* 37, no. 1 (2012): 72-92.

Haraway, Donna, 'Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective', *Feminist Studies* 14, no. 3 (1988): 575-99.

Harley, Brian, 'Deconstructing the Map', *Cartographica* 26, no. 2 (1989): 1-20.

Hind, Sam and Sybille Lammes, 'Digital Mapping as Double-Tap: Cartographic Modes, Calculations and Failures', *Global Discourse* 6, no. 1-2 (2016): 79-97.

Jay, Martin, 'Ways of Seeing at Forty', *Journal of Visual Culture,* 11, no. 2 (2012): 135-137.

Jørgensen, Kristine, *Gameworld Interfaces*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2013.

King, Geoff and Tanya Krzywinska, *Tomb Raiders and Space Invaders: Videogame Forms and Contexts*, London and New York: I.B. Tauris, 2006.

Kirkpatrick, Graeme, *Computer Games and the Social Imaginary*, Cambridge: Polity, 2013.

Lammes, Sybille, 'Terra Incognita: Computer Games, Cartography and Spatial Stories' in Marianne Van Den Boomen (ed.) *Digital Material: Tracing New Media in Everyday Life and Technology*, Amsterdam: Amsterdam University Press, 2009, pp. 223-238.

Martin, Paul, *Space and Place as Expressive Categories in Videogames* PhD diss., School of Arts, Brunel University, London UK, 2011.

Mukherjee, Souvik, 'The Playing Fields of Empire: Empire and Spatiality in Video Games', *Journal of Gaming and Virtual Worlds,* 7, no. 3, (2015): 299-315.

Nash, Adam, 'An Aesthetics of Digital Virtual Environments' in Denise Doyle (ed.) *New Opportunities for Artistic Practice in Virtual Worlds*, Hershey, USA: IGI Global, 2015: 128-149.

Nitsche, Michael, *Video Game Spaces: Image, Play, and Structure in 3D Worlds*. Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2008.

November, Valérie, Eduardo Camacho-Hübner and Bruno Latour, 'Entering a Risky Territory: Space in the Age of Digital Navigation', *Environment and Planning D: Society and Space* 28 (2010): 581-599.

Olsson, Gunnar, *Abysmal: A Critique of Cartographic Reason*, Chicago University of Chicago Press, 2007.

Pickles, John, *A History of Spaces: Cartographic Reason, Mapping and the Geo-coded World,* London: Routledge, 2005.

Ryan, Simon, *The Cartographic Eye: How Explorers Saw Australia*., Cambridge: Cambridge University Press, 1996.

Taylor, Laurie N. 'Video Games: Perspective, Point-of-View and Immersion', MA diss., University of Florida, 2002.

Verhoeff, Nanna, *Mobile Screens: The Visual Regime of Navigation*, Media Matters. Amsterdam: Amsterdam University Press, 2012.

Wark, McKenzie, *The Beach Beneath the Street: The Everyday Life and Glorious Times of the Situationist International*, New York: Verso, 2011.

Weizman, Eyal, *The Politics of Verticality*. Open Democracy, 2002, https://http://www.opendemocracy.net/ecology-politicsverticality/article_801.jsp.

Wiemer, Serjoscha, 'Interface Analysis: Notes on the "Scopic Regime" of Strategic Action in Real-Time Strategy Games' in Johannes Fromme and Alexander Unger (eds) *Computer Games and New Media: A Handbook of Digital Games Studies*, Dordrecht: Springer, 2012.

Wilmott, Clancy, 'Small Moments in Spatial Big Data: Calculability, Authority and Interoperability in Everyday Mobile Mapping', *Big Data and Society* 3, no. 2 (2016): 1-16.

Wolf, Mark J. P. 'Inventing Space: Toward a Taxonomy of on- and Off-Screen Space in Video Games', *Film Quarterly* 51, no. 1 (1997): 11-23.

Wolf, Mark J. P. (ed.) *The Medium of the Video Game*, Austin: University of Texas Press, 2001.

Wood, Denis and John Fels, 'Designs on Signs / Myths and Meaning in Maps', *Cartographica* 23, no. 3 (1986): 54-103.

CHAPTER 8: (MINI) MAPPING THE GAME-SPACE: A TAXONOMY OF CONTROL

ALEX GEKKER

Introduction

The following chapter aims to discuss the different roles envisioned by video games designers for maps that they choose to include as visual elements in their games. Cartographic maps that portray physical and social environments have become one of the chief ways of understanding and planning actions in the world. Maps have been instrumental for navigation, trade and conquest since the early renaissance era.[1] The 20th century brought enormous technological advances in both production and consumption of maps, culminating with their popular adoption through digital screens and GPS-enabled devices. The complete, and culturally implicit, proliferation of the map as a 'representation' of physical space has, unsurprisingly, ensured its adoption by video game designers for similar purposes in their fictional worlds. If all mapping is playful to some extent (Lammes and Perkins, chapter 2 this volume), then nowhere is this link more substantial than in the daily encounters of millions of users with imagined spaces on the screens of personal computer and video game consoles.

However, maps have never been mere depictions of an existing place, as map-making inherently entails processes of selection and generalization that renders certain aspects of its subject more prominent or hidden.[2] Maps are better understood as guides for action, which dissect, order, colonize and produce 'existing' space, making it available for use and consumption [3]. The introduction of precise measuring and ordering technologies have further changed maps' role in allowing them to become user interfaces for habitual uses and arrangement of space. Such systems 'transformed spatial location into a commodity available in much the same way as electricity or water – on demand, at the place of consumption'.[4]

---

1 Jeremy W. Crampton, 'Maps as Social Constructions: Power, Communication and Visualization', *Progress in Human Geography* 25, no. 2 (June 1, 2001): 235–52; Jeremy W. Crampton and John Krygier, 'An Introduction to Critical Cartography', *ACME: An International E-Journal for Critical Geographies* 4, no. 1 (2005): 11–33.

2 Brian Harley, 'Maps, Knoweldge and Power,' in Denis Cosgrove and Stephen Daniels (eds), *The Iconography of Landcape*. Cambridge: Cambridge University Press, 1988, 277–312; Crampton, 'Maps as Social Constructions.'

3 Stuart Elden, 'There Is a Politics of Space Because Space Is Political: Henri Lefebvre and the Production of Space', *Radical Philosophy Review* 10, no. 2 (2007): 101–116; Valérie November, Eduardo Camacho-Hübner, and Bruno Latour, 'Entering a Risky Territory: Space in the Age of Digital Navigation', *Environment and Planning D: Society and Space* 28 (2010): 581-599.

4 William J. Rankin, 'After the Map: Cartography, Navigation, and the Transformation of Territory in the Twentieth Century', Cambridge, MA: Harvard, 2011, p. 4.

Therefore, we must be wary of treating game maps merely as facilitators or as parts of user interfaces. Beyond notions of usability or player fun, maps need to be understood critically as socio-technical assemblages[5] that encapsulate codified relations between the player, the game-space and the envisioned possible interactions promoted by the designer. Just like the medieval cartographer's choice to highlight a certain aspect of the land over another illuminates various politics of visibility and access, so the game designer's choice in relation to mapping can be read as inscribing certain affordances into the game to be explored and experienced. Selections can range from: whether to include a map within a game's design; what size should it be; what color scheme and iconography it employs (and whether those are borrowed from real-world familiar maps); as well as – in a recent turn of event shared with the various digital maps – the modicum of interactivity offered to the map's user in reconfiguring and altering the map beyond that allowed by the designer.[6] Each choice, or more accurately, each part of a cascading series of design choices, offers a different conceptualization of the game's player *by* the design team, and has various implications on the player's imagined game experience.

The chapter begins with introducing the role of the map as a designed object within a video game, before highlighting some of the issues facing modern game map design, drawing from the body of work on critical cartography, media studies and human-computer interaction. I summarize these issues to suggest an organizing framework that critically discusses maps in video games through a taxonomy, divided according to two factors: the saliency and the interactivity level of the map within the game. The remainder of the chapter is devoted to a discussion of each category, exemplifying its inscribed affordances through recent popular games.

Game Maps

In the classic staple of early web culture, the Flash-based video-game spoof *Thy Dungeonman* makes fun of the primordial video-game: the text-based adventure. Simulating, on a screen-within-a-screen, the greenish glow of 1980s CRT monitors, the game presents the following snippet to the player:

5 John Law, 'Introduction: Monsters, Machines and Sociotechnical Relations,' in Law, John, *A Sociology of Monsters: Essays on Power, Technology, and Domination*, London: Routledge, 1991, 1–25.

6 Alan M MacEachren, 'Visualization-Cartography for the 21st Century,' In *Proceedings of the Polish Spatial Information Association Conference,* Warsaw, Poland, 1998; Alan M. MacEachren and Menno-Jan Kraak, 'Research Challenges in Geovisualization', *Cartography and Geographic Information Science* 28, no. 1 (January 1, 2001): 3–12; Alan M. MacEachren, M. Gahegan, W. Pike, I. Brewer, G. Cai, E. Lengerich, and F. Hardistry, 'Geovisualization for Knowledge Construction and Decision Support', *IEEE Computer Graphics and Applications* 24, no. 1 (February 2004): 13–17.

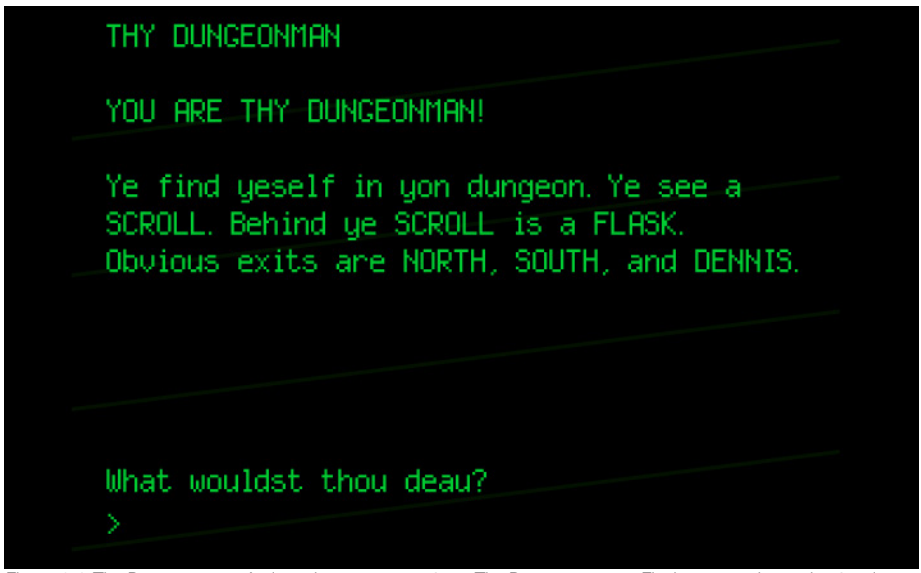

Figure 8.1 *Thy Dungeonman*. An introductory screen from *Thy Dungeonman*, a Flash-powered parody of early 1980s text adventures[7].

'YOU ARE THY DUNGEONMAN!' the screen gleefully exclaims 'Ye find yeself in yon dungeon. Ye see a SCROLL. Behind ye SCROLL is a FLASK.' Here the game uses block letters to highlight potentially interactive objects, in a way that later-day HTML conventions would use blue underlined text as links. The game ends with indication of how to traverse into the next possible area of the game (referred to as 'rooms' in early video game parlance, but currently more associated with 'levels'), before prompting the player for action: 'Obvious exits are NORTH, SOUTH and DENNIS.'

Parodying many things, from the gaming community's fascination with High Fantasy settings and dungeons to the common – and often inaccurate – evocation of Middle English for 'realism', the game's starting screen provides a good indication of the change maps made in later games. An inherently spatial medium[8], early games lacked the necessary visual components and thus relied on text to evoke such. Like the prototypical *Zork*, text adventures often left the players wondering never-ending written screens through typing commands like 'go north', 'enter house', 'cross stream', etc. *Thy Dungeonman* evokes immediate sense of abstract absurdity through the addition of a third option to the possible exists: North, South and Dennis[9]. Ironically, 'Dennis' arguably has as much of a right to exist on this list of cardinal directions as North and South. Hailing from an artificial world, and one without any graphical representation at that, *Thy Dungeonman's* cardinal directions are moored in non-diegetic

7 All game screenshots are made by the author[s].

8 Henry Jenkins, 'Game Design as Narrative Architecture,' in Noah Wardrip-Fruin and Pat Harrigan (eds), *First Person: New Media As Story, Performance, and Game*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2004, pp. 118-130.

9 Going DENNIS leads you to: "Ye arrive at Dennis. He wears a sporty frock coat and a long jimberjam. He paces about nervously. Obvious exits are NOT DENNIS.' Homestar Runner, 'Thy Dungeonman! Thy Hunger!,' 2004, http://www.homestarrunner.com/dungeonman.html.

indexicality, different from our own history of navigation and movement. The lack of a map in this case renders the directionality unmoored in any accepted coordinate system. North and South are referential to our physical world with its magnetic poles and the curvature of the globe. In the world of *Thy Dungeonman*, there is no such references, and the transition between various areas exist only as pointers in the code. The later introduction of maps into game helped cement the symbolic copying of the spatiality from our world to that of the game.

In his rundown of video games history, Mäyrä[10] notes how the introduction of graphics into world-building games came in the form of top-down ASCII symbols maps. Those types of games bridged the gap between text-only depictions, and graphical representation of space by using the limited resources available to computers of the time to evoke familiar mapping tropes from the real world. Integrating elements such as legends and generalization. Thus, the progenitor of the genre, A.I. Design's 1980 *Rogue* used known symbols existing in the computer to draw a map and populate it with various beasts and treasures (figure 8.2) in what came to be known as 'rogue-like' games. From this point on, the map slowly became a staple of video games' rising complexity and narrative building aspirations, culminating in the inclusion of a separate cloth map in *Ultima V*'s game box (figure 8.3). In the late 1980s and early 1990s, the advances in computer hardware allowed for strategy, management and simulation games in the venue of *StarCraft*, *SimCity* or *Civilization* to prosper, by making the map-based, top-down (or isometric) view an integral to this kind of genres.

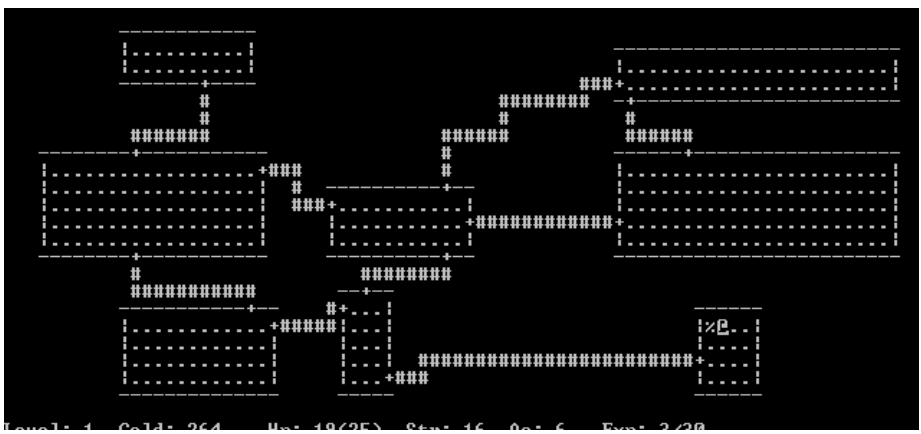

Figure 8.2 *Rogue's map*[11] *composed of ASCII symbols*.

10 Frans Mayra, *An Introduction to Game Studies*, London: Sage Publications Ltd, 2008.

11 Source: https://en.wikipedia.org/wiki/Rogue_(video_game)#/media/File:Rogue_Unix_Screenshot_CAR.PNG.

Figure 8.3 *Ultima VI*. A cloth map of fictional Brittania, included in the box set of Ultima VI.[12]

While I am not arguing that all game screens *are* maps, or that even every top-down display constitutes one, there is an undeniable linkage between the issues of spatiality in videogames, the introduction of maps as screen components and the rise of popular digital cartography outside of the domain. The proliferation of technologies for geo-visualization alongside the transferability of skills between various software-powered industries (i.e. maps and games) has led to exchange of knowledge and design concepts between the various actors involved. Moreover, once created, various forms of digital maps began colonizing the everyday practices of users, leading to acceptance of spatial interaction practices through and with the screen.[13] To illustrate, around the same time that better graphical engines allowed for maps to be included in video games, a group of GIS-trained engineers in Silicon Valley, founded the start-up *Keyhole.* The company hired as CEO John Hancke, an entrepreneur mostly known for working within video game industry, who saw great potential in Keyhole's virtual globe technology that cite as it inspiration science fiction and flight simulators [14]. The

12 Source: http://wiki.ultimacodex.com/wiki/File:U6map.jpg.

13 Chris Chesher, 'Navigating Sociotechnical Spaces: Comparing Computer Games and Sat Navs as Digital Spatial Media', *Convergence: The International Journal of Research into New Media Technologies* 18, no.3 (2012): 315-30.

14 Craig M. Dalton, 'Mashing-up Maps: Google Geo Services and the Geography of Ubiquity', University of North Carolina – Chapel Hill, 2012.

company's flagship project, Earth Viewer, meshed the functionality of 3D graphic space found in games and simulators with the accuracy and representation of virtual globes and maps. The company struggled through the 1990s, failing to find a suitable business model. However, after receiving a cash injection from In-Q-Tel, a venture capital company backed by US intelligence community in 2003, Keyhole was acquired by Google in 2004. Earth Viewer was renamed and re-developed into Google Earth, and subsequently integrated into the Google's ubiquitous Google Map's platform.[15] The link between maps and games goes both way; it is in turn telling that after serving few years as Google's Vice President of Product Management for the Geo division, Hancke subsequently set up the augmented reality games company Niantic, responsible for the hit augmented reality game *Pokémon Go* [16].

So if maps changed the ways games are played, and did so in tandem with the advancement of cartography beyond the domain of video games, what did such changes entail for the spatiality of said games? The question of spatiality has been paramount in the scholarship on (video) games since its inception. Espen Aarseth deconstructed the spatial relation between the player and the game in order to understand how rule-structures give place to emergent play. He emphasized how aspects such as level design or the use of visual cues for navigation create various perceived spatial experiences, drawing on Lefebvre's [17] notions of triadic relations between perceived, conceived and lived space. He highlighted the ways through which designers attempt to manifest such spatial perception, but quickly conflates game-space with game maps:

> [T]he landscape in Myth, for all its initial beauty, and as all computer game landscapes, merely looks like a landscape, but is really a three-dimensional scheme carefully designed to offer a balanced challenge to the player. Creating a Myth landscape, one must have in mind a detailed idea of how one wants the gameplay to commence. Such a landscape is a plan, rather than a map, and this becomes obvious if we look at the difference between single-player landscapes and multi-player landscapes.[18]

Earlier in the text, he acknowledged that this design aspect unfolds also onto the way such a spatial plan is conveyed to the player, in the form of a map:

> [T]he player, however, has a second perspective. In the upper right corner of the screen, there is a map showing one's own and enemy units as color-coded dots, to be inspected in the main ('camera') window by simply clicking on the map. Such instant discontinuous travel would be invaluable for the field marshals of the real wars of, say, the Middle Ages. However, in the case of Myth it does not add to the realism of the gameworld.[19]

---

15 Craig M. Dalton, 'Mashing-up Maps'.

16 Ryan Mac, 'The Inside Story Of 'Pokémon GO's' Evolution From Google Castoff To Global Phenomenon,' *Forbes*, August 23, 2016.

17 Henri Lefebvre, *The Production of Space*, Oxford: Blackwell, 1991.

18 Espen Aarseth, 'Allegories of Space: The Question of Spatiality in Computer Games' in Markku Eskelinen and Raine Koskimaa (eds), *Cybertext Yearbook 2000* Jyväskylä: University of Jyväskylä, 2000, p. 168.

19 Aarseth, 'Allegories of Space', p. 165.

But this acknowledgment lacks a key additional aspect that I wish to emphasize: while video games are planned and designed as spatial constructs and while the players experience them as such, *the inclusion of a map changes this experience*. Introducing a map into a game and later designing this map as a game component means embedding certain affordances into the game's interface for the players to engage (or not) with the game in a manner that would be impossible otherwise.

What Do Maps Do in Games?

There is surprisingly little written about maps within the context of games and play studies and in particular regarding their roles in digital games. Maps in this scholarship are often meshed together with other spatial modes of perception, relegated to technical or design-centered literature, or mentioned in passing as an interface element. All this is perhaps due to the fact that games scholars, like many others, can easily succumb to the 'cartographic illusion'[20], in which we equate the world with the map. A cursory search of the Digital Games Research Association's (DiGRA) paper archive for 'map' and 'mapping' yields 15 papers with 'map' in the title or abstract, but only three of them are related to the topic of game maps, while the rest use 'mapping' colloquially to indicate an exploratory approach to a topic. Cultural critique of game maps has mostly coalesced around the topics of (post)colonialism [21]. In parallel, researchers in computer science and design fields worked on maps from the perspective of traditional positivist cartography and GIS epistemology.[22] Game maps were conceived as spatial problems to solve, for example through a better path-finding algorithms[23], as a method to evaluate the complexity and difficulty of levels[24] or as an output for creative (procedural) generation techniques.[25] Other literature on maps in games has often treated them as navigational aids[26] or world building devices.[27] However, little has been done through the prism of processual cartography [28], which constitutes the map as an ontologically unstable artefact that changes ones interaction with the world as

20 Tim Ingold, *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*, London; New York: Routledge, 2000.

21 Sybille Lammes, 'Postcolonial Playgrounds: Games and Postcolonial Culture', *Eludamos. Journal for Computer Game Culture* 4, no. 1 (2010): 1–6; Souvik Mukherjee, 'The Playing Fields of Empire: Empire and Spatiality in Video Games', *Journal of Gaming & Virtual Worlds* 7, no. 3 (2015): 299–315.

22 Jeremy W. Crampton, 'Thinking Philosophically in Cartography: Toward A Critical Politics of Mapping', *Cartographic Perspectives* 12 (2002): 12–32.

23 Yngvi Björnsson and Kári Halldórsson, 'Improved Heuristics for Optimal Path-Finding on Game Maps', *AIIDE* 6 (2006): 9–14.

24 Antonios Liapis, Georgios N. Yannakakis, and Julian Togelius, 'Towards a Generic Method of Evaluating Game Levels,' In *AIIDE*, 2013.

25 Joris Dormans, 'Adventures in Level Design: Generating Missions and Spaces for Action Adventure Games,' *Proceedings of the 2010 Workshop on Procedural Content Generation in Games*, 1:1–1:8. PCGames '10. New York, NY, USA: ACM, 2010; Sam Snodgrass and Santiago Ontañón, 'Experiments in Map Generation Using Markov Chains', *Proceedings of the 9th International Conference on Foundations of Digital Games, Ser. FDG*, Vol. 14, 2014.

26 Aarseth, 'Allegories of Space.'

27 Mayra, *An Introduction to Game Studies*.

28 Martin Dodge, Rob Kitchin, and Chris Perkins (eds), *Rethinking Maps: New Frontiers in Cartographic Theory*, London: Routledge, 2009.

much as describing or guiding it. Even less were the maps considered within the broader context of the ubiquitous playfulness that permeates maps in our society (see Perkins, Lammes and Wilmott in this volume).

My aim for the rest of this chapter then is to offer a taxonomy of the intervention game developers and designers make into the game world through the various types of maps they include in their games. I build on the notion of processual cartography and interface affordances, to suggest that we can look at game maps as constitutive screen elements. While generalising – as every taxonomy does – each category stands to evoke certain affective states between the user's proprioception and the screen space to accommodate the game-makers' creative and business goals.[29]

The Taxonomy

In their work on the designed affordances of various computerized space, Boyd-Davis and Jones[30] offered a taxonomy of seven categories: simple assembly, 2D pre-pictorial space, 3D pre-pictorial space, pseudo-filmic space, hybrid space, integrated spaces combining pre-pictorial and pictorial space and pictorially dominated space. Their point of departure was the juxtaposition of pictorial and cinematic elements from traditional media with the rising practices of interactive media, a term that to them unifies such disparate objects as image-manipulation software alongside virtual worlds. The goal of the taxonomy was to chart potential future developments in screen configurations, building on then-emerging trends. I bring this as an example of an attempt somewhat similar to that of my own here. In doing so, I wish to avoid some of the pitfalls that I retrospectively see in Boyd-Davis' and Jones' work. Particularly problematic is their insistence of using older media as an anchoring point for their analysis of potential user ramifications. This is evident in their discussion of *hybrid spaces* which:

> [c]ombine some of the characteristics of simple assembly with those of three-dimensional worlds, reflecting the combined demands of presentation and of interaction. Such juxtaposition of spatial methods might be disconcerting, but in practice for involved users these spatial hybrids have become acceptable, partly through the efforts of designers to disguise incongruities. It is possible that this impression of incongruity is itself a temporary phenomenon arising from the relative unfamiliarity of these spatial configurations, and that in future they will come to be seen as transparent and natural[31].

Today, the hybrid spaces they mention are far from disconcerting and have become so mundane as to recede into the technological unconsciousness[32] – normalized to the extent

---

29 James Ash, *The Interface Envelope: Gaming, Technology, Power*, New York: Bloomsbury Academic, 2015.

30 Stephen Boyd Davis and Huw Jones, 'Screen Space: Depiction and the Space of Interactive Media,' in Joaquim Jorge, Nuno Correia, Huw Jones, and Meera Blattner Kamegai (eds), *Multimedia 2001*, Eurographics, Vienna: Springer, 2002, 165–76.

31 Boyd Davis, 'Screen Space' p. 7.

32 Nigel Thrift, 'Remembering the Technological Unconscious by Foregrounding Knowledges of Position', *Environment and Planning D: Society and Space* 22, no. 1 (2004): 175 – 190.

of not being noticed – appearing anywhere from video games to SatNav devices.[33] My taxonomy hereafter avoids the assumptions about user familiarity or the lack of thereof, in order to retain relevance over time. Instead it utilizes James Ash's notions of games designed to act as spatio-temporal conduits for certain bodily states [34] to look into the possible effects envisioned by the game-maker when choosing to include a particular map in a game.

The taxonomy if organized according to two axes (table 8.1): the table columns reference the *saliency* that the map takes vis-à-vis other screen elements, while the rows bifurcate each category into either a mutable or inert map, denoting the role it has in actively engaging the player's interaction with the game.

	Mini-map	Full size	Superimposed
Mutable	StarCraft II	Fallout 4	Civilization 5
Inert	Dragon Age: Inquisition	Don't Starve	XCOM: Enemy Unknown

Table 8.1 Proposed game maps taxonomy with a few example titles for each category.

Saliency relates to the size of the map within the game: a mini-map, a full sized map, or a game superimposed upon a map (as in many strategy games). From a user interface (UI) perspective, such a division allows classifying all manner of game genres from various eras. The benefit of such an approach is that while computing and graphic capabilities such as genre conventions might change over time, the salience of the map as part of the user interface stays more-or-less consistent. Thus, while the progenitor of the real-time strategy (RTS) genre, *Dune 2* shares little in common with the modern blockbuster military shooter like *Call of Duty: Black Ops 3*, their reliance on a map that occludes a certain part of the overall 'screen real estate' allows comparison and analysis.

Similarly, within each category, I suggest differentiating between mutable and inert maps. The former allows for player actions to be performed on the map itself, such as guiding troops in *Starcraft 2* directly through (or in) the mini-map or setting and switching objectives for player characters on a full-sized map in *Fallout 4*. The latter allows only for passive (visual) information. The term mutable was chosen with care, recognizing the history of the term in cartography[35] but also processual cartography's notion of co-constituting emergence. The image of the map becomes an immutable mobile – carrying the embedded message without changing over time. Today, while the image of the map might turn dynamic, the

33 Chesher, 'Navigating Sociotechnical Spaces.'

34 James Ash, 'Architectures of Affect: Anticipating and Manipulating the Event in Processes of Videogame Design and Testing', *Environment and Planning D: Society and Space* 28, no. 4 (August 1, 2010): 653–71; James Ash, 'Technology, Technicity, and Emerging Practices of Temporal Sensitivity in Videogames', *Environment and Planning A* 44, no. 1 (2012): 187 – 203; James Ash, *The Interface Envelope*.

35 Bruno Latour, *Science in Action*, Cambridge, MA: Harvard University Press, 1987.

assemblage around it retains this immutability.[36] Maps that allow the game to be changed and manipulated directly from within it, are introducing what we might call non-diegetic cartographic elements to the game world, evoking Ingold's cartographic illusion. Inert maps, on the other hand, exist in parallel to, but do not overlap or layer on top of the game world in question. They prevent active engagement through the map and therefore entice the player to use the map as an assistive, rather than controlling, tool.[37]

Game Affordances

This taxonomy creates a total of 6 categories (table 8.2). Each type certainly does not force some certain interaction on the player, nonetheless common functions are created by the unique affordances of the maps in each of the offered taxonomies. Consequently, this chapter aims to explore these different map types and through this detailed understanding, lead to a more nuanced exploration of the emergent relations between the designer's spatial vision and the player's derived experience. The remainder of the chapter details each of the six categories that arise from the classification, exemplifies it with a relevant computer game, selected in a convenience sample from financially and /or critically acclaimed games from the last 5 years, with which I am firmly familiar through gameplay. As part of this, I also discuss the affordances imbued within this type of a game maps. The table below should not be read as the only possible interpretation of a particular map configuration though. Rather, the additional classifications (reasons for inclusion and affordance) are presented as potential frames of analysis for each type. As the framework of processual cartography suggests, no single map can be 'downgraded' to a simple set of rules.[38] Rather, the analysis is relevant for the cases at hand. Moreover, it does so within a predominantly spatial framework, while the temporality of the game-play experience (and the map) is also of high importance for understanding the interplay between the two. This is done for two reasons. First, games and maps are principally spatial constructs, and it is of theoretic importance to relate to them as such. Second, attempts to include various notions of temporality in this taxonomy have complicated it tremendously, and I would rather present the following as an exploratory first guide to the topic, then confuse the reader.

36 Perkins, Chris. 'Plotting Practices and politics: (Im)mutable Narratives in OpenStreetMap', Transactions of the Institute of British Geographers 39, no. 2 (2014): 304-17.

37 Paul Coulton, Jonny Juck, Adrian Gradina, and Lara Salinas, 'Mapping the Beach Beneath the Street: Digital Cartography for the Playable City', in Anton Nijholt (ed.), *Playable Cities*, Gaming Media and Social Effects. Singapore: Springer Singapore, 2017, 137–62.

38 Dodge, Kitchin, and Perkins, *Rethinking Maps*.

State	Game example	Potential reasons for map inclusion	Main Map affordance
Mutable mini map	StarCraft II	Command and control, approximation of higher order schemas	Mastery
Inert mini map	Dragon Age: Inquisition	Infovis, spatial-relational cues, danger HUD	Task-Switching
Mutable full-sized map	Fallout 4	Prompting, extending game play, environmental storytelling	Demand
Inert full-sized map	Don't Starve	Orientation, distraction, environmental storytelling	Challenge
Mutable superimposed map	Civilization 5	Simulation, god-view, world-building, geodesy	Generalization
Inert superimposed map	XCOM EU	Strong cartographic illusion, primacy of mechanics	Abstraction

Table 8.2 *Taxonomy categories*. With suggested maps' affordances and potential functions.

Mutable Mini Maps

In this type of map, the player has to divide her attention between the main view on the screen, and an additional smaller section, which depicts a generalized representation of the entire game world, or – on rarer occasions – of the particular level in which she finds herself. The mutable variant further encumbers the players' attention by making it possible to act *on* the map, thus risking missing important details on the main view while engaging with the map, and vice versa. A staple of the Real Time Strategy genre games – although found in other types of games as well – the mutable mini map requires one to assume the simultaneous role of a general and a foot soldier, maintaining god-like view of the game-space while dealing with the minutia of facilitating simple interactions for various units or actions. When the main game is presented in first or third person view, this type often acts as a shortcut for traveling or commanding non-player units around.

Figure 8.4 *Game view from StarCraft 2.*

In the game *StarCraft 2*, the majority of the screen is presented from above with a mini-map added in the down left-most corner. The map allows zooming in on a certain area of the screen as well as issuing move or attack commands for selected units and setting up rally points for buildings generating such units. A fast game of warfare, where players must balance between their individual command of units ('micro') and the overarching game economy of gathering and spending resources ('macro'), the mini-map is redundant for most new players who will probably be already overwhelmed by the other UX elements. However, at higher mastery levels, when actions become automated and the player learns to divide her attention across various elements, the mutable mini map becomes a necessary element for advancement. Its mutability affords a mastery of the game through learning when to use it and when not to.

Inert Mini Maps

This type of map takes on an assistive capacity, allowing momentary correlation of various screen actions. In a way, this type of mapping interface is the most familiar to players. If the screen space is taken as an approximation of physical space – as it is often with first-person games – then the mini-map functionality reflects one's familiarity with the need to consult a separate map. The inert mini map is probably the most common of the map arrangements in games, found in most first- and third-person view games, as well as strategy games. The inertness of the map does not in this case indicate that the map is completely static, such game maps can include moving elements, in a similar way to how a SatNav screen might be read. Instead, the inertness prevents the player from interacting with a map as a separate UI element forcing her to act upon the information and return to the 'other' game-space. In this way, the map affords the same task-switching behavior that underlines the uses of paper maps 'in the world'. Arguably, it might also evoke for the player the traditional

actions associated with holding a map: navigating, path-finding, conducting warfare [39], as it assumes a territory that must be dominated and the prerogative of the player to be the one who assert dominance on it through the map

Figure 8.5 *Game view from Dragon Age: Inquisition.*

Just like in the previous example, the map in *Dragon Age: Inquisition* is positioned in the periphery of the player's vision, on the bottom leftmost corner of the screen. Similar to a SatNav displays, it always centers and aligns itself around you. The display is filled with simple-to-read icons, like quests and resource markers. Such a map engenders the space as a resource to be consumed[40], but unlike its mutable variant, does not distract fully from the other game-views. By limiting the interaction available to the player to passive information consumption only, the game designer using inert mini maps tries to partially occlude and remove it from the players' foci. This map teaches the player to glance, to be viewed in-relation to and to act as secondary from the main game view. It is generalized and abstract enough to remove any non-necessary information, allowing players to recognize spatial points relevant to their game and return to enacting the actions cued by the map in the main view. It affords the experienced player, who becomes adept at task-switching, to never let her eyes stray for too long or too far from the main game, serving an augment for the player's spatial memory and attention.

39 Nick Dyer-Witheford and Greig De Peuter, *Games of Empire: Global Capitalism and Video* Games, Minneapolis: University of Minnesota Press, 2009.

40 Rankin, 'After the Map: Cartography, Navigation, and the Transformation of Territory in the Twentieth Century', Cambridge, MA: Harvard, 2011.

Mutable Full-sized Maps

Including a full-sized map in your game is a bold statement for a designer. It means that the map serves an important enough function to stand on its own, that it is a major component of the game play and that the designers are confident in their skills to make the map interesting and engaging on its own accord. As its name suggests, such a map takes the entire screen of the game, obstructing (or being strongly overlaid over) the rest of the game view. Adding mutability, i.e. the inclusion of interactivity and the ability to make choices on the map that affect the rest of the game-space, adds another component of risk. Players may become either engrossed or frustrated with the actions afforded by the full-size map, taking away from the time spent in other screens.

Recent proliferation of the so-called 'open world' games showcases such a danger. Those games are often centered around creating a plethora of self-contained activities in different parts of the game. The full-sized map affords one to thoroughly 'get lost in the map', offering to players an opportunity to envision and plan game activities in the map before (or even instead) or performing them in-game. This allows the game designers to entice the players with the promise of future activities, creating anticipation for the type of things to do once the destination is reached. It extends the game-play through additional activities and potentially provides additional world-building and storytelling by way of enhanced descriptions of objects and places in the world. Such maps also often allow the opportunity to facilitate 'fast-travel' or other kind of rapid re-shuffling of the game-space. In such way the map acts as a gateway to the other screens, and promises future enjoyment of the game.

Figure 8.6 *The map view from Fallout 4*.

In *Fallout 4*, the map appears as a diegetic element within the game world – inside a dedicated device worn on the player avatar's wrist. However, this is of little consequence to the overall taxonomy category, since the main affordance of the full-sized mutable map is a complete demand for the player's cognitive resources. Such a map removes some of

the inherent indexicality associated with cartographic displays, usually requiring the user to juxtapose markers on the map with markers in the world.[41] Instead, it offers a possibility of complete immersion into the world-as-map offering a similar illusion to this experienced by users of virtual globes such as Google Earth.[42] The map becomes the main site of user's attention, and the ability to perform actions on it furthers this cartographic illusion of dissolving mapped and 3D displays. In the case above, the map allows Fallout 4 players, who inhabit the body of a post-apocalyptic hero, setting up and prioritizing location and quest markers, viewing whether a location was 'complete or not, moving between established outposts and friendly factions' bases, and even setting up trade networks between those outposts, enacting the movement of people and goods in the game-world with click of a pointer. The map here serves as a second-hand approximation of the game world, but with the added benefit of being able to immediately project the player's will onto the world through a familiar interface, fulfilling the age-long cartographic desire.

Inert full-sized Maps

Just like the full-sized mutable map, this one demands for the player's attention, by imposing itself on the main screen and obstructing the rest of the view. However, by making this map into a non-interactable UI element, the designers somewhat change the affordances of such map. By being full-sized the map forces the player to always cycle between the map view and the other main game-world view(s). However, making it inert means that all information glanced from the map must be held in the player's short-term memory and acted upon separately. It is the opposite to the 'exploratory approach' to geo-visualization-associated with modern cartographic displays – which prioritizes reducing the user's cognitive load [43]. Instead, such maps induce stress and the desire to return to the other activities. This is even truer if opening such map does not *pause* the game, incurring the danger of missing out or losing while the map is observed. After all, staring at a static image without the possibility of interacting with it is somewhat antithetical to the fast-paced medium of video games, and the medium has trained players to act, rather than wait or observe.[44]

Therefore, such a map is often used to challenge the players rather than assist them. It is commonly observed in the genre of survival games, where the main challenge is not losing rather than winning. In such games, the engaging element, or central game-loop is often working against a multitude of elements set against the players, including both external enemies common to other games, but also 'internal' elements to be managed, such as the avatar's hunger or tiredness.

---

41 November, Camacho-Hübner, and Latour, 'Entering a Risky Territory.'

42 Paul Kingsbury and John Paul Jones, 'Walter Benjamin's Dionysian Adventures on Google Earth,' *Geoforum* 40, no. 4 (2009): 502–513.

43 MacEachren and Kraak, 'Research Challenges in Geovisualization.'

44 Konstantin Mitgutsch and Matthew Weise, 'Subversive Game Design for Recursive Learning', *Think Design Play: The Fifth International Conference of the Digital Research Association*. Hilversum, 2011.

Figure 8.7 *The map from view from Don't Starve*.

An inert full-sized map prevents the player from observing the game, not knowing what might be sneaking up on them. Even when the game does pause, the map obstructs the view, requiring devoting short term memory to further planning and action. However the map is not an impediment, but a challenge to be overcome since it can be extremely useful, as in the case of *Don't Starve*, where the map automatically shows all the explored terrain and some of the game-play relevant points of interest, both created and uncovered by the player. The map can be zoomed in or out, albeit lacking re-scaling of icons the zoomed-out version cannot be used for precise resource assessment in the same way the zoomed-in version can (the icons become cluttered together in adjacent areas). As the game features a constant progression of time – with nighttime being substantially more dangerous – looking at the map always wastes one of the game prime resources. Thus this map confirms the conventions of the inert full-sized map and acts as an additional challenge for the player, while rewarding those who learn when to use and when not to use it.

Mutable Superimposed Maps

The last two categories, organized according to size are the superimposed maps. A staple of the empire management game, the map is not separated from the main game view in a mini-map or another screen, but rather the game occurs on top of the map. It is worth noting again that not all top-down or isometric perspectives necessitates the use of a superimposed map. The level of visual realism presented in the game and the zoom options are all points of consideration when analyzing whether the game presents a superimposed map. Thus it is prominently featured in many 4X-type strategy games (focused on eXploration, eXploitation of resources, eXpansion into territory and subsequent eXtermination of opposition). Yet, many 'Japanese-type' Role-Playing Games (JRPGs) fall under this category, when including a world-wondering mode that combines navigation and exploration atop a hybrid map-world. The difference between a full-sized map and a superimposed one focuses on the bifurcation between a 'map' and 'the reality out there' in the context of the game. If the game recognizes and this divide, its map can

be categorized as a full size one, if the game insists on converging the map onto the world (and vice versa) – it should be recognized as a superimposed one.

The mutability in question makes it even trickier to distinguish between a top-down view and a super imposed map. However, I would argue here that a superimposed map still maintains some of the features associated with maps, and imposes a certain rhetoric of truth and objectivity over the player's perception of the game-world.[45]

Figure 8.8 *Main view from Civilization 5: Brave New World*. Notice the juxtaposition of resource markers, real-life topography and borders.

In *Civilization 5: Brave New World*, the player takes control over a culture from mankind's history, leading it from pre-history and into the modern age. While 'officially' inhabiting the avatar of a leader from the civilization's history, such as Catherine the Great of Gandhi, the player is in effect presented with a constant god-like view of the terrain, starting from the area around her single settlement and gradually expanding to encompass the entire world. This view shows the hybridity of the world-map, showcasing military units or landscape features such as cities or farms built by your workers, but also pure cartographic features like borders, trade routes or weapon strike ranges. It tells the player that the world and the map are interchangeable, in a similar way to how the mutable full-size map does, but additionally imposes colonial notions where '[s]erious expansionist geopolitics is represented as being playful, even fun.'[46]

Mutable Superimposed Maps

The last category of the taxonomy is the rarest of them all. So far, I have identified only one game that could be recognized within this framework, and it will serve as the main example

45 Lisa Parks, 'Digging into Google Earth: An Analysis of 'Crisis in Darfur' ', *Geoforum*, Themed Issue: The 'view from nowhere'? Spatial politics and cultural significance of high-resolution satellite imagery, 40, no. 4 (July 2009): 535–45.

46 Mukherjee, 'The Playing Fields of Empire,' p. 303.

for this category. In the game *XCOM: Enemy Unknown*, main game-play loops occur over two inert superimposed map. The player assumes the role of a commander of clandestine para-military organization, sponsored by a shadowy council of world leaders to stop an alien invasion. To manage the global panic level, the player is presented with the 'Holoscape' or 'Geoscape' that shows the world as map, with various emergencies popping-up requiring the commander's attention. The actions cannot be performed on the globe itself, but the consequences of choices are reflected on it and affect it.

However, the main time in the game is spent on another, more prominent example of a superimposed full-sized map. Whenever an active military mission is required, the player directly commands a small team of agents, from a top-down view (figure 8.9). It features a semi-translucent grid-that appears when movement is required, and crucial in the game's intricate spatial challenge of positioning and flanking. Usually, the orders are carried out by your agents immediately and without questioning – as per the trope for tactical or strategy games. However – and this is important for the definition of superimposed maps – when the situation turns against you, the soldier's morale can break in which case they might refuse orders or act erratically. What leads to such a situation is often tied to poor spatial reasoning – uncovering enemies on a territory without scouting it first, allowing your-self to be flanked due to a poor planning of the engagement area or allowing an enemy with explosives to destroy or alter the environment. In such way, the game ties the artificial Cartesian grid logic[47] to the existing object in the game-world. The map is always present 'under' the world and the domination of territory is the goal rather than the conquest of enemies. In this, the inert superimposed map engenders an abstraction of the world on top of the map, but relates the two in a way that is different from the mutable variant: as an imprint or a schema, rather than a control device.

Figure 8.9 *The Mission View From XCOM: Enemy Unknown*. Note the shield icons indicating the quality of cover and the direction from which it protects.

47 Lefebvre, *The Production of Space*.

Conclusion

In this chapter I charted the affordances that maps present in video games, from the perspective of what kind of action they allow or expect from the players. I relied on the dual propositions of critical cartography and games and play studies, to assess how learned conventions from real-world and various game-world maps alike might contribute to the designers' expectations of the player's actions. The taxonomy above offers a convenient framework to discuss existing and future game maps from critical design perspective.

While sound, this approach is by no means sufficient to exploring the role of maps in games. As mentioned, the temporal aspect is mostly absent in this breakdown. The duration and sequence of map deployment changes greatly the experience of the game, and the same image in the form of an inert full-size map but presented either only in the beginning of the level or as an on-demand pop-up changes drastically the expectation from the player.

Moreover, we should be always wary of imposing taxonomical boundaries when it comes to the domain of human experience, which are irreducible and personal. Following the principles of non-representation theory and processual understanding of cartography [48], this chapter aims to be the first step in one's toolbox. Scholars, players, designers and others interested in making and playing games are invited to use it in order to delve deeper into the rapidly developing world of maps-as-game-elements.

List of Games cited

Artificial Intelligence Design. *Rogue*. Amiga, Amstrad CPC, Android, Atari 8-bit, Atari ST, Commodore 64, DOS, GP2X, GP32, Linux, Macintosh, Roku, TRS-80 CoCo, ZX Spectrum, 1984.

Bethesda Game Studios, *Fallout 4*, PlayStation 4, Windows, Xbox One, 2015.

BioWare Corporation, *Dragon Age: Inquisition*, PlayStation 3, PlayStation 4, Windows, Xbox 360, Xbox One, 2014.

Blizzard Entertainment Inc. *StarCraft*, Macintosh, Windows, 1998.

Blizzard Entertainment Inc. *StarCraft II*, Macintosh, Windows, 2010.

Infocom, Inc. *Zork: The Great Underground Empire. Amiga, Amstrad CPC, Amstrad PCW, Apple II, Atari 8-bit, Atari ST, Browser, Commodore 16, Plus/4, Commodore 64, Commodore 128, DOS, Macintosh, PC-98, PC Booter, Tatung Einstein, TRS-80, TRS-80 CoCo. 1980.*

Firaxis Games, Inc. *Sid Meier's Civilization V: Brave New World*. Linux, Macintosh, Windows, 2013.

Firaxis Games, Inc. *XCOM: Enemy Unknown*. Android, iPad, iPhone, Linux, Macintosh, PlayStation 3, Windows, Xbox 360, 2012.

Klei Entertainment Inc. *Don't Starve*. Linux, Macintosh, PlayStation 4, Windows, 2013.

Maxis Software, Inc. *SimCity*. Acorn 32-bit, Amiga, Amstrad CPC, Atari ST, BBC Micro, CDTV, Commodore 64, DOS, Electron, FM Towns, Macintosh, OS/2, Palm OS, PC-98, Sharp X68000, SNES,

48 Nigel Thrift, *Non-Representational Theory: Space, Politics, Affect*, London: Routledge, 2008; Dodge, Kitchin, and Perkins, *Rethinking Maps*.

Symbian, Wii, Windows, Windows 3.x, ZX Spectrum, 1989.

Niantic, Inc. *Pokémon GO*. Android, iPad, iPhone, 2016.

ORIGIN Systems, Inc. *Ultima V: Warriors of Destiny.* Amiga, Apple II, Atari ST, Commodore 64, Commodore 128, DOS, FM Towns, NES, PC-88, PC-98, Sharp X68000, Windows, 1988.

Treyarch Invention, LLC. *Call of Duty: Black Ops III*. PlayStation 3, PlayStation 4, Windows, Xbox 360, Xbox One, 2015.

Videlectrix. *Thy Dungeonman.* Browser. 2004.

Westwood Studios, Inc. *Dune II: The Building of a Dynasty.* Acorn 32-bit, Amiga, DOS. 1992.

References

Aarseth, Espen, 'Allegories of Space: The Question of Spatiality in Computer Games' in Markku Eskelinen and Raine Koskimaa (eds) *Cybertext Yearbook 2000* Jyväskylä: University of Jyväskylä, 2000, pp. 152-171.

Ash, James, 'Architectures of Affect: Anticipating and Manipulating the Event in Processes of Videogame Design and Testing', *Environment and Planning D: Society and Space* 28, no. 4 (August 1, 2010): 653–71.

Ash, James, 'Technology, Technicity, and Emerging Practices of Temporal Sensitivity in Videogames', *Environment and Planning A* 44, no. 1 (2012): 187 – 203.

Ash, James, *The Interface Envelope: Gaming, Technology, Power*, New York: Bloomsbury Academic, 2015.

Björnsson, Yngvi and Kári Halldórsson, 'Improved Heuristics for Optimal Path-Finding on Game Maps', *AIIDE* 6 (2006): 9–14.

Boyd Davis, Stephen and Huw Jones, 'Screen Space: Depiction and the Space of Interactive Media,' in Joaquim Jorge, Nuno Correia, Huw Jones, and Meera Blattner Kamegai (eds), *Multimedia 2001*, Eurographics, Vienna: Springer, 2002, 165–76.

Chesher, Chris, 'Navigating Sociotechnical Spaces: Comparing Computer Games and Sat Navs as Digital Spatial Media', *Convergence: The International Journal of Research into New Media Technologies* 18, no.3 (2012): 315-30.

Coulton, Paul, Jonny Huck, Adrian Gradinar and Lara Salinas, 'Mapping the Beach Beneath the Street: Digital Cartography for the Playable City', in Anton Nijholt (ed.), *Playable Cities*, Gaming Media and Social Effects. Singapore: Springer Singapore, 2017, 137–62.

Crampton, Jeremy W. 'Maps as Social Constructions: Power, Communication and Visualization', *Progress in Human Geography* 25, no. 2 (June 1, 2001): 235–52.

Crampton, Jeremy W. 'Thinking Philosophically in Cartography: Toward A Critical Politics of Mapping', *Cartographic Perspectives* 12 (2002): 12–32.

Crampton, Jeremy W. and John Krygier, 'An Introduction to Critical Cartography', *ACME: An International E-Journal for Critical Geographies* 4, no. 1 (2005): 11–33.

Dalton, Craig M. 'Mashing-up Maps: Google Geo Services and the Geography of Ubiquity', University of North Carolina – Chapel Hill, 2012. http://oatd.org/oatd/record?record=oai%5C%3Adc.lib.unc.edu%5C%3Aetd%5C%2F4754.

Dodge, Martin, Rob Kitchin and Chris Perkins (eds) *Rethinking Maps: New Frontiers in Cartographic Theory*, London: Routledge, 2009.

Dormans, Joris, 'Adventures in Level Design: Generating Missions and Spaces for Action Adventure

Games,' *Proceedings of the 2010 Workshop on Procedural Content Generation in Games*, 1:1–1:8. PCGames '10. New York, NY, USA: ACM, 2010.

Dyer-Witheford, Nick, and Greig De Peuter, *Games of Empire: Global Capitalism and Video* Games, Minneapolis: University of Minnesota Press, 2009.

Elden, Stuart, 'There Is a Politics of Space Because Space Is Political: Henri Lefebvre and the Production of Space', *Radical Philosophy Review* 10, no. 2 (2007): 101–116.

Harley, Brian, 'Maps, Knoweldge and Power,' in Denis Cosgrove and Stephen Daniels (eds), *The Iconography of Landcape*. Cambridge: Cambridge University Press, 1988, 277–312.

Homestar Runner, 'Thy Dungeonman! Thy Hunger!,' 2004. http://www.homestarrunner.com/dungeonman.html.

Ingold, Tim, *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*, London; New York: Routledge, 2000.

Jenkins, Henry, 'Game Design as Narrative Architecture,' in Noah Wardrip-Fruin and Pat Harrigan (eds), *First Person: New Media As Story, Performance, and Game*, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 2004, pp. 118-130.

Kingsbury, Paul and John Paul Jones, 'Walter Benjamin's Dionysian Adventures on Google Earth,' *Geoforum* 40, no. 4 (2009): 502–513.

Lammes, Sybille, 'Digital Mapping Interfaces: From Immutable Mobiles to Mutable Images', *New Media & Society* (2016).

Lammes, Sybille, 'Postcolonial Playgrounds: Games and Postcolonial Culture', *Eludamos. Journal for Computer Game Culture* 4, no. 1 (2010): 1–6.

Latour, Bruno, *Science in Action*, Cambridge, MA: Harvard University Press, 1987.

Law, John, 'Introduction: Monsters, Machines and Sociotechnical Relations,' in Law, John, *A Sociology of Monsters: Essays on Power, Technology, and Domination*, London: Routledge, 1991, 1–25.

Lefebvre, Henri, *The Production of Space*, Oxford: Blackwell, 1991.

Liapis, Antonios, Georgios N. Yannakakis and Julian Togelius, 'Towards a Generic Method of Evaluating Game Levels,' In *AIIDE*, 2013. http://sentientsketchbook.antoniosliapis.com/research/towards_a_generic_method_of_evaluating_game_levels.pdf.

Mac, Ryan, 'The Inside Story Of 'Pokémon GO's' Evolution From Google Castoff To Global Phenomenon,' *Forbes*, August 23, 2016. http://www.forbes.com/sites/ryanmac/2016/07/26/monster-game/.

MacEachren, Alan M. 'Visualization-Cartography for the 21st Century,' In *Proceedings of the Polish Spatial Information Association Conference,* Warsaw, Poland, 1998.

MacEachren, Alan M., Mark Gahegan, William Pike, Isaac Brewer, Guoqing Cai, Eugene J. Lengerich and F. Hardistry, 'Geovisualization for Knowledge Construction and Decision Support', *IEEE Computer Graphics and Applications* 24, no. 1 (February 2004): 13–17.

MacEachren, Alan M. and Menno-Jan Kraak, 'Research Challenges in Geovisualization', *Cartography and Geographic Information Science* 28, no. 1 (January 1, 2001): 3–12.

Mayra, Frans, *An Introduction to Game Studies*, London: Sage Publications Ltd, 2008.

Mitgutsch, Konstantin and Matthew Weise, 'Subversive Game Design for Recursive Learning', *Think Design Play: The Fifth International Conference of the Digital Research Association*. Hilversum, 2011.

Mukherjee, Souvik, 'The Playing Fields of Empire: Empire and Spatiality in Video Games', *Journal of Gaming & Virtual Worlds* 7, no. 3 (2015): 299–315.

November, Valérie, Eduardo Camacho-Hübner and Bruno Latour, 'Entering a Risky Territory: Space in the Age of Digital Navigation', *Environment and Planning D: Society and Space* 28 (2010): 581-599.

Parks, Lisa, 'Digging into Google Earth: An Analysis of 'Crisis in Darfur' ', *Geoforum*, Themed Issue: The 'view from nowhere'? Spatial politics and cultural significance of high-resolution satellite imagery, 40, no. 4 (July 2009): 535–45.

Perkins, Chris, 'Plotting Practices and politics: (Im)mutable Narratives in OpenStreetMap', Transactions of the Institute of British Geographers 39, no. 2 (2014): 304-17.

Rankin, William J. After the Map: Cartography, Navigation, and the Transformation of Territory in the Twentieth Century, Cambridge, MA: Harvard, 2011.

Snodgrass, Sam, and Santiago Ontañón, 'Experiments in Map Generation Using Markov Chains', *Proceedings of the 9th International Conference on Foundations of Digital Games, Ser. FDG*, Vol. 14, 2014.

Thrift, Nigel, *Non-Representational Theory: Space, Politics, Affect*, London: Routledge, 2008.

Thrift, Nigel, 'Remembering the Technological Unconscious by Foregrounding Knowledges of Position', *Environment and Planning D: Society and Space* 22, no. 1 (2004): 175 – 190.

BIOGRAPHIES

Clancy Wilmott is a senior tutor in the Department of Geography at the University of Manchester. She has recently completed her PhD in Human Geography (also at the University of Manchester) on the indeterminacies of mobile mapping in Sydney and Hong Kong. She enjoys playing in grids and flying through networks in order to find gaps in the system and opportunities for disruption.

Chris Perkins is Reader in Geography at the University of Manchester. His research interests lie at the interface between mapping technologies and social and cultural practices, with ongoing research into performative aspects of contemporary mapping behavior, an interest in sensory mapping, and an emerging interest in play. Chris was Chair of the International Cartographic Association Maps and Society Commission and is author of numerous single and co-authored books and academic articles. He is also a high handicap golfer.

Sybille Lammes is Associate Professor at the Centre for Interdisciplinary Methodologies at the University of Warwick. She has been a visiting Senior Research Fellow at The University of Manchester, and has worked at Utrecht University and the University of Amsterdam. Her background is in media-studies and game-studies, which she has always approached from an interdisciplinary angle, including cultural studies, science and technology studies, and critical geography. She is currently the principal investigator of the ERC Proof of Concept *Playfields.*

Sam Hind is a Teaching Fellow at the University of Warwick. He recently completed his PhD in the Centre for Interdisciplinary Methodologies. His research focuses on mobile, digital mapping technologies and their impact on everyday life.

Alex Gekker is a lecturer at the University of Amsterdam. He completed his PhD in Utrecht University on the interplay between modern map-making practices, digital interfaces and the power that arises in between them. His research interest includes gamification, datification and quantification of life, especially reflected in the attention economy.

Emma Fraser is a PhD researcher in Sociology at the University of Manchester. Emma's work is focused on urban ruins and decay, post-apocalyptic video games, and the writings of Walter Benjamin. Her research also covers urban imaginaries, space and place in games, memory and nostalgia, and theories of modern experience.

Daniel Evans is a PhD student in Human Geography at the University of Manchester. His research primarily explores social inequality and race in the context of the UK. However, as a Geography graduate from the same institution, he has a keen interest in cartography and has assisted collective works undertaken by the authors of this book.

Theory on demand #21

Playful Mapping in the Digital Age

The playful mapping collective

From Mah-Jong, to the introduction of Prussian war-games, through to the emergence of location-based play: maps and play share a long and diverse history. This monograph shows how mapping and playing unfold in the digital age, when the relations between these apparently separate tropes are increasingly woven together. Fluid networks of interaction have encouraged a proliferation of hybrid forms of mapping and playing and a rich plethora of contemporary case-studies, ranging from fieldwork, golf, activism and automotive navigation, to pervasive and desktop-based games evidences this trend. Examining these cases shows how mapping and playing can form productive synergies, but also encourages new ways of being, knowing and shaping our everyday lives. The chapters in this book explore how play can be more than just an object or practice, and instead focus on its potential as a method for understanding maps and spatiality. They show how playing and mapping can be liberating, dangerous, subversive and performative.

ISBN: 978-94-92302-13-7

Institute of network cultures