

# **Ambiguous Play Pattern: A Philosophical Approach to the *Prospect-Refuge Theory* in Urban Open World Games by Merging Deleuze/Guattari and de Certeau**

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“Architecture has always fictionalised reality and culture through turning human settings into images and metaphors of idealised order and life, into fictionalised architectural narratives” (Pallasmaa 2011: 19).

## **Thematic Introduction**

The last decade of computer games brought a shift towards vast *open world* game spaces which grow bigger and more complex with every year respectively every new installement of established franchises like ASSASSIN’S CREED, DRAGON AGE, GRAND THEFT AUTO and so forth. The assertion here is, that, despite the fact that these types of game worlds strongly are focused on fruitful dichotomies between land- and cityscapes since their early beginnings, there is a shift away from coherent story arcs towards an accumulation of hierarchies of side quests that often also serve as many genres as possible.<sup>1</sup> Within this development the simulated cities and their architectures more and more become the focus of game design. One can say, that in some aspects the atmosphere of the cities and their spatial challenges replaces strict narration via non-linear appropriation by the players.<sup>2</sup> The phenomenon of freely navigable and explorable game worlds reaches its peak with games like DEAR ESTHER (The Chinese Room 2012) or PROTEUS (Ed Key/David Kanaga 2013):<sup>3</sup> “As a new phenomenon, these games have become called explorative games. These games usually lack objectives and almost exclusively focus on the exploration of the surroundings and the narrative. They ground their existence on the ‚function‘ of the freedom to explore – the player is brought into the world to explore and to gaze“ (Gehmann/Reiche 2014: 444). Already in 2006 Rolf Nohr thematised this development of game intrinsic space as an independent exploration gameplay: “Der Spielraum muss hier nicht mehr möglichst effektiv (im Sinne zeitkritischen Rätsellösens, Kämpfens oder Rennens) durchmessen werden, sondern ist grundsätzlich darauf angelegt, als eigenständige Komponente des Spiels sekundär (also nach Abarbeitung primärer Siegbedingungen) durch Handlung angeeignet zu werden. Gerade ein Spielkonzept wie das

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1 Benjamin Beil already defined games like GRAND THEFT AUTO V (Rockstar North 2013) as “Genreakkumulation” – genre accumulations (Beil 2015: 50-60).

2 Of course there exist also examples like THE WITCHER III: WILD HUNT (CD Project RED 2015), where complex and vast urban places are on a par with a thoughtful designed, rich story arc. But such exceptions prove the rule. Another example for urban atmosphere as a guiding agent in an *open world* game is THE ELDER SCROLLS V: SKYRIM (Bethesda 2011). According to Baumgartner its depiction of urbanity seems, in all its distilled fragmentation, more coherent as in prior *open world* role playing games (Baumgartner 2014: 89).

3 With several deductions JOURNEY (Thatgamecompany 2012) or EVERYBODY IS GONE TO THE RAPTURE (The Chinese Room 2015) both also are computer games that fit in this category even though their game worlds are very linear arenas with a stringent and guided navigation. With experiencing an atmosphere laden world of attuned sceneries and compiling a sort of cryptic narrative from *embedded spaces* (Totten 2014: 279) and different methods of *environmental storytelling*, the exploration and thus appropriation of the game space here also is the central game mechanic.

von GTA hat dieses Handeln und Bewegen im Raum jenseits der eigentlichen Spielaufgabe zum fast schon selbstständigen Prinzip erhoben” (2006: 18). Such is the cause for vast and complex grown cityscapes as main agent in *open world* games. The French Revolution era Paris of ASSASSIN’S CREED UNITY (Ubisoft 2014) will function as case study and therefore as pars pro toto for games like INFAMOUS: SECOND SON (Sucker Punch Productions 2014), WATCH DOGS (Ubisoft 2014), DYING LIGHT (Techland 2015) or BATMAN ARKHAM CITY (Rocksteady 2011) and BATMAN ARKHAM KNIGHT (Rocksteady 2015), only to name a few works currently released.

In order to analyze and reveal the importance of buildings and cityscapes and thus the spatiotemporal appropriation in context of *open world* game spaces a transdisciplinary approach is needed. The paper focuses on two theoretical complexes by Deleuze/Guattari and by de Certeau, which both consist of dichotomous aspects. So in oscillating between two different modes of perception players tilt between correlating and complementary gameplay styles that – by navigating urban game spaces – also are interfering with the widely known *prospect-refuge theory* which is one of the most used gameplay patterns in computer games. Therefore, and this is the central assumption of this paper, said ambiguous play patterns are caused by multistable cityscapes. The momentum of the staged city as spatial (often vertical) challenge and its systems of meaning in context of motion patterns, courses of action and game mechanics will be presented. Besides philosophy it is indispensable to incorporate theories and methods of research fields like urbanism as well as architectural history and theory for the purpose of a coherent reasoning.

### **Theoretical Introduction**

Computer games simulate a spatiotemporal experience as “artificial navigation” (Günzel 2008: 172). The player induces movement patterns and courses of action due to the rhythmic structuring of the gameworld. Totten called this the *form-void* theory and explicates (Totten 2014: 106, 108): “Gamespaces are often based on mechanics of movement through negative space, using positive elements as ledges or supports for a player’s journey” (ibid.: 107). Game intrinsic simulated architectures – and therefore urban game spaces – function like a mirror to the players’ respectively their avatar’s movement patterns and courses of action: “[I]nstead of describing what the building is for, they described what actions a person inside the building takes” (Totten 2008: 8). As one can see best in platformer games like SUPER MARIO WORLD (Nintendo 1990) or RAYMAN: LEGENDS (Ubisoft 2013) all structures are drafted under the aegis of fluid gameplay. Rhythmic solutions for spatiotemporal appropriations are very important.

At first sight this seems like an overall basic delineation but with bringing architectural theory and philosophy on spatiotemporal arrangements into context, it is clear that game world’s architectures always communicate the players’ agency by rhythmical coding of simulated landscapes and buildings. The game intrinsic urban arrangement is made out of polygon meshes, textures, mapping filters and so forth and embodies crystallized rhythmic gameplay. Players and game worlds perform a bond. Finnish architect and philosopher Juhani Pallasmaa defines architecture in a way that fits perfectly to level structures and game intrinsic space: “Architecture is our primary instrument in relating us with space and time, and giving these dimensions a human measure. It domesticates limitless space and endless time to be tolerated, inhabited and understood by humankind. [...] [It provides] the ground for perception and the horizon of experiencing and understanding the world” (Pallasmaa 2012: 19, 44). This gets more evident by taking Swiss architect Peter Zumthor’s definition of physical real buildings into equation. According to him architecture is shell and background of life passing by and a

container for the rhythm of movement (Zumthor 2010: 12). The consensus is evident: Shell and background are navigable, walkable and playable level structures as well as non-walkable sceneries and the enclosing *skybox*. The players or their avatars represent life passing by. Rhythm refers to the gameplay itself – motion patterns and spatiotemporal appropriations which derive from the intended game mechanics.

In this context it is important to reflect on Henri Lefebvre's theory of *rhythmanalysis* which he claimed to be adaptable on every possible topic from psychological and biological to artificial and fictional (Lefebvre 2014). Not only his take on rhythm and urban space but also his understanding that rhythm is something organic interspersed with cyclical and linear repetitions (ibid.: 15-18) is fruitful and relates to the said motion patterns and courses of action which the players have in urban *open world* games. They have to drill basic movement strategies and actions in order to let the players effectively interact with spaces, places and distinct structures. Also every new gained skill has to be practiced in order to be performed at the right time and in the right place – in rhythm with the appropriated architecture so to speak. As said above the multistable cityscapes function as mirror or crystallized notation of the players' agency. Therefore the simulated urban infrastructure embodies all possible repetitions by its rhythmized architectures.

Lefebvre's idea of the dialectical system of cyclical and linear repetitions also relates to quests and missions accomplished in the game space: "The linear would come rather from social practice, therefore from human activity: the monotony of actions and movements, imposed structures. Great cyclical rhythms last for a period and restart: dawn, always new, inaugurates the return of the everyday" (ibid.: 18). According to this linear repetition can mean running and climbing or the programmed sequence of opening a chest. Those linear repetitions are implied in facades and streets of a playable cityscape while cyclical repetition can mean a certain type of quest or mission, which in itself again combines linear repetitions. Reading or decoding urban game space as a player always means reflecting on the amount and combination of movement patterns and actions and thus repetitions in all their different corresponding or complementary dialectics.<sup>4</sup> The *rhythmanalysis* always is a view into actions yet to come and places yet to navigate in context of the avatar's current relation to a complex urban game space. Especially redundant sets of buildings and quests foreshadow the repetition. All the intended agency is inscribed in them.

The idea of rhythm and repetition in architectural representation necessarily leads to Jean Baudrillard. Already in 1999 he discussed contemporary physical real buildings and their lack of coherence and urban connectivity as well as their missing ability in generating atmosphere (1999). He defines buildings as *virtual architecture* whose scenic space is lost and which solely embody their pure function with technical feasibility. In this context, Baudrillard also uses the term of *clone architecture* whose impression of emptiness does not allow to refer beyond itself. For example to him the 1995 built *Guggenheim Bilbao* museum by Frank O. Gehry denotes such a *virtual architecture* because its architectural language – its building volumes, materials structures – can be modified for multiple building types (Baudrillard 1999: 12, 20, 24, 25, 26 and 34). Observing several projects by Gehry Baudrillard's criticism becomes obvious.

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<sup>4</sup> Lefebvre's concept of *polyrhythmia*, *eurhythmia*, *arrhythmia* and *isorhythmia* surely are of use for analysis of urban game worlds respectively the gameplay (2014: 25). They will be adapted into the case study of ASSASSIN'S CREED UNITY as necessary.

The terms of *virtual* and *clone architecture* can be applied to the digital modular nature of architectures and urban sceneries in computer games. Not only are the limited sets of facades and polygon meshes combined in various rhythms they also denote their game mechanical efficiency players can make use of. These *virtual architectures* only denote their functions and serve as traversing points, vertical climbing challenges and so forth. In order to illustrate this theory an advance to the case study must be granted: In ASSASSIN'S CREED II (Ubisoft 2006) almost all residential buildings were hollow but inaccessible polygon meshes without an interior. In the purest sense of *virtual* and *clone architecture* their facades and rooftops denote accessibility by certain combinations of moldings, lisenens, balconies, casement and so forth. Marking urban infrastructure (striated space) and the avatar's courses of action (*smooth* space appropriation) – contrary to the pedestrian paths – at the same time. Only landmarks like the *Cattedrale di Santa Maria del Fiore* or certain quest relevant places were designed to be experienced and navigated from within. However in ASSASSIN'S CREED UNITY seemingly every second or third building is designed with an interior in order to use it not only as a third traversing option besides streets (pedestrian practice) and rooftops/facades (parkour approach) but also as *refuge space* to hide from pursuers. In context of *clone architecture* the spatial arrangements and furniture are limited to a handful of sets from poor day labourers to wealthy citizens. Though this is a connotated overvalue beyond gameplay; it refers to the topics of French Revolution and multiple districts in vast cities. The only lasting impression is that of traversing these interiors by similar to same linear repetitions of movement patterns. Architecture here becomes built repetition.

That said all simulated structures and cityscapes denote the game mechanics in context of the players' agency. Thus digital game worlds, despite their graphical qualities, visual aesthetics and architectural styles, first and foremost are notations of rhythm and movement. This was already stated by both Aarseth (2007: 45) and Mark J.P. Wolf. Wolf stressed, without going into detail: “[A]s spatial design often is an indication of movement options, it is also typically the basis for the indication of interactive possibilities” (2011: 19).

Mike Gust and Michael Nitsche both equate aforementioned “artificial navigation” with the experience of physically built architecture in reality (Gust 2009; Nitsche 2008: 85). Nitsche explicates: “The necessary eye of the virtual camera makes these spaces cinematic and the interaction makes them accessible much like architectural structures” (ibid.). The visual perception of the *mediated space* (screen) in combination with the logically spatial interaction in these three-dimensional game worlds is a reciprocal transition<sup>5</sup> from optical (pictorial) to spatiotemporal (architectural) perception of game intrinsic space. This momentum is also addressed in current architectural discourse by Andreas Beyer, Matteo Burioni and Johannes Grave. In their critique of purely visual sensuality as approach towards an adequate allotment of today's physical pictorial architecture<sup>6</sup> they delineate an oscillating process between a corporal spatial experience and a considerate observation of buildings (2011: 18).

In order to decode the systems of meaning of the game world's rhythms, repetitive structures and architectures for an effective navigation and interaction, Umberto Eco's theory of the *iconic code* is an inevitable model. While on a meta level Lefebvre's *rhythmanalysis* functions as categorisation or taxonomy, Eco's concept helps to assign the diverse codes of

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5 For further reading on this topic of interfering perception modes of architecture, film und computer games see Bonner 2015a.

6 In 1991 Frederic Jameson criticizes that postmodern architecture was envisioned only to be photographed. Because only in its visual representation postmodernism emanates its actuality and existence (Jameson 1991: 99).

urban game space into the former. Eco transfers principles of semiotics onto the built reality and its artificial environment by categorising architectures and artefacts into the primary and secondary function (2006: 193). In context of urban *open world* games the first function is the denotation of level structures and in-game architectures. The buildings denote the ambiguous play patterns of the players by embodying respectively mirroring them in game mechanics. This superimposes with Totten's *form-void* theory. The second function means the connotation on a symbolical or metaphorical level. In a nut shell: The first function of the iconic code can be understood as the ludic function while the second is the narrative function.

Eco uses the example of a Stone Age man, who for the first time uses a cave as refuge from climate and enemies. The Stone Age man memorises its spatial ontology and is able to decode further possible refuge spaces that become objects of „communicative intercourse“ (ibid.: 183). It denotes refuge and shelter as primary function while Stone Age man adds connotations of home, hearth and family as secondary functions (ibid.: 186). In his monograph Christopher Totten broaches the issue of this phenomenon as a central pattern in gameplay design (2014). Said relation is also known as *prospect-refuge theory* in geography and architectural history. Jay Appleton defines the landscape as sign stimuli that can trigger or fulfill the will to survive (1975: 69). Thus the performance of surveying and remaining undetected is the basic momentum of Appleton's *prospect-refuge theory* which he also describes as “hide-and-seek-aesthetics” (ibid.: 101). According to Totten many game designers focus on the spatial relations between *refuge space* (Eco's cave), *prospect space* (valley which is surveyed from the cave) and *secondary refuge space* (other caves in sight) (2014: 212). Eco's *iconic code* and the *prospect-refuge theory* are in context with Kevin Lynch's *cognitive map* which already was fruitfully transferred into methods of game studies. His five categories to decode, organize and thus navigate the urban environment will be mentioned in the following analysis as needed (1960: 47).

In context of perception game worlds can be defined as *corporal space* in the sense of Gernot Böhme. According to him *corporal space* is the sphere of one's sensual or sensitive presence without being the place taken by one's body nor the volume which represents it (2006, 88). Furthermore *corporal space* defines vastness by variably articulated places or spaces, respectively (2006: 113; q.v. Bonner 2014). With its orientations and kinetic impressions Böhme indirectly describes the visual perception of *iconic codes* as situated in (urban) landscapes of open world games. In context of organized and tuned settings one can refer to Christian Hirschfeld's theory of landscape design. He defines landscape gardens as artificial, modular, multi-course worlds that navigate guests by generating diverse spaces of prospect, intimacy and atmospheres (1780: 130).

Like in built reality digital game worlds confront the player either with distinct limited courses of action or with almost free spatiotemporal interactivity and appropriation. At the same time they not only oppose but also help players to navigate and understand the vast and coherent *open world* environments as dichotomy of non-linear *evocative spaces* built up by ludic constraints of quests and *free-roaming*. Both aspects can be equalized with Robert Caillois' terms *ludus* and *paidia* (Hensel 2015: 154).

As will be conducted later the dynamic dialectic of *smooth* and *striated space* by Deleuze/Guattari corresponds with Caillois' theory in context of *open world* games. Both *smooth space* and *striated space* describe a certain type of practising transition and navigation through space by humans. The main difference is made by the appropriation of spaces and places and the appropriate perception. While *smooth space* is practiced and experienced by

nomads the *striated space* is inscribed with strategies and movement patterns of sedentary people (2006: 434). Deleuze/Guattari emphasise, that *smooth space* is the basis for *striated space* and that both theoretical ideas only exist due to their ever-changing state into each other. *Smooth space* is constantly transferred into man made places and mathematical dimensions. But there are also recaptures from *striated* into *smooth* (ibid.). Both spaces are vital by interfering with each other (ibid.: 442). This reciprocal or oscillating momentum is a key part in context of spatiotemporal play patterns.

At the core *striated space* is defined by lines or paths of movement between two superordinated (way)points. This type of space is perceived optical as a spatiotemporal dimension between waypoints (ibid.: 436-437). *Smooth space* on the contrary focuses on the route or distance itself despite all (way)points. It is the space of affect, haptically perceived by multiple senses as a direction or vector (ibid.).

Both philosophers declare the ocean as the purest *smooth space* and the city as purest *striated space*. Urban space also has *smooth spaces* embodied by slums and temporary architectures (ibid.: 441). Besides illegal districts and so forth the navigation within and appropriation of the multiple layers of a city, as a *striated space*, can be a rhythmic combination of both *smooth* and *striated* approaches and thus a cyclical repetition. This is also stated by Günzel: “Ein Stadtraum wie auch eine Ortschaft können sowohl in der Weise des Sesshaften [striated] als auch nach Art des Nomaden [smooth] genutzt werden” (2005: 18). This also functions with *smooth spaces*: The ocean not only can be navigated by compass and in relation to the artificial grid of longitudes and latitudes but also by obeying to the forces of wind and currents (ibid.: 438). The oceans as naturally *smooth spaces* became *striated* but there are also practices like the nomadic *fleet in being* or submarines and their scanning of undersea environment by sonar.

Considering urban *open world* games it is important to stress, that the dichotomy of *smooth* and *striated space* describes distinct point of views in spatial perception and interaction. Deleuze/Guattari conclude that traversing in built reality (as well as in game intrinsic space) is all about the types of spatialisation, the types of being related to space or being space itself (in the sense of Böhme’s *corporal space*): “Reisen unterscheiden sich weder durch die objektive Qualität von Orten, noch durch die meßbare Quantität der Bewegung, [...] sondern durch die Art der Verräumlichung, durch die Art im Raum zu sein oder wie der Raum zu sein” (ibid.: 443).

In *CRYSIS 3* (Crytek 2013) for example the interface overlaying the first-person perspective simulates a head-up display (HUD) including augmented reality systematics. By scanning the environment of post-apocalyptic New York or setting a marker in the world map players perceive one or more icons on the suggested HUD. They mark scanned enemies or the next quest’s critical waypoint including an ever decreasing distance notice in meters. Although players perceive, decode and interact with a measured, purely visual space between two waypoints (cyclical repetition), they can be distracted by emergent events within the game world or choose a more secure or more scenic route towards the marked location(s) by haptic exploration beyond the direct obvious (*striated*) path. Also one could say that the practice of *free-roaming* is a *smooth* appropriation of non-linear game space.

Günzel transferred the conceptual pair of *smooth* and *striated space* under the aspect of computer games as interactive image medium: “Ein interaktiver Bildraum kann demnach glatt (optisch-tief) oder gekerbt (haptisch-flach) sein, je nachdem, ob das Simulationsbild fließende

Übergänge oder harte Brüche aufweist” (Günzel 2016: 3). In his comparison between WOLFENSTEIN 3D (id software 1992) and DOOM 3 (id software 2004) he consequently applies Deleuze/Guattari on the level of visual depth and sculptural quality: While the former only enables movement in two dimensions and confronts the players with *sprites* of bitmap enemies, the latter simulates space-consuming monsters made of three-dimensional polygon-meshes and a fully enclosing architectural experience in all three dimensions (ibid.: 4-8). Thus Günzel adapts the model of Deleuze/Guattari in order to categorise the pictorial quality and therefore the spatial representation of the image medium.

Nevertheless within this paper the dichotomy of *smooth space* and *striated space* will be used as dichotomous model of spatial appropriation in context of perception and navigation like it was intended and developed by Deleuze/Guattari. The approach towards the game intrinsic space is not by the interactive image and its point of view but by the rhythmization and spatial organisation of the urban game world itself – simulated architectural and urban qualities in context of play patterns. Studies with an almost similar approach were already conducted by Serjoscha Wiemer and his take on the *smooth* and *striated* play of the boardgame chess (2008) as well as by Colin Cremin and his Deleuzian analysis of SUPER MARIO GALAXY (Nintendo 2007; Cremin 2012).

James J. Gibson defined *affordances* in a very general way open to multiple interpretations, that some of the aforementioned theories and methods, albeit to a certain degree, can be described as aspects of or tools for the overall idea of *affordances* (1986) which refer “to the possibilities and limitations of the environment for a certain animal” (Linderoth/Bennerstadt 2007: 601). Gibson’s neologism means the whole range of “complementarity” of an animal and its surrounding environment (1986: 128). Thus in context of computer games the *affordances* not only refer back to level structures, game space and game mechanics but also to the player’s non-linear navigation respectively the avatar’s courses of action. Besides the fact that some of the aforementioned existed prior to Gibson’s theory, it is stressed here that although a detailed future study on the contextualisation of the aforementioned theories and terms and the *affordances* can be fruitful, theorems like *smooth* and *striated space*, *rhythmanalysis*, or the yet to be applied theory of de Certeau, just to name a few, are well developed models and tools to approach certain distinct phenomena, strategies or figures within this *affordances* cosmos.

Gibson remarks, that „[d]ifferent layouts of environments [certain rhythms and repetitions of level structures and objects] afford different behaviors [agency, movement patterns, non-linear navigation] for different animals [avatars, allied NPCs, hostile NPCs, passive NPCs] and different mechanical encounters [courses of action, rhythms of quests and missions]“ (ibid.).<sup>7</sup> Good examples for this phenomenon are the *hard rail* levels of DEUS EX: HUMAN REVOLUTION (Eidos Montreal 2011). As limited as these cyclical repetitions of various combinations of vents, corridors, arenas, interior and exterior spaces are, every single one of this urban game spaces enables the players to traverse them in three ways: The stealth gameplay means sneaking around the enemies, using architecture and environment as cover. During action gameplay open confrontations are performed and the interaction with the architecture is reduced to a system of cover possibilities. Now the third mode to approach or traverse the level needs the players to decode the environment and the *iconic code* of the

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<sup>7</sup> Gibson’s *affordances* can be used to expose and declare certain dynamics in game design respectively gameplay and thus game mechanics. Eventually the following analysis uses both the point of view of the players and the spatial and structural state of the urban game space.

enclosing architecture in order to solve spatial puzzles and achieve the specific level goals by climbing on roofs and through vents, reducing enemy contact to zero. These three linear repetitions are courses of actions made from different combinations of rhythm and *iconic code* inscribed within the simulated buildings and level structures. At any point the players are able to shift or tilt their playing style back and forth between these spatial appropriations – a threefold *form-void* embodiment. This ambiguous play pattern is also an oscillation between traversing the game space as *smooth* (third mode) or *striated* (first two modes).<sup>8</sup> But again for a *close reading* or a *close gaming* (Aarseth 2007a: 131), there is more needed than the sole idea of *affordances*. Knowing tools like the *iconic code* or the *cognitive map*, taxonomies like the *rhythmanalysis* and dichotomous theorems like *smooth* and *striated space* or *prospect-refuge theory* and combining them into a knowledge system helps to approach and analyse non-linear navigation – spatiotemporal practice – in complex (urban) game worlds with more detail and play to the distinct characteristics of a certain computer game or game design. The following excursus will clarify this point.

### **Excursus: Smooth and Striated Appropriation in PORTAL 2**

Before applying the above contextualized theories as well as de Certeau to urban *open world* game space the dichotomy of *smooth* and *striated space* will be exemplified as gameplay relevant agent and distinct type of *affordance* pattern in an enclosed spatial representation.

PORTAL 2's (Valve 2011) unique environmental storytelling is accomplished by the adaption of works by Japanese architects like Tadao Ando, Arata Isozaki or Kishu Kurokawa.<sup>9</sup> The game world's architectural megastructure is rhythmised in a seemingly limitless sequence of cuboid test chambers and enrichment spheres. Here players are unable to traverse those irregularly and unconventionally shaped interiors by conventional movement patterns.

At first glance and in context of the diegesis the subterranean laboratory complex of Aperture Science Inc. seems to embody pure *striated space*. This is not only based on the stringent master plan of the company but also on the fact, that the central momentum of PORTAL 2 is its way of traversing through an A.I. controlled grid based architecture. The goal relies less on reaching the end of the computer game and more on finding a path by non-Euclidean spatial appropriation and navigation. The isolated test chambers fit perfectly in the definition of *striated space* as a distance between two (way)points. While said points are embodied by each test chamber's entrance and exit locks, the line here is understood as the path solving the spatial puzzle by generating portals. Nevertheless the spatiotemporal approach of the opposing and challenging architecture is an interfering process of *smooth* and *striated space*. Tevis Tompson also describes the oscillating momentum: "You navigate it first with your eyes, and then your body. And always with your mind, primed as it is for spatial memory" (2011). On the one hand players observe the test chambers optically to decode the layout of

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8 A similar example are the hostile camps or outposts scattered in the vast *open world* landscapes of FAR CRY 3 (Ubisoft 2012) and FAR CRY 4 (Ubisoft 2014). These village-like layouts architecturally embody distinct linear repetitions of courses of action and building arrangements. Such diverse *affordances* combined with certain characteristics of the surrounding landscape enable the player to observe and mark enemies in order to know their positions and routes (cyclical repetitions) and thus approach in open confrontation or use the architecture of the place for silent takedowns. Here again a (rhythmical) oscillation between the two gameplay modes respectively the two types of spatial appropriation is up to the players.

9 For a detailed analysis of PORTAL 2's game world from the perspectives of architectural history and theory as well as the Japanese idea of *Ma* and the use of Michel Foucault's heterotopias as model to categorise the game world and its architecture see Bonner 2015b.

certain building materials that denote gameplay critical mechanics: Said orthogonal tiles are apparently scattered randomly in the test chambers and able to host a pair of entrance- and exit-portals generated by the players' portal gun. On the other hand the players sense the test chambers haptically: The spatiotemporal exploration of the spatial puzzles is bonded with the trial-and-error method of walking around and strobe and setting portals, folding two different places of the same coherent space on each other – generating a *wormhole*. Thus the limits and possibilities – *the affordances* – of each test chamber become aware. The consequence is the problem-solving path reduced to a point in the form of the *wormhole*. This ephemeral traversing maze-like, unclear structures means the recapture of the *striated* by *smooth practices*. Depending on the architectural layout and complexity of the test chambers this central game mechanic is multiplied and intermingled with several *striated* appropriation-phases. The gameplay of PORTAL 2 is a distinct ambiguous play pattern oscillating between *smooth* and *striated space*. It is this repetition of transforming the game intrinsic space from *striated* to *smooth* and back that generates the puzzle-solving gameplay and its overvalue.<sup>10</sup> Within the *corporal space* of this computer game players perform several types of being related to space or even being (game) space itself in a similar manner to Deleuze/Guattari.

Therefore PORTAL 2's test chambers are the basic common spatial units of the game world. These *spatial cells* (Wolf 2011: 22) are cyclical repetitions isolated from each other by elevator corridors, that coat loading phases, as well as entrance and exit locks. They consist of distinct combinations of various linear repetitions in context of using portals, physics, pedestrian movement patterns, gels, lasers, light barriers and so forth. Consequently every test chamber has its own eurhythmic fingerprint in the sense of Lefebvre (2014: 25).

### **Paris as Multistable Cityscape: Urban Games Space as Paroxysmal Prospect-Refuge Spatialization**

In 1859 Wilhelm Joseph Schelling coined the comparison of architecture as crystallized music: “Musik im Raume, [ist] gleichsam erstarrte Musik [...]“ (1974: 220). Furthermore he explicates, that architecture is sculptural music consisting of rhythmic, harmonic and melodic parts (ibid.: 234). Moving further towards the 20th century and the topic of the cityscape similar interrelations are used by urbanist Lynch in context of urban ordering systems: “City design is therefore a temporal art, but it can rarely use the controlled and limited sequences of other temporal arts like music“ (Lynch 1960: 1). Deleuze/Guattari also refer back to the music theory of Pierre Boulez (2006) and Lefebvre reflects music's different rhythm characteristics both mathematical (here: *striated*) and organical (here: *smooth*) at the same time (2014). With regard to a Deleuzian/Guattarian approach Simon O'Sullivan comments on both philosophers' perspective on works of art in general: “For Deleuze and Guattari then, art is a composition of percepts and affects brought together in a certain rhythm“ (2006: 54). According to this definition the perception and navigation of urban games spaces projects the status of a work of art to the latter.

It is indispensable to understand complex simulated cityscapes in *open world* games as modular combinations of several cyclic repetitions enabling currents of *affordances* embodied by *clone architectures* in *striated* layouts. Keeping this in mind one is able to perceive the multistable cityscape by decoding *iconic codes* and generating *cognitive maps* in order to practice *smooth* and *striated* movement patterns in vast *prospect-refuge* situations. The

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<sup>10</sup> Wiemer also came to the conclusion in context of chess (2008, 146-148).

cityscape and its architectures and infrastructures are a crystallized embodiment of the players' courses of action.

ASSASSIN'S CREED UNITY will function as pars pro toto of *open world* games with focus on staging vast and complex cityscapes and especially using them as dominant agent in game design. Besides the aforementioned terms and methods the idea of *smooth* and *striated space* will be merged with Michel de Certeau's concept of pedestrian approach to urban environment as exemplified in his chapter *Walking in the City* (1980). As already laid out, the concepts and terms overlay or contain each other in certain aspects and together they form a complex system to describe, design and analyse artificial navigation in game worlds and therefore the structure of the levels and settings themselves. The analysis may observe three-dimensional game worlds but has also to reflect on the players' agency embodied by the avatar. As both correspond in the ephemeral performance of the gameplay, addressing something in-between leads to describe the phenomenon as *affordances*. But one has to keep in mind, that the latter theorem can only generally mean the attuned, non-linear and interactive multistable cityscapes. It is stressed again, that the above methods, terms and theories function as tools and models for an in-depth analysis fitting the complexity of the simulated game worlds, their architectural experience and thus the ontology of the medium.

In ASSASSIN'S CREED UNITY's Enlightenment era Paris, the most iconic part is Île de Cité including a dense mesh of vertical *landmarks* (Lynch 1960: 47) and public squares like *Notre-Dame de Paris*, *Place Dauphine*, *Sainte-Chapelle*, *Palais de la Cité* and so forth. With its detailed architectural styles and distinctly designed *districts* (ibid.) loosely tied to the built reality, the navigable *open world* of ASSASSIN'S CREED UNITY focuses more on the coherent city, the appropriation of its architectures and streets of houses and its emergent *affordances* than on a well crafted story arc. Adam Webster summarizes the eagerness for architectural challenges and the urge for urban exploration: "I only spent around 45 minutes with the game but I wanted much more — not to complete a mission or see what happens next in the story, but just to walk around and enjoy the beauty of Paris" (Webster 2014). This trend in *open world* game design was already addressed in the introduction and seems to follow Viktor Antonov's maxim who, as a famous designer of game intrinsic cityscapes, "consider[s] the environment and the city to be a character, more important than any other character in fiction" (Zeller 2012). Pertaining to the role of the city and its architectures in digital game worlds again Pallasmaa must be contextualised: "Architecture initiates, directs and organises behaviour and movement. [...] Architectural space is lived space rather than physical space, and lived space always transcends geometry and measurability" (2012: 68).

Due to the evenly scattered towers and domes the spatiotemporal appropriation of architectures shifts into verticality – a welcome alternation but cyclical repetition. After climbing the thoroughly sculpted facades, players get *rewarding vistas* onto the chaotic city of Paris (Totten 2014: 246, 248). At the same time those isolated places on top of bell towers, defence towers and domes also function as *refuge spaces*. In the sense of de Certeau ASSASSIN'S CREED UNITY's Paris can be understood as urban landscape with paroxysmal places (1980: 179). By the heightened point of view players become voyeurs and are able to decode the chaotic currencies in the streets. Here Eco's *iconic code* as well as the *prospect-refuge theory* interfere with the voyeuristic perspective: Decoding possible *second-refuge spaces* such as haystacks, sheds or other pinnacles in the midst of the urban *prospect space* and projecting *smooth* and *striated* options of pathways onto the city – inscribed by sets of *affordances*. At the top of a dome or tower players 'synchronize' with the game world by a *cutscene* and therefore gather new information on possible movements, missions, collectables

and points of interest that are depicted as icons on the world map and by the in-game interface. Said vertical paths and their combination of *rewarding vistas* and *refuge spaces*, are epistemic modalities in the sense of de Certeau (ibid.: 181, 192). He describes this point of view as *oculus dei* – being this visual focus means the fiction of knowledge: “Ausschließlich dieser Blickpunkt zu sein, das ist die Fiktion des Wissens” (ibid.: 180). Contrary to the epistemic modality (ibid.: 192) players can perform the deontic modality by fulfilling a plot relevant mission or quest bound to strict rules, goals and areas. In the sense of Caillois this is *ludus* gameplay consisting of distances (*striated*).

De Certeau categorizes established everyday pedestrian movement repetitions with the conceptual pair of *synecdoche* and *asyndeton* (ibid. 194-195): “Der von den Praktiken so behandelte und veränderte Raum verwandelt sich in vergrößerte Singularitäten und voneinander getrennte Inseln” (ibid.: 195). In context of *open world* game space both mean local focused gameplay strategies. Generating singularities and isles as inscriptions of frequently traversed places and distances in the players’ *cognitive map* due to most effective and strategic movement patterns and courses of actions. Therefore *synecdoche* and *asyndeton* are local manifestations of cyclical repetitions. *Synecdoche* on the one hand denotes a building, monument or crossing as part of a place or *district*. In this manner *Notre-Dame de Paris* is the navigational *synecdoche* of Île de Cité or Paris by condensing the game intrinsic space. On the other hand *asyndeton* is the fragmentation of traversed space: Frequently appropriated architectures or limited spatial arrangements within the coherent urban structure. Players only use selected rooftops, covers and so forth because of effective polyrhythmic movement patterns or the hostile *prospect space*, respectively. For example: By the cyclical repetition of navigating from *refuge space* to *second-refuge space* through the whole game world, aforementioned towers, domes, haystacks and sheds become the *asyndeton* of a Parisian *district*.

Paris’ *landmarks* are aligned to each other in a relation close to physical real Paris but the network of streets, back alleys, little courts and common buildings – the interspace – is altered, abbreviated and more simple in order to allow the players the most fluid gameplay possible. Admittedly one has to keep in mind, that Paris is a vast hostile *prospect space*. It is littered with patrols, warring factions and royal guards, that can be circumvented thanks to the multiple networks of *possibility spaces* a term almost synonymous with *affordances* only that it focuses on spatiotemporal appropriation (Totten 2014: 316). Players can conventionally navigate as pedestrians following the *striated space* of urban infrastructure or they appropriate the city *smooth* by performing parkour movement patterns and ignoring the *edges* (Lynch 1960: 47) of walls, buildings or the river Seine. Thus the complex layout of the urban structure forces the players to generate an ever oscillating gameplay of traversing the city in rhythmical combinations of *smooth* and *striated* in combinations of linear and cyclical repetitions. The multiple movement patterns compete in the ever actualised *cognitive map* of the players’ minds. Thus, new opportunities are generated as de Certeau also states for the physical reality (1980: 190). Urban navigation in ASSASSIN’S CREED UNITY means polyrhythmic gameplay. Level design director Nicolas Guerin describes the ludic legitimation of the multistable cityscape as follows: “Paris is incredibly dense, with cramped streets and tightly-packed buildings, which conflicted somewhat with *Assassin’s Creed’s* free-roaming movement. So in order to make Paris more of a playground, the team used a process called ‘radial scale’ to change its layout. It’s a simple concept: in the center of the city it’s essentially a one-to-one recreation, but the further you move from Paris’ core, the more spread out things get” (Webster 2014).

Furthermore the epistemic voyeurism opposes to the conventional urban navigation. In this context the *striated space* of Paris' infrastructure can be decoded by optical perception of an enclosed measured space (Deleuze/Guattari 2006: 436). As the parkour movement is also intended by designers and inscribed in the vast polygon meshes, climbing and running on and over facades and roofs also is a designed *striated space*. But within the diegesis and while being navigated or guided by *landmarks* or cascading roofs the players understand this gameplay as a haptic, corporal appropriation of the city and therefore as *smooth space*. Thus game intrinsic space is as *smooth* as it is *striated*: Players first perceive Paris optically as voyeurs from their heightened *refuge spaces* and then perform movement patterns contrary to the NPCs down in the decoded *prospect spaces*. While *smooth* and *striated space* both mark the ends of the ambiguous oscillating spatiotemporal appropriation, de Certeau's theory describes the tilting performance of *smoothly* traversing through *striated space*.

### **Conclusion**

As was exposed with ASSASSIN'S CREED UNITY, especially in urban *open world* games players recapture *striated space* by *smooth space* practices which also can be described as *free-roaming*. This oscillation between *smooth* and *striated space* is synonymous with the concept of *ludus* and *paidia* and relies on the *affordances* of cyclical repetitions in scaling buildings, running along streets of houses, fighting the patrolling guards of *prospect spaces* and so forth. This becomes more evident in view of the idea of pedestrian rhetorics, that obey or counteract to the urban landscape by navigation strategies of *synecdoche* and *asyndeton*. Transitions and transformations between polyrhythmic appropriations can be intended best with the idea of the *prospect-refuge theory* as cyclical gameplay repetition scattered in the vast urban landscape. Finally it is certain that the *prospect-refuge theory* is the spatiotemporal manifestation of epistemic voyeurism and the dichotomy of *smooth* and *striated spatialization*. For most *open world* games it is the central agent of gameplay design.

Competing rhythms and ever changing movement patterns due to emergent events lead to the *open world* characteristic of ambiguous play patterns. This is architecturally embodied by the multistable cityscape of game intrinsic Paris. Functioning as a mirror to the agency of the players' avatar, the architectures and their spatiotemporal arrangement have various sets of *affordances* and kaleidoscopic possibilities of combining them. Thus the *iconic code* of such urban game spaces denotes game mechanics and its corresponding gameplay at the same time. Further those inscription connote an overvalue in the form of a polyrhythmic *cognitive map* or *asyndeton* strategies, just to name a few.

So in merging, comparing and organizing in onion-like layers, the above used philosophies, methods and theories can be applied to almost all *open world* games but also to other genres or types of gamespace, too. Because rhythmization of the game world and its architectural spatialization is the key momentum in order to be explored, appropriated, traversed or conquered by the players. Aarseth already observed, that "games celebrate and explore spatial representation as a central motif and raison d'être" (2007b: 44) and with the phenomenon of ever growing size and complexity of game worlds – see for example the procedurally generated galaxy of NO MAN'S SKY (Hello Games tba.) that wants to make 18 quintillion planets freely navigable and explorable – this is more evident than eight years before. There exists an eagerness towards space fetishism, "Raumfetischismus", as Nohr stated in his article by mentioning the movement rhetorics of de Certeau's concept (2006: 17). Architecture and urban landscape – the multistable cityscape – mostly provides the systems of meaning for the players as it also embodies or simulates the physical real, measured environment of everyday live. This can also be transferred from the philosophy of Pallasmaa: "Architecture frames,

structures, re-orient, scales, reinforces and slows down our experience of the world and makes it an ingredient of the embodied sense of our own being; it always has a mediating role instead of being the end itself. [...] The most fundamental encounter mediated by architecture is the confrontation of the self and the world” (2011: 58, 100).

## **Games**

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