

2. Topoi, Topographies, and Topologies Spatial Structures of Game Worlds

The *World-Shaped Hall*

On the Architectonics of the Open World Skybox and the Ideological Implications of the *Open World Chronotope*

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Abstract This chapter is a transdisciplinary study on the architectonics of open world games and has a twofold aim. First, the game intrinsic space of open world games and their function as illusionary space will be analysed based on technological and structural aspects of the *skybox* and its non-linear interior landscape. Thus, open world games will be defined as *world-shaped hall*. Second, the spatiotemporal dynamics within the *world-shaped hall*, namely the differential of power between player-induced courses of action and developer-induced guidance systems and governing strategies will be explored. They embody the topology and topography of what will be defined as the *open world chronotope*. Consequently, the *world-shaped hall* and the *open world chronotope* are interrelated and define the media-specific characteristics of open world games. This chapter then lays the foundation for further studies of open world games specifically and game space in general.

Keywords Open world, skybox, world-shaped hall, architecture, Crystal Palace, chronotope, space-time, ideology, game design, Deleuze and Guattari, Bakhtin

Introduction—On the Architectonics of the *Skybox*

The *skybox* surrounds the three-dimensionally arranged game world by its cubic or spherical volume. In its function and structure, it is a type of architecture Hans Hollein already called for in 1968: according to him, architecture as such must be re-framed and its materials and means extended. The key momentum has to be the effect

of information (“Informationseffekt”), which allows the experiencing of architecture through other media (1968). Here, Hollein contextualises the example of a jet fighter pilot’s head-up display (HUD) as a building of minimal dimensions, which directly encases a global environment. Such architecture broadens one’s organs of perception via its telecommunication accesses in order to relay vast and faraway areas immediately to the pilot. According to Hollein, humankind has always used architecture to physically and psychologically amplify its sphere of action and thus to regulate its environment into an anthroposphere. In the same year of Hollein’s radical demand for rethinking architecture, Ivan Sutherland introduced the first head-mounted display, *Sword of Damocles*, which allowed a novel experience of three-dimensional worlds. Both developments, among others, build the foundation of today’s VR goggles and of complex digital game worlds.

Interestingly, most game worlds use an “informative guidance system” (Rotzetter 2018, 173) in the form of augmented reality (AR) or interfaces that simulate a HUD in order to help the players navigate within level structures.¹ This applies even more to vast non-linear architectures of open world games.² Lev Manovich, among others, highlights spatial navigation as crucial distinction from older media (2002, 183): “[T]ime became a flat image or a landscape, something to look at or navigate through. If there is a new rhetoric or aesthetic possible here, it may have less to do with ordering of time by a writer or an orator, and more with spatial wandering” (ibid., 78).³

Although the *skybox* is constructed as a cube or sphere, it is experienced as a seemingly undefinable vastness by the players’ point of view within the game world. Especially at the dawn of three-dimensional game worlds in the 1990s, such as *Quake* (id Software 1996), *Half-Life* (Valve Corporation 1998) or *Unreal Tournament* (Digital Extremes/Epic Games 1999), the *skybox* can evidently be distinguished from more detailed textures and more sculptural polygon meshes of the *active level structure*⁴ due to technical limitations. In those game worlds, the *skybox* appears roughly pixelated, has a limited colour palette, and its sides are plane, two-dimensional

1 According to Francine Rotzetter, the “informative guidance system” informs players on their position within the game world and their relation and distance to the next waypoint or to overall points of interest. Thus, it affects the sphere of action. This system uses symbols, interfaces, (mini) maps and so forth. For more on that and the five other types of nonverbal guidance systems, see Rotzetter 2018.

2 See Bonner 2018.

3 This will also be crucial for later arguments in the context of the *chronotope* and of Tim Ingold (2011), and Gordon Calleja (2011).

4 The term *active level structure* refers to all spaces, volumes and objects of a game world the players traverse through, interact with and appropriate. These walkable areas are defined by the designers via *navigation meshes* and help also to organise the wayfinding of non-player characters (NPCs).

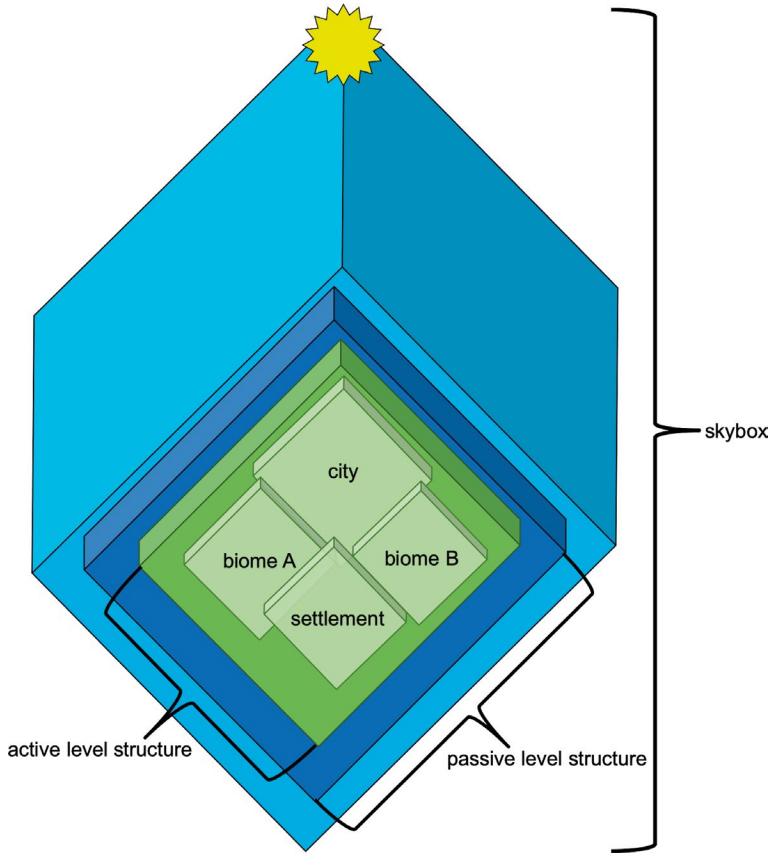


Fig. 1 The skybox principle including active and passive level structure.

layers. In today's computer games, dynamic weather simulation, day and night cycles, volumetric cloud generation as well as plastic, three-dimensional *passive level structures* like mountain ridges, thickets or endless oceans obfuscate the *skybox* and its function as the edge of the world (» Fig. 1). Hence, a *passive level structure* functions like the *faux terrain* known from panoramas or dioramas (Jost 2015, 42). As a predetermined non-walkable area full of sculptural objects, it acts as an intermediary between the *active level structure* and the large-format panoramic *skybox* in order to conceal the junction from one to the other by staging a fluid transition. According to Kilian Jost, in such a way the illusion of infinitude and dissolution of boundaries is gained (ibid.).

The *skybox* contains the game world while implying undefined vastness as worldliness (in a non-religious manner) by topoi of evocative horizons, mountain ridges or

skylines.⁵ Most recently, some game worlds like *Titanfall 2* (Respawn Entertainment 2016) or *Prey* (Arkane Studios 2017)⁶ among others, evidently stage the constructedness of the *skybox* principle. Here, players experience game space as an illusionary space and evident simulation situation in order to reflect on what is real, on the level of both fictional and virtual.⁷ In this way, these game worlds become metareferential by scrutinising and highlighting their very status and properties on a meta level and via science fiction topoi. Especially *Titanfall 2*'s single-player level Into The Abyss stages a megalomaniac underground facility called World Foundry that, like a chimera of Fordian assembly lines and an IKEA store with its themed areas, assembles prefabricated houses to urban districts for outer world colonies. After traversing the moving geometry of the assembly line, players also fight within and around chambers or so-called simulation domes of the IMC Dynamic Testing Facility (» Fig. 2). They are built for training purposes and enclose prefabricated urban terrain parts and are made of hexagonal high-tech tiles that project a vast green landscape complete with a cliché cloud-covered blue sky. The projections are not only evidently distorted due to the spherical or cubical volume of the small spaces but also look like desktop wallpapers of old operating systems lacking detail and depth of colour. Thus, they embody a stark contrast to the dark surrounding cave system and facility architecture, referring to the properties and shortcomings of (old) *skyboxes*. Experiencing those domes from within and entering them through recesses in the domes, players obtain multiple perspectives on the interior and exterior properties of the simulation domes that also embody the game intrinsic space itself. The make-believe or simulation situation is also staged by domes loading a cloudy sky and green landscape onto tiles and broken tiles hanging from the in-game *skybox*. In addition, players can gaze at “illegal view” inscriptions on the projected landscapes while looking at the nooks and crannies of the simulation dome or by shooting at the tiles, causing a short-time malfunction.

- 5 The concept of worldliness or worldness (“Weltlichkeit”, “Welthaftigkeit”) was initially adapted to game studies by Lisbeth Klastrup (2003). She uses the term “worldness” in order to grasp and describe collaborative experienced events and shared actions within the worlds of Massive Multiplayer Online Games (MMOGs). To her, worldness is primarily constituted by the aspects of consistent online game worlds, and play as shared participation within the latter (2009). Recently, Torill Elvira Mortensen und Kristine Jørgensen adapted Klastrup's concept to analyse transgressive experiences in single-player game worlds (2020, 58, 100, 104, 149). Both authors use worldness in order to define the game world as an environment with media-specific logics that become real to the players and evoke exploration of the game world's boundaries (ibid., 149). In contrast to Klastrup, worldliness here loosely follows Mortensen's and Jørgensen's approach, as it covers some aspects of the worldliness of open world games as a single-player experience. Worldliness then means perceiving and navigating a coherent, non-linear network of places staging a vast topography full of natural and cultural landscapes and thus embodying a certain worldview of the man-nature dichotomy.
- 6 For more on *Prey* and its complex story on self and other as well as the metareferential qualities, see Backe 2018.
- 7 For a different take on this topic in an indie game, see Beil's chapter in this book.



Fig. 2 Displaying the properties of the skybox in *Titanfall 2*.

Fig. 3 The frustum culling principle in *Horizon Zero Dawn*.

As all-embracing architecture, the *skybox* therefore stands in the tradition of other visual illusions that were established in painting, architecture, theatre, and film throughout the centuries (Günzel 2015, 66). Here, Andrea Pozzo's Baroque *trompe-l'œil* paintings as well as *matte paintings* of analogue film production can be contextualised. The latter depend on predefined fixed camera points of view in order to implicate spatial depth and breadth.⁸ As players can navigate game space more or less freely and thus choose multiple point of views in succession on their own, the *skybox* enables a kind of inverse in-the-round view within its boundaries.

Subsequently, the study will focus on open world games. In the form of archipelagos bathed by the ocean, steep mountain valleys or staggered cityscapes, they flaunt the biggest coherent level structures and thus *skyboxes* full of *points of interest* (POI)⁹, clustered places as well as road and path networks.¹⁰ Rolf F. Nohr attests such game spaces, whose topographies are designed for the most possible openness and overall layout as fetishism of space—"Raumfetischismus" (2013, 7, 18).¹¹ According to him, the landscape then becomes an end in itself, becoming an independent momentum of world building, game design, and play (*ibid.*).

In order to establish a fluid audiovisual staging of the game world despite the technical and hardware restrictions, multiple algorithms regulate appearance and quality of in-game objects in different distances as well as visibility range in the open world. Hence, due to the *frustum culling* process, the game world only exists ephemerally within the field of view of the virtual camera (» *Fig. 3*). This process computes which polygon meshes, effects, sounds, and mechanics will be depicted and initiated in that moment. In earlier computer games like *Grand Theft Auto III* (Rockstar North 2001), a quick turn of the virtual camera forces the game engine to generate pop-up objects and consequently delays loading of textures and polygons in the vicinity. In games with

8 A range of examples exist throughout the history of film, which made viewers believe the buildings on the silver screen were physically real architecture. Among the most famous examples are the Vandamm house that was supposedly built on Mount Rushmore in *North by Northwest* (D: Alfred Hitchcock, US 1959) or the intricate megalomaniac halls of the death star in *Star Wars Episode IV: A New Hope* (D: George Lucas, US/GB 1977).

9 *Points of interest* refer navigational waypoints or reference points, which are mostly embodied by vertical structures, evocative sights or distinct formations. These places are fixed nodes within the topology of the game world and feature quest givers, quests, items, additional information, fast travel points or navigational guidance.

10 One of the first computer games depicting a three-dimensional game world that clarifies the digital specific of game intrinsic space right from the start is *Battlezone* (Atari 1980). Players steer a tank in first-person perspective through a sparse vector graphics landscape, but cannot reach the mountain ridge on the horizon, no matter how long they drive towards it. Therefore, *Battlezone* shows that Euclidean laws have to be programmed for specific aspects of a computer game world experience in order to stage spatial logics.

11 See also Nohr's chapter in this book.

long lines of sight, *fogging* is a method to conceal such pop-up and loading problems. In today's open world games, the fluid depiction is enabled via the "view-dependent" *level of detail* (LOD) process (Cudworth 2016, 127–42).¹²

For example, this method of data streaming governs four distinct models of different detail capacity embodying the very same building due to the player's distance to it. Seen in the faraway distance, the building can be a simple bitmap, but while approaching it, a low-poly 3D model will dissolve the bitmap at a certain distance. This blend-in process of LOD is repeated up to the most complex and sculptural model of the building when the player is in close range or right in front of it, and a traversable interior or general interaction has to be enabled (see Manovich 2002, 206). Consequently, the game world only exists in the code as a coherent entity and pretends to be a spatiotemporal continuum in the eyes of the players via data streaming and AR interfaces.

Like Hollein, Juhani Pallasmaa defines architecture as a world-regulating medium which organises and governs humankind's sphere of action (2012, 68). Accordingly, in the sense of Pallasmaa, game intrinsic space is pure affordance or a staging of multiple calls to action, in that it exceeds its geometrical and measurable ontology towards a placeness.¹³ Especially the worldliness of open world games can be divided into three basic topographical types that also embody the very foundations of the media-specific adaption of Mikhail Bakhtin's *chronotope* concept (2014): *rural open world structures* such as *Far Cry 3* (Ubisoft Montreal 2012), *Horizon Zero Dawn* (Guerilla Games 2017) or *Red Dead Redemption 2* (Rockstar Studios 2018) focus on the staging of a *striated wilderness*¹⁴ as a romanticised, pristine, and/or hazardous depiction of nature with diverse biomes¹⁵ and only few settlements or single buildings that play a minor role. Here, the experience of natural as well as cultural landscapes and their undulating topography is an end in itself. In addition, like Hollein's idea of a future architecture, most open world games bring faraway biomes together in one place (see Bonner 2018). *Urban open world structures* like in *Assassin's Creed: Unity* (Ubisoft Montreal 2014), *Tom Clancy's The Division* (Massive Entertainment 2016) or *Marvel's Spider-Man* (Insomniac Games 2018) stage a coherent cityscape that can focus on vertical aspects and

12 These are the very mechanics addressed in the introduction of this anthology that characterise the architectonics of game worlds – their simultaneity as low-poly ruins, constructed navigable buildings and data sets stored in code and database.

13 Here, one can differ between *architectural determinism*, *probabilism* or *possibilism* (Strange and Banning 2011, 13–14). For an adaption of this categories into game analysis and a contextualisation within a broader discourse of spatial perception see Bonner 2019a.

14 For more on the concept of the *striated wilderness* see Bonner 2018.

15 A biome is a biogeographic realm and refers to the correlation and interdependency between flora, fauna, fungi and micro-organisms to soil and climatic conditions in a certain combination and within a certain area of Earth, like the alpine biome, the tropical savannah biome or the boreal forest biome (see Woodward 2009, 1–36).

parkour mechanics. Like the biomes of the *rural* type, the *urban open world* combines different architectural styles for distinct districts/neighbourhoods. Mostly, the depicted city is a media-specific distillation or a loose citation of a physically real cosmopolitan city (see Bonner 2015). *Rurban*¹⁶ *open world structures* like *Grand Theft Auto V* (Rockstar North 2013), *The Witcher 3: Wild Hunt* (CD Projekt Red 2015) or *Assassin's Creed Origins* (Ubisoft Montreal, Quebec 2017) constitute a hybrid mixture of the two types above. They can have a balance between big and detailed in-game cityscapes and a richly sculpted unspoiled wilderness or pastoral nature. Thus, game worlds of this type most evidently stage a *wilderness-frontier* in the sense of the man-nature/urban-rural dichotomy.

The Open World Skybox— From the Cave Metaphor to the *World-Shaped Hall*

Markus Rautzenberg persuasively compares the constitution of the architectonics of game worlds and their *skyboxes* with the structure of caves by including Plato's allegory of the cave and philosopher Hans Blumenberg's inverted interpretation of it (Rautzenberg 2015). He argues that, despite the vast and non-linear traversable game spaces (like in open world games), it is still impossible for today's game worlds to escape or evade the cave, namely the all-enclosing impenetrable celestial sphere of the *skybox* (ibid., 250). For Rautzenberg, the *skybox* is the final frontier of the world that prohibits exploration beyond. Thus, all three-dimensional game worlds take place in caves, independent from the depicted world and its sign system. He bases his argument on the observation that the two most crucial ludic elements, exploration and cartography, are indispensable for the science of studying caves—speleology (ibid., 251). Rautzenberg feels vindicated in the example of the so-called CAVE systems (Cave Automated Virtual Environment) with their back projections on several sides of a restricted room (ibid.). Complete with tracking technology (motion capture, VR goggles), they function as three-dimensional panoramas in research and computer-aided design. In comparison with 3D scans of complex branching and maze-like cave structures (see Zlot and Bosse 2014), Rautzenberg's metaphor is especially applicable to linear and more or less branching level structures like in *Quake*, *Half-Life*, *Bioshock* (2K Boston 2007) or the intricate brutalist architecture of *Control* (Remedy Entertainment 2019). In

16 *Rurbanism* is a term from urbanism and means the dense settling which blurs clear boundaries between urban and rural areas. It is used in order to rethink inscribed post-industrial or post-agrarian society as well as overcome the established man-nature dichotomy.

context of the architectonics of open world games, the cave metaphor is only true on a very basic level of media-specific characteristics and is thus inadequate.

In order to clarify the potential of the inverse in-the-round view of the open world *skybox*, it is helpful to look at Giovanni Battista Tiepolo's ceiling fresco *Apollo and the Continents* in the Würzburg residency. Finished in 1753, it covers an unsupported vault spanning 30 metres in length and 18 metres in width and is only fully perceivable through changing one's own point of view several times, horizontally and vertically, within the grand staircase. The succession and combination of viewpoints while ascending or descending foster the viewers' explorative behaviour. Christoph Asendorf understands Tiepolo's fresco as a total earthly ("gesamtirdisches") panorama, a virtual firmament that offers an inverse bird's eye view (2017, 241). To favour the spatial illusion, a *skybox* should not expose its actual volumetric dimension and geometric form. *Skyboxes* of early 3D game worlds broke the illusion by tilts of the cubical variant where two planes of the sky met or by far too curved clouds in the spherical variant.

This leads to the 1851 world exposition's *Crystal Palace* built by Joseph Paxton in Hyde Park, London. The building's structure captivated eyewitnesses through its clear and dematerialised design. As a type of megalomaniac glasshouse, it is based on a modular system that was governed by the biggest mass-produced glass panel possible at the time. Thus, the structure resembles the Cartesian grid which is also the backbone of digital game worlds. The dimensions of the filigree supporting framework amount to 563 metres in length, 124 metres in width, and 32 metres in height. Architectural historian Siegfried Giedion describes this non-linear experience area as a building type unprecedented in the nineteenth century (2007, 179–83). Most impressions of the architecture praise its illusionary effect. Eyewitness Lothar Bucher wrote of his experience of the interior:

We see a delicate network of lines free of any indications that would allow to get an idea of the distance between the eye and the actual size. The lateral walls are too distant from each other to catch them within one single view and instead of gazing at an opposing wall, the eye wanders along an infinite perspective that vanishes in mist. We do not know if the structure floats one hundred or one thousand feet above our heads or if the ceiling is one plane surface or constituted by multiple little roofs, as the cast shadows are absent that would otherwise help to understand the optic nerve's impressions (translated from German by the author, Bucher 1851, 10).¹⁷

17 "Wir sehen ein feines Netzwerk von Linien, aber ohne irgendeinen Anhalt, um eine Vorstellung der Entfernung vom Auge und der wirklichen Größe zu gewinnen. Die Seitenwände stehen zu weit ab, um sie mit demselben Blick umfassen zu können, und anstatt über eine gegenüberliegende Wand streift das Auge an einer unendlichen Perspektive hinauf, die im Dunst

This experience mirrors not only crucial aspects of the *skybox*' functionality but also the condition of the open world game as a simulation of worldliness. Sun, sky, and the surrounding landscape permeate through the vitreous structure of the *Crystal Palace*'s interior and together, they generate a spatial continuum of vague dimensions. In this way, the architecture intermingles interior and exterior through daylight, and suggests openness and vastness. Although the interior cannot be grasped from a single point of view, the environment is enclosed in a measurable and controllable space at the same time. The building's floor area comprised of 70,000 square metres and combined different biomes complete with full-grown trees. Asendorf contextualises the *Crystal Palace* with panoramas, zoos, museums, and botanical gardens whose function as encasements is to gather the totality of Earth. He specifies that such architectures simulate cut-outs of the world ("Weltausschnitte") no matter how big the distance between each other is in actuality (Asendorf 2017, 437–38). In such a way, parts or regions of Earth were synthesised into a patchwork of coherent experience space.

In this context, Asendorf then thematises the role of the *Crystal Palace* by including philosopher Peter Sloterdijk's remarks on the geo-political implications of the said building. For his philosophical critique of globalisation, Sloterdijk borrows the term *inner world-space* ("Weltinnenraum") from Rainer Maria Rilke's 1914 poem *Es winkt zu Fühlung fast aus allen Dingen* (Sloterdijk 2005, 307–9; Rilke 1986, 878–79). In his phenomenological take on being one with the non-human, Rilke uses *inner world-space* to express the correlation of all entities and events in the universe, and thus discards the anthropocentric man-nature dualism (Fischer 2015, 205). On this base, Sloterdijk coins the term *world-shaped hall* ("weltförmige Halle"), arguing that the *Crystal Palace*'s dimensions are so encompassing and big that there is no need to exit it ever again (2005, 307–9). In this sense, Dominik Finkelde states that world expositions of the nineteenth century were dominated by a picturesque chic and sported the staging of faraway regions as copies or replicas in the form of walkable settings. To him, world expositions were a medium of appropriation by de-auratising faraway places and bringing them or their objects to the masses (Finkelde 2007, 168; see also Mitchell 1989). The *Crystal Palace* then is the architecture of an ideally industrialised realm embodying the spirit of globalised trade and imperial power. In the same way Sloterdijk decouples Rilke's term and intention of a phenomenological world experience in order to use it for a critique of globalisation, here, the *world-shaped hall* in turn will be adapted to describe the media-specific worldliness of open world games and their *skyboxes*. That said, the open world structures are digital architectures of gathering

verschwindet. Wir wissen nicht, ob das Gewebe hundert oder tausend Fuß über uns schwebt, ob die Decke flach oder durch eine Menge kleiner Dächer gebildet ist, denn es fehlt ganz der Schattenwurf, der sonst der Seele die Eindrücke des Sehnervs verstehen hilft" (Bucher 1851, 10).

and synthesising distant parts or biomes of the world and hence exceed the manageable level structures of linear 3D game worlds and their separately loaded *skyboxes*. Finally, the architectonics of open world games are no caves but *world-shaped halls*. Asendorf defines the *Crystal Palace* as an architectural prototype of the *inner world-space* concept:

An inner world-space is characterised by the partial rudiments that are synthesised. The emergence of such a space is preconditioned by a certain civilising stage of development (and willingness) which enables the transport of every single object or whole cohesive world cut-outs from their place of origin to any arbitrarily chosen place in order to exhibit as well as recombine them there. In extreme cases, the semblance of a complete system is evoked. This is especially the case with immersive representations: while involved in an elaborate staged space without any borders or perceptible exterior, the viewer might be unable to differentiate between the staged and the real. [...] The Crystal Palace [...] appears as an artificial universe [and] as an outcome of spatial inversion, it provides the possibility of consumption or realisation of up-to-now faraway objects at the own place (translated from German by the author, Asendorf 2017, 437).¹⁸

This is also the case with the coherent and openly navigable space continuums of open world games: game developers synthesise aspects or parts of Earth as fragmented assets in the computer game's database, and recombine single objects or whole biomes, cityscapes or iconic geological formations into a playable, traversable *active level structure* in form of a non-linear topography full of POIs and ludic affordances. In the sense of Gilles Deleuze and Félix Guattari, this governing of worldliness in game design can be defined as a hardened segmentation of the game world (1992, 286), which will later be categorised as *striated space*. Often, and especially in *rural open world games*, this hardened segmentation is disguised as smooth segmentation of primitive societies or natural landscapes (ibid.), which I defined as *striated wilderness* (Bonner 2018).

18 "Einen Weltinnenraum aber charakterisiert, dass hier die jeweils partialen Ansätze synthetisiert werden. Das Entstehen eines solchen Raums hat einen zivilisatorischen Entwicklungsstand (und Willen) zu Voraussetzung, der es erlaubt, jedes Objekt oder ganze in sich zusammenhängende Weltausschnitte vom ursprünglichen an jeden beliebigen anderen Ort zu verbringen, dort zu zeigen oder auch zu rekonponieren. Im Extremfall wird dabei der Anschein von etwas in sich Vollständigem erweckt. Das gilt besonders bei immersiven Präsentationsweisen; der in einem kunstvoll inszenierten Raum ohne Grenzen und sichtbares Außen eingetauchte Betrachter wird das Dargebotene kaum mehr von der Realität unterscheiden können. [...] Der Crystal Palace [...] erscheint als künstliches Universum [und] bietet als Resultat einer räumlichen Inversion die Möglichkeit der Konsumption bzw. Vergegenwärtigung des eben noch Entfernten am eigenen Ort" (Asendorf 2017, 437).

The game world of *Horizon Zero Dawn*, for example, is a widely ramified mountain valley with plateaus situated between the US federal states of Wyoming, Colorado, and Utah. In adapting characteristics of those well-known ecoregions and national parks like *Yellowstone* or *Bryce Canyon*, the topography is iconically charged. The open world game is an architecture of the said inverse effect as it gathers faraway places at the very own place of the player-character. The latter has to be understood in two ways: firstly, as the audiovisually staged point of action of the avatar in the navigable enclosed mountain valley, and secondly, as the physically real place of the player.¹⁹ Another media-specific characteristic can be clarified with the open world racing game *Forza Horizon 3* (Playground Games 2016). In its *skybox*, a small area of southeastern Australia, which covers a part of the actual federal state New South Wales, is staged complete with abruptly changing biomes, a complex network of streets and paths. Its elements are regions and topographies from distant areas of Australia Northern Territory's desert biome near Uluru or the iconic limestone cliffs and its rugged monoliths known as *12 Apostles* in *Port Campbell* National Park in Victoria. In-game, the latter are situated at the east coast right above *Cape Byron* State Conservation Area's peninsula instead of the southern coast. The tropical rainforest biome of *Daintree* National Park is moved from the northern tip of Queensland to southern inland high plateaus. Almost like the regions in theme parks or landscape gardens, this recombination into a new topology has the function to offer more variety and thus more 'fun' or entertainment for *free roaming* and goal-focused racing.

Finkelde and his remarks on world expositions can be contextualised here once again. He highlights that natural and artificial objects scattered around the globe are merged into new forms and are consequently governed. The centre as a place of recombination and gathering becomes the place of synopsis ("Zentrum als Ort der Zusammenschau," Finkelde 2007, 170; see also Mitchell 1989). The faraway places become steadily visitable and usable (*ibid.*). Accordingly, the *Crystal Palace* as well as the open world *skybox* and its interior topography perfect the illusion of worldliness. One is the analogue *world-shaped hall* of the British empire and its imperialism, the other is the *world-shaped hall* of digital media and postmodern entertainment. In reference to Walter Benjamin, Finkelde argues that the faraway, the exotic, and the unknown of world expositions (e.g. *Crystal Palace*) as well as their staged hazard and adventure become domesticised by the interiors of the citizens (*ibid.*, 177). Today, these interiors also include playing open world games and streaming numerous wildlife and nature documentaries. Furthermore, players have the advantage of enjoying the view of landscapes without any effort or actual hazard. According to Jost, this aspect was already highlighted by Gérard de Lairese in 1707 regarding themed and fully painted rooms

19 For more on the player-avatar relation in first- and third-person perspective games and under phenomenological aspects of Maurice Merleau-Ponty, see Klevjer 2012, 17–38.

in apartments (Jost 2015, 54). Such a room provides “armchair travels” or, as Benjamin writes, is a box within the “world theatre” (1983, 52). According to Benjamin, the citizen wants to be entertained in his illusions. The phantasmagoria of the interior denotes a universe to its inhabitants (ibid.). In case of the players, the audiovisual experience of the *world-shaped hall* generates a media-specific, ludic world theatre. The global environment is immediately enclosed and canalised via telecommunication. All of the aspects above are indispensable for the following study on the *open world chronotope*, Bakhtin’s concept, and the game developers’ ideological implications.

The Open World Chronotope— On Bakhtin’s Theory and Non-Linear Game Worlds

Within the concept of the *chronotope*, Mikhail Bakhtin established a spatiotemporal normative structure in order to analyse the experience of world within literary works and their genre characteristics (2014). In 1975, he defines the *chronotope* as the correlation of space-time relationships of specific genres such as the Greek novel or the chivalric novel, and emphasises that time is nested and space gains intensity (ibid., 7). Space is filled with logic and causality over time. As Bakhtin’s theory derives from literary studies, he focuses on spatiotemporal dimensions of a narrated world, its staging and events. His initial motivation is the idea that literary works need to acquire aspects of real space and real time in order to stage a world (ibid.). This is also true for any other fictional work such as film, paintings or computer games. For instance, Espen Aarseth emphasises that

games and stories seem to share a number of elements, namely a world, its agents, objects and events. [...] [Game worlds] are different from so-called fictional worlds in that they [...] have a measurable, concrete extension that can be explored directly by an independent agent. Fictional worlds depend on the imagination, whereas game worlds have objective existence, even if they only exist via computing machinery (Aarseth 2012, 2–3).

Art historian Wolfgang Kemp adapted the *chronotope* in order to analyse structures of paintings from early Renaissance onwards (1996). He coins media-specific forms like the *palace chronotope* or *crucifixion chronotope* and emphasises the distinction between the space of action as *trajectory* and the space of perception as *prospectivity* (ibid., 99). He exemplifies this with Rogier van der Weyden’s intricate *St. John Altarpiece* (1455), which is structured in multiple nested segments of spaces and interiors. *Trajectory* and

prospectivity seem to mesh in parallax scrolling games such as *Inside* (Playdead 2016) or *Planet Alpha* (Planet Alpha ApS 2018) that implicate their story and world through background scenery and *ancillae narrationis*, with the ‘plot’ only taking place in a two-dimensional space as a directional axis.

In order to depict events beyond framing architecture, landscapes and paths come into focus. Kemp speaks of *telescoping* time and space by using altitude differences, prospects and adjusting proportions of distant objects (1996, 162–64). *Prospectivity* and *telescoping* culminate in the horizon as key features of the experience of landscape. This can be seen in Andrea Mantegna’s paradigmatic gradation of the view from Golgotha to Jerusalem in *Predella San Zeno Altarpiece Verona, Crucifixion* (1457–1459). In the sense of Jay Appleton’s *prospect-refuge theory*, such a topography is defined as *prospect dominant landscape* (1975, 74, 146), which is also a crucial characteristic in open world games. He defines the horizon as a *secondary vantage-point*, which encourages speculations and curiosity concerning the landscape beyond (ibid., 90). According to Jeff Malpas, one accesses an environment and its points of interest through the horizon. Thus, the horizon is not only a line in the far distance but an active fluid boundary:

The sense of ‘within’ that belongs to landscape derives from the understanding of landscape as a mode of *place*, [...] as possessing an essential *interiority*. [...] Landscape opens up within its horizon, is oriented in relation to entry and departure into and from it, and is shaped by and through the journeys that are possible within it. [...] Only within a horizon can a journey be undertaken; only within bounds can there be a between; only within bounds can there be an infinity, can the unbounded open up (emphasis in the original, Malpas 2018, 3–6).

Elsewhere I defined this continuous navigation from horizon to horizon, from hill to mountain top to valley sides, from ledges to watchtowers as *prospect pacing* and described it to be essential for rhythmising coherent open world games formulaic distillations of actuality (see Bonner 2018).

Just to give an example, in *Horizon Zero Dawn* most watchtowers are, in contrast to *The Witcher 3: Wild Hunt* or the *Assassin’s Creed* games, not scalable but also function as navigational points of interest in the sense of Appleton’s *secondary vantage-point*. In addition, said towers mostly are placed at ledges, cliffsides or (mountain) ridges as *prospect reduplications* (1975, 121–23). Using lines of sight that are ‘moulded’ in the level structure’s geometry, the player-character may gaze at a faraway tower ‘by accident’ due to a void in the rock face of an unobvious snowcapped pass and her explorative navigation not far from the settlement Hunter’s Gathering in the Valleymeet mountain valley that combines boreal forest and alpine biomes (» Fig. 4). This sub-region



Fig. 4 Prospect pacing in *Horizon Zero Dawn* as a non-linear, optional way to introduce players to new regions of a game world.

functions as one of several possible transitional passages between the greater sections of the game world. The Nora Sacred Lands mark the starting regions in the eastern third of the open world, whereas the desert and the tropical rainforest biomes of the Carja Sundom are situated in the western two-thirds. The latter is mostly roamed in later stages of one's playthrough. At this point, one can follow the next quest or navigate the several points of interest in Valleymeet or follow the newly perceived landmark that also sports the yet unknown architectural language of Carja culture. Traversing the snowcapped pass and approaching the *secondary vantage-point* embodied by the tower leads the player-character to ever-changing panoramic vistas in Carja Sundom, its vast desert biome embodying the scenery of later quests. By reaching the watchtower and the ledge surrounding the eastern border of the desert biome, the game world also enables multiple prospects within the changing horizons of alpine ridges to steep arid cliffides and monolithic rock formations. This specific and optional *prospect pacing* introduces the player-character to the expressive geological formations known from national parks of actual Utah and thus to the realm of Sun Carja. In this way, chaining up specific vantage points, landmarks, and lines of sight in the game world within changing biomes and topographies, the "*interiority*" of the landscape becomes an end in itself. The faraway point becomes the vicinity and as such *prospect pacing*, highlighting the properties of the open world as a *world-shaped hall* more evidently. It also, as will be discussed hereinafter, functions as an intermediary design tool between *smooth* and *striated* appropriations of game space.

The Open World Chronotope's Topology—Landscape Experience and Free Roaming as Ceaseless Time

With the aforementioned findings, I am already in the middle of the first of two aspects I will use to define the *open world chronotope*. In open world games, the experience of a vast landscape becomes an end in itself—already clarified as fetishism of space above (Nohr 2013, 7–8, 18). This brings us to a critical point: Bakhtin stresses that time is the critical agent of the literary *chronotope*. This way, space gains intensity and becomes roped into the story. Characteristics of time are unveiled in space, hence it is filled with causality and becomes dimensional (2014, 7–8). Gabriel Zoran highlights that the literary *chronotope* is constituted by "defined directions", fixed axes as stretches of way, fixed places of departure, and fixed successions of locations (1984, 318–19). This is not the case with freely explorable game spaces and their network of places like in the *rural*, *urban*, and *urban open world structures* outlined above. In fact, I would argue that in the context of the (mostly) non-linear coherent expanse of open world games,

space is the most critical agent. On the one hand, I base this thesis on Tim Ingold's concept of *region*, which he defines as places that exist "as nodes in a matrix of movement" (2011, 219). This is tightly interwoven with Malpas' theory of the interiority of landscape as well as with my concept of *prospect pacing*. Ingold talks of "wayfinding" as the appropriate spatial practice that unfolds "a field of relations established through the immersion of the actor-perceiver within a given environmental context" (ibid., 220). He concludes that "knowledge is regional: it is to be cultivated by moving along paths that lead around, towards or away from places, from or to places elsewhere. Conceived as the ensemble of [...] place-to-place movements" (ibid., 229). This fits with Deleuze's and Guattari's concept of *smooth space* as the topological space of affects, vectors, and appropriation (1992, 496, 663). Both authors understand the *smooth* appropriation of space as a process of close-up perception and the *smooth space* as a haptic one (ibid., 682). According to this, the play modes *free roaming* and exploration will then produce a *smooth space* within the hardened segmentation of *striated space* as the topographical space of long-range visibility, metrics, and fixed stretches of way (ibid., 496, 523, 524, 663, 664, 666, 682). Although the *striated space* is characterised as optical space, both, the *smooth* and *striated* are perceived in tactile ways as well as by gazing as dominant (visual) practice (ibid., 682). The *prospect pacing* of open world games as governing design principle has then to be understood as intermediary between the *smooth* and the *striated* mode of appropriating space.

On the other hand, I refer to Gordon Calleja who indirectly confirms my assumption by highlighting the importance of a game world's primary function to stage a sense of "inhabiting a place" instead of just providing the perception of a representation of it (2011, 43):

There is an important difference to be appreciated between ergodic, simulated landscapes and non-ergodic representation of landscapes. Although one can imagine roaming around the represented space described in a piece of literature, traversal is limited to mental imagery. To move from one point to another in a game world, players must literally navigate their way, not merely imagine it (ibid., 74).

Open areas enable multiple approaches and play modes towards quests. Key are the different modes of perceiving space, being in space or being space itself in the sense of Deleuze and Guattari (1992, 657–94; see Bonner 2015, 2018). That said, there is a need to establish the foundation of the *open world chronotope* as a world experience in the sense of the *world-shaped hall*. In the following, the focus will be on two core aspects of *open world chronotope*: (1) the topology (*smooth space*) in the sense of landscape experience, *free roaming*, *prospect pacing* and ceaseless time, and (2) the topography (*striated space*) embodied by quest structures, icon hierarchies, gameplay loops, and

episodic time as governed hardened segmentation.²⁰ Concerning the two categories, I am merging characteristics of the *chronotope* as well as the *smooth* and *striated space* with characteristics of the *texte fleuve*²¹ in order to achieve an adequate model for the open world game analysis. To my knowledge, only one piece of research to date has done an in-depth analysis of the politics of time within open world games and their paradoxical relationship between fragmented quests, their illusion of time-critical agency, and the seemingly endless *free roaming* and exploration: in her PhD thesis, Sophie Marie Bargues Rollins analyses open world games by contextualising *texte fleuve* and Marcel Proust's seven volumes of *À la recherche du temps perdu* (1913–1927):

There are two primary aspects of perpetual time: first, *ceaseless time* or *ceaselessness*, the endless temporality upon which the second aspect depends and within which it operates. This second aspect is *episodic time* or *the episodic* — the bounded, narrative time of beginnings and ends, of story, of action, of quest. [...] *Episodic time* in the *texte fleuve* exists entwined with the endless 'background' time of ceaselessness. Episodic time emerges from ceaseless time, is pulled from ceaseless time by the narrator and the reader in the reader's perception and organization of ceaselessness (emphasis in the original, Bargues Rollins 2015, 46, 48).

Aarseth already comments on the different play modes and the politics of time in 2005:

Finally, we have games with completely open landscapes; where the challenge of navigation is mainly a matter of moving safely, and not of maze-solving. A recent example is *Morrowind* (2002), where the game consists of one huge, continuous world/level (and some underground 'dungeons') and where the avatar may move in any direction, as long as the monsters in our path can be

20 Topology refers to the geometrical and positional relations between objects or points that may not be visible. This hierarchical or ideological structure is embodied by a visually staged topography. Although topology is the structure of all functionality and affordances, the players interact with it via the medialised topography as appropriated in the open world landscapes. For more information about the distinct characteristics of topography and topology in computer games, see Günzel 2016.

21 Sophie Marie Bargues Rollins clarifies the *texte fleuve* as a type of text that "most clearly attempts to overcome finitude" and "is not limited to a medium, a genre or a form" (2015, 2). Characteristics are "depictions or enactments of a world that is both fragmented and potentially limitless in spatial and/or temporal extension", "implementation of a potentially infinite recombination of the text's fragments", "infinite networks" and "a representation or encouragement of the desire (always frustrated) for total knowledge of the world" (ibid.). She compares the *texte fleuve*'s long or wide scope to today's open world games and their gameplay loops as well as to Proust's narrative looping (ibid., 8).

conquered. In *Morrowind*, we may eventually discover story-elements in the form of a ‘central quest’ that one is free to pursue, but given the open landscape, one can play for a very long time doing anything one pleases (emphasis in the original, Aarseth 2005, 505).

As non-linear the topology of open worlds and as varying the interlaced time units are, they form a linear gameplay succession due to the players’ oscillation between *free roaming* and completing a succession of quests. The ambiguity and choice-making mark the distinction of the computer game and the process of place-making. Bakhtin argues that certain literary subjects or genres such as the Greek novel indeed need vast spaces and multiple locations in order to stage exploration, escape, pursuit, and confrontation but function on interchangeable backgrounds. The adventure then can be translocated—what happens in Egypt might also happen in Byzantium—as the *genius loci* does not play a role for the events (2014, 23–27). Regarding annual iterations like the *Far Cry* and *Assassin’s Creed* series, this argument does not apply to open world games where the *genius loci* functions the other way around: place-making, the *interiority of landscape* in the sense of *world-shaped hall*, seems to be more important for digital game worlds than for literary worlds. This is also stated by Aarseth: with *Far Cry* (Crytek 2004) and *Faible* (Lionhead Studios 2004) as his examples, he wonders if an interesting landscape full of quests is sufficient for a computer game, even when one-dimensional characters and redundant conventional gameplay are incorporated (2005, 505).

Additionally, in his PhD thesis, Dan Pinchbeck of TheChineseRoom discusses the importance of environment in game worlds and its scale in order to stage an authentic ecologic coherence. According to him, open world games can be categorised as a mixture of “country” and “global” scale using a vast spatial continuum, fast travel, and vehicle travel as well as authentic bridging structures between different biomes or themed regions (2009, 117–20). He speaks of the environment as a “collection of objects in the set that function as a singular conceptual entity, containing a significant number of gameplay affordances or having a temporal span that constitutes a significant amount of overall gameplay” (ibid., 96f.). Several environments then constitute an “environment set” that is “accessible within a non-linear area” where multiple environment sets adjoin each other (ibid., 97). He basically describes the constitution of the *world-shaped hall* that is most evident in the theme park-like idea of staging contrary or distinct themed spaces or biomes as direct neighbours like the island of *The Witness* (Jonathan Blow/Thekla 2016) or in *Fortnite Chapter 2* (Epic Games/People Can Fly 2019). That said, varied biomes or environment sets can be used in order to disguise redundant quests.

There are also examples of far more cohesive environment sets. In *Far Cry 5*’s (Ubisoft Montreal/Toronto 2018) fictional mountain valley named Hope County of U.S.

federal state Montana, players roam a mixture of temperate alpine biome, boreal forest biome (Woodward 2009, 6, 8), and cultural landscapes resembling the Rocky Mountains area, which can be experienced in Montana, Wyoming or Colorado in actuality. This *rural open world structure* comprises of three environment sets that are mostly distinguishable by their use of verticality as well as flora and fauna: Holland River is mostly plain with industrial agriculture and redundant environments of farms and fields; Whitetail Mountains stage a fenced wilderness as a national park complete with numerous cabins and steep secluded mountain tops; Henbane River seems like a mixture of the previous two. Players can appropriate the regions clockwise by fulfilling the quests or navigate freely through the world and stumble upon objectives and events.

Only few open world games are brave enough to confront players with wilderness as an empty vastness free of quests, hostile NPCs, and other affordances. *Metal Gear Solid 5: The Phantom Pain* (2015), *No Man's Sky* (2016-) and *The Legend of Zelda: Breath of the Wild* (2017) partially stage the idea of remote ridges, billowy tundra, grasslands, and arid deserts.²² At the time of writing, *Red Dead Redemption 2* embodies the pinnacle of mainstream open world games that focus on intricate landscapes and thus stage topographies seemingly as *non-directional smooth space* (Deleuze and Guattari 1992, 663) mostly rid of quests, loot boxes and the like.²³ There are secluded mountain peaks like Mount Shaun and the adjacent picturesque valley of Little Creek River in the north of the West Elizabeth region; the billowy meadows of The Heartland in the New Hanover region or the eastern part of Ambarino, especially the evocative rock formations of Grizzlies East. The four western areas of the New Austin region are a reworked version of the diverse desert biome of the prior game. It represents a third of *Red Dead Redemption 2*'s game world and apart from two settlements, wildlife, a secluded bandit camp or few random encounters, it is devoid of quests. Only cacti, Joshua trees (near Gaptooth Ridge), sand hills, and diverse sandstone formations in different shades of yellow, ochre, red, and brown build the rough terrain. This Wild West region is a *world-shaped hall* in its purest form, mostly free of ludic, goal-oriented play modes. Another recent example for the experience of the desert biome (Woodward 2009, 17–19) and its different geological forms is *Assassin's Creed Origins*' world of ancient Egypt (» Fig. 5). Certain environment sets sport nothing but sand and rocks, cliffs and cascading mountains as well as emergent sandstorms that reduce visibility. While traversing such a region, avatar

22 On Nintendo's concept of *airness* as a design concept of *The Legend of Zelda: Breath of the Wild*, see Cornelia J. Schnaars' chapter in this book.

23 The desert or tundra biome is the perfect example for a *non-directional smooth space* where nomads roam between multiple places that are characterised by variability (e.g. moving sand dunes and vegetation). In contrast, the *directional smooth space* is performed and experienced by nomads of archipelagos like in the South Pacific. They roam within a fixated cluster of islands, navigating shallow and deep waters, annual winds and cyclical currents (see Deleuze and Guattari 1992, 663–65).



Fig. 5 The desert biome White Desert in *Assassin's Creed Origins* functions as a regenerative landscape experience and is a distillation of the physical White Desert in Egypt in actuality.

Bayek sees hallucinations of a speaking bush or his late son. Especially to the south of the world map, several desert biomes are chained together and only few feature predator lairs or bandit camps as conventional optional quest places. Reflecting on the son's death and the solitude of Bayek's path of vengeance, as he and his wife drift further apart with every fulfilled main quest, the desert biome is a perfect metaphor that evokes slower pacing to contemplate between the repetitive quests.

Bakhtin's understanding of the *idyllic chronotope* presents several aspects that apply to the *open world chronotope* as a spatially limited micro-world that is self-sufficient in the sense of the latin term *domum* (2014, 160). This is especially the case with open world games where the initial environment set, although potentially littered with hazard spaces and hostile NPCs, evokes an atmosphere of familiarity and intimation like Geralt's Kaer Morhen with its boreal forest biome resembling the Swiss Alps myth in *The Witcher 3: Wild Hunt*, Aloy's enclosed mountain valley The Embrace in *Horizon Zero Dawn* or even Bayek's picturesque hometown Siwa.

While Aarseth states the game world category "open landscapes" is all about secure navigation and survival, Ben Bunting highlights the entertainment of getting lost as intrinsic to the open world. Hazards, then, must be controllable and obey a system of rules in order to evoke a foreseeable end (2012, 66–69). In addition, Calleja states

the importance of making discoveries, plotting one's own route "through a geographical expanse" and being challenged by traversing the ambiguous landscape while not always having an "all-knowing perspective" (2011, 75). The vastness of the *open world chronotope* must remain manageable, which is gained by the "interactive guidance system" and the "spatial guidance system" (Rotzetter 2018, 175–77) embodied by the topography like the already mentioned *prospect pacing*. This all adds up to the topological and player-induced adventure time of the *world shaped hall* of open world games that is distal to that of time critical quest lines in that "not only the affective power of [the] aesthetic beauty, but also the performed practice of exploring [the] technical and topographical boundaries" is so appealing (Calleja 2011, 77). In this context, Bunting writes about "gameplay-as-spatial-practice" and about

encouraging the player to appreciate the aesthetic appeal of the landscape, to feel a sense of achievement in having climbed high mountains and discovered deep caverns, and to relate to the details of 'their' virtual land in much the same way that a backpacker might relate to the details of an oft-returned-to trail. [...] This spatial practice then enables the experience of wildness by merging with the game's survival mechanic (2012, 146).

Ceaseless time is also incorporated in the game world's depiction of the everyday. For example, *The Witcher 3: Wild Hunt* stages the urban life of a vendor or peon as well as the rural life of a farmer with much detail and also throughout nighttime. *Grand Theft Auto V* does this only in fragments and very cursory. Bakhtin discusses this phenomenon of a static everyday life that does not progress with examples of Greek adventure novels by writer Apoleius and Gustave Flaubert's *Madame Bovary* (Bakhtin 2014: 55, 185). With the latter, he emphasises the country town, where no new incidents take place, just reiterative occurrences. Especially the NPCs' looped monologues and courses of action fit this description and can be experienced in *rural* and *rurban open world structures* but also in *Dishonored 2*'s (Arkane Studios 2016) elaborate stagings of nested, multilevel representational villas and their societal implications in the sense of Kemp's *palace chronotope* (1996, 119–45). In addition, the role of abbreviated day and night cycles in the *skybox* of open world games is an indispensable one with regards to not only the worldliness and its ceaseless time but also to the distinct altering play styles the day and night phases may demand.²⁴ This effect is even more crucial with

24 This can mean basic things like different movement patterns and traversal behaviour due to alteration in visibility range or overall viewing conditions, as well as distinct strategies in appropriating space due to more enemies or different enemy types during nighttime. Especially *Tom Clancy's The Division 2* (Massive Entertainment 2018) and *Red Dead Redemption 2* manage to stage very dark nighttime. The latter also stages a particular darkness during rainstorms. In addition, most of the robots in *Horizon Zero Dawn* have pretty balanced visibility in relation

implementations of dynamic weather simulations, volumetric cloud generation, and dynamic solar altitudes as in recent *rural open world structures* like *Horizon Zero Dawn* and *Red Dead Redemption 2* (see Schneider 2018; Bauer 2019).²⁵

The Open World Chronotope's Topography— Quest Networks and Gameplay Loops as Episodic Time

Aarseth defines a quest as “a game with a concrete and attainable goal” (2005, 497). As such there are three main quest types: “place-oriented” like a stretch of way or escaping a labyrinth, “time-oriented” like defending an area for a specific time or solving time critical puzzles, and “objective-oriented” like gathering object X from NPC A. These types then are combined with each other (ibid., 498). Here, I argue that “Place & Objective” quests are most common in open world games. This is verified by Sarah Zimmerdahl Josefson's findings based on her analysis of 1,119 quests in three open world games (2018, 40). These may be optional loot boxes and collectable items hidden in the topography; side quests/quest places like appropriating several outposts or scaling radio towers in *Far Cry 3* or appropriating forts, bandit camps, quarries, tombs, and ruins as well as random encounters and synchronising with evenly scattered vantage points in *Assassin's Creed Origins*; main quests like absolving a heist in *Grand Theft Auto V* or solving *The Witcher 3: Wild Hunt's* interlaced Bloody Baron quest, which constitutes of quest lines fragmented into several locations of the game world. Furthermore, several types of quests, events, and affordances can be bundled and structured in characteristic core gameplay loops like the “investigation loop”²⁶, which was developed by Gregory Belacel and Patrice Désilets, among others, for the first *Assassin's Creed*

to their sizes, while during the night, their light sources shine out in the gloomier scenery. This is turned around with hostile NPCs in *Assassin's Creed Origins* or *Odyssey* (Ubisoft Montreal, Quebec 2018): while most enemies wear colourful shiny armaments that are highly visible during day time outside of settlements and cityscapes, the very same NPCs might only be visible in close range during nighttime, except when holding torches.

25 The role of ecological and ambience aspects of worldliness is still to be researched more profoundly in future research. On the topic of ambience and atmosphere and the characteristics of the so-called walking-simulators, see Zimmermann and Huberts 2019. In addition, on authenticity and atmosphere, see Felix Zimmermann's chapter in this book.

26 The original “investigation loop” consists of the following actions and quests: scaling and synchronising towers in order to reveal the fog of war from a district, followed by eavesdropping, pick-pocketing and interrogating NPCs to then obtain information on Altair's target before starting the assassination quest (Bonner 2019b). In *Far Cry 3*, the scaling and synchronising of a radio tower dissipates the fog of war and presents POIs and quest places in the vicinity via a fly-through sequence.

(Ubisoft Montreal 2007) in order to let players scale towers, provide a rewarding vista, and unveil quests and POIs in the vicinity of the tower. This play pattern was furthered in succeeding iterations of the series. Since then, the tower-area principle of the “investigation loop” became an open world topos of the so-called ‘Ubisoft formula’ and was adopted as a redundant gameplay mechanic in most other open world games in one way or another (Bonner 2019b).

Aarseth also highlights that quests distributed in an “open landscape” can be nested and concurrent (2005, 499): “The quest is the game designer’s main control of the players’ agenda, forcing them to perform certain actions that might otherwise not have been chosen, thus reducing the possibility space offered by the game rules and the landscape” (ibid., 503). Whether these main quests are “open, selectable, or plotted” is up to the designers’ dramaturgy (ibid.). According to Aarseth, game worlds such as *Star Wars: Knights of the Old Republic* (BioWare 2003) or *The Elder Scrolls IV: Oblivion* (Bethesda Game Studios 2006) can be categorised as “‘creamy middle’ quest games” as players can choose “between kernels” and the satellites are “flexible” (2012, 3). Josefsen expands the observation on open world quests: “Furthermore, open world games do not impose a time-constrained experience, rather the player can explore the whole world in the order and timeframe they prefer” (2018, 22). She illustrates its structure with her adaptation of the “diamond superstructure” by Smith et al., which they understand as a regulating design solution in order to “give the player a feeling of freedom while still imposing a strict story. [...] The single quest hub does not have to represent an actual single location in the game world, only a single game state where all quests are available to the player” (2011). Quests, then, are embedded in the hub space of open world topography and are waiting to be initiated and fulfilled by the players in episodic time while they can perform *free roaming* and exploration in the open world topology without any time limitation. Thus, quests, loot boxes, random encounters, collectable items, and their episodic character are embedded as a *striated* topographical network in the seemingly *smooth* topological features of the ceaseless time of the *open world chronotope*. Mostly, they are represented by icons, pictograms or question marks denoting specific types of quests or affordances on the world map and/or in the interface. For example, the zoomed-in view of an area in the region of Elis in the western part of *Assassin’s Creed Odyssey’s* world map shows numerous question marks covering all POIs without much room for player-induced discovery. In addition, stacks of rhombuses with exclamation marks embody the urgency of quests to be worked off (» Fig. 6). Besides seven types of icons and pictograms that regulate the hierarchies and actions of the main, side, and optional quests, *Assassin’s Creed Odyssey’s* topographical structure is constituted by 26 different types of quest places, multistorey quest architectures, as well as seven quest types anchored to a NPC (some of them constantly moving within a region), among others. That said, the several types of collectable items are mostly nested within one of the quest places, which also applies to some of NPC-driven quest types.



Fig. 6 A zoomed-in view of Assassin's Creed Odyssey's world map. Question marks leave no room for player-induced discovery, and stacks of exclamation marks embody the urgency of quests to be worked off.

Here, AR-like interfaces also denote the topographical level (*striated space*) of the *open world chronotope* and thus amplify the differential of power between *free roaming* and absolving myriads of quests.²⁷ In cases where the goal is to tie players to game worlds for a maximum amount of time, the “interactive guidance system” and “narrative guidance system” (Rotzetter 2018) end in a much too restricting ‘parental’ lead-by-the-hand. This can make for overstuffed game worlds and evoke an overpowering in the players, who then surrender in the prospect of too much to absolve and too little to explore and discover on one’s own terms and thus to experience worldliness.²⁸ For

27 Deleuze and Guattari define the striated space through its focus on topographical and thus metrical relations as it is focused on optical and long-sighted features of the landscape with the goal of overcoming them through the most effective fixed stretches of way (1992, 682–84). The long-range visibility in open world games is embodied by the design concept of prospect pacing, enabling multiple angles on POIs from numerous vantage points and staging worldliness by panoramic prospects. In addition, AR-like interfaces mostly have counters actualising the distance still to be traversed until the next marked waypoint while e.g. marking quest places, POIs, hostile NPCs, save points or gatherable plants within screen space at the same time.

28 *Tom Clancy's Ghost Recon Breakpoint* (Ubisoft Paris 2019) is a recent negative example of loot shooters as ‘games as a service.’ Although the non-linear fictional Pacific island Aurora is a creative mixture of the iconic Hawaiian biome and the Nordic ruggedness of Iceland, the



Fig. 7 A zoomed-out view of the Paris cityscape of *Assassin's Creed Unity* complete with most icons marking the differential of power.

example, while *Assassin's Creed Unity's* 3D world map of Paris overlaps its urban topography with multiple copies of up to 53 different icons and pictograms, players may explore the cityscape in a topological player-induced mode as spatial appropriation due to the optical and informational immoderation (« Fig. 7). The ideology of episodic and ceaseless time of *texte fleuve* mirrors the game designers' struggle for a balanced differential of power within the open world. In addition, it fits perfectly with the adventure time of the Greek and chevalric novel as defined by Bakhtin. According to him, the adventures, in our context events or quests, are connected in a possibly infinite succession that have no inherent limitation and thus are out of the time continuum. They are fragmented, episodic, and beyond a coherent space-time (Bakhtin 2014, 17).

developers' decision to combine every topographical involvement strategy of several other Ubisoft open world games generates a total differential of power towards the developers' quests and loot structures. The *world-shaped hall* here becomes an insignificant backdrop, gameplay loops and their distinct flows clash into an incoherent game experience. For a general critique on the Ubisoft formula and the dominance or focus on quests and the game design ideology, see e.g. Gamwell 2018.

Primary [...] are depictions or enactments of a world that is both fragmented and potentially limitless in spatial and/or temporal extension [...]; The *texte fleuve* presents us with a shattered (and shattering) world, a world in fragments, a world built of fragments and falling back into them again. There are multiple endlessnesses in it, not simply one, because the *texte fleuve* is concerned with showing the multiple in the singular, and the singular in the multiple; [...] It is a network of fragments at the same time that it is a continuous flow (emphasis in the original, Barges Rollins 2015, 2, 8, 45).

These remarks enable the contextualisation with Lev Manovich's description of computer games as databases that are controlled by successions of algorithms (2007, 42). "Modularity" and "variability" are key characteristics in game design, and repeating spatial patterns are effective in order to communicate with the players.

Conclusion

The *skybox*' spatial inversion of world and the contraction or distillation of an expanse as a *world-shaped hall* corresponds not only with Asendorf's concept but also with Hollein's call for a new ideal of medialised architecture that synthesises faraway places and contextualises them at one's own place (Hollein 1968, Asendorf 2017, 437). Calleja concludes that "[t]he desire to explore new lands has been an inherent part of human nature since the beginning of our species [...]. The places we yearn for most are those that are different from our everyday surroundings, especially as promoted and popularized by the media" (2011, 73). Open world games can then be understood as a digital continuation of *inner world-spaces* like world expositions, theme parks, landscape gardens, zoos, and panoramas.

Understanding the game intrinsic space of open world games as *world-shaped hall* helps to grasp its media-specific ontology as an illusionary space of secularly worldliness under multiple aspects. It encompasses not only the very architectonics of the skybox and the landscapes as well as their constructedness and sign systems but also points towards the geopolitical, capitalist, and imperialist implications of the open world topoi similar to Sloterdijk's critique of actuality still inscribed in most game worlds. Based on this, exploring the spatiotemporal dynamics between the player-character and the environment can be furthered with the *open world chronotope* under the aspects of play behaviour, game design, and thus ideology of game mechanics specific to open world games.

1. In order to form the concept of the *open world chronotope*, it is necessary to merge the *chronotope* theory with the *smooth* and *striated space* and the politics of time of the *texte fleuve* theory. That said, the biggest distinction from Bakhtin's literary *chronotope* in context of open world games is the shift from time to space as the crucial and dominant agent. The players' agency is the media-specific focus of the "open landscapes" and "possibility horizons". Although Bakhtin stresses the importance of the interdependency between literary *chronotope* and literary genres for the open world games, I would like to suggest in reference to the *world-shaped hall* that open world is not a genre but a mode of staging a media-specific spatiotemporal continuum, a worldliness only possible in open world games independent from "genre settings" (Rauscher 2012, 19) like fantasy, science-fiction, critical dystopia, post-apocalypse, Western, and the like.
2. It is the ceaseless time of *free roaming* as a landscape experience orchestrated by the players in the non-linear navigable open world topology and the episodic time of completing and selecting quest lines that are inscribed by the developers as open world topography. The *open world chronotope* then depends on the oscillation of play modes. Bargues Rollins understands both aspects as "narrative from *space*" and "narrative from *quest*" (emphasis in the original, 2015, 31). Consequently, we have come full circle, as according to Bakhtin, there are two different *chronotopes* within a literary *chronotope* that need to synchronise and form the fictional world: the one of the reader, here the players, and the one of the writer, here the game developer's (Frank and Mahlke 2014, 206). Accordingly, the experience of the *world-shaped hall* and its implications depend on the level or quality of synchronising.

All the above aspects here open paths for future research that offers a closer look at the ideological aspects that spatial representations occupy in open world game spaces. Conclusively, in experiencing the *world-shaped hall* and its ideological implications—the developers' topographical differential of power inscribed as *striated space* as well as the said geo-political critique on imperialism and capitalism in the sense of Sloterdijk—players of open world games can be defined as *nomads* in the sense of Deleuze and Guattari (1992, 481–586).²⁹ According to them, the *nomad* as a *war machine* (player-

29 The concept of the *nomad* as it is established as a stateless *war machine* by Deleuze and Guattari is a problematic one anchored in colonialist discourses through White perspectives onto respective indigenous cultures, originally justifying the expropriation of lands as well as through "anthropological borrowing" (Miller 1993: 19). Subsequently, it has come under criticism in recent postcolonial theory and indigenous studies (see Byrd 2011: 13–21; King 2019: 98ff.). In the further exploration of the *open world chronotope* and the concept of the player as a *nomad* in my forthcoming monograph on open world games, Deleuze's and Guattari's image of the nomad will be reflected critically within several discourses in order to adequately contextualise and adapt it for my research on the player's role in open world games and their ideological implications. I would like to thank Cameron Kunzelman for feedback and pointing me towards the recent criticism concerning Deleuze's and Guattari's idea of the *nomad*.

character and her agency) is independent from the *state apparatus* (the game developers' topographical network, hardened segmentation, and quest structures), but the latter implements the former via institutionalisation through its game mechanics and quest lines (ibid., 483, 486, 678). Players steadily oscillate between a *smooth* (*free roaming*, exploration, ceaseless time) and a *striated* (quest absolving, goal oriented, gameplay loops, episodic time) appropriation of the *open world chronotope*. It is the non-linear strolling for its own sake versus the iteration, repetition, and fixed axes as stretches of way (ibid., 511). The *nomad's* courses of action embody a “stationary form of process”, a “reterritorialization” while “deterritorialising” the quest places, POIs, and gameplay loops (ibid., 524–25). Therein lies the ideological potential of player-induced agency within the open world games although the staged freedom and vastness, the *smooth* play mode, is predetermined by the developers already (see Bonner 2018). That is why the *open world chronotope* has an emphasis on the spatial aspect—the landscape experience as an end in itself.

Figures

Fig. 1: Graphic by the author.

Fig. 2: Image by David Shaver 2016. <http://www.davidshaver.net/images/boomtown/o.jpg>.

Fig. 3. Still from documentary: VPRO Documentary. 2017. “Horizon Zero Dawn—The making of the game (2017).” YouTube video 47:09. April 16. Accessed October 25, 2019. <https://www.youtube.com/watch?v=AoeaGRcdwpo>.

Fig. 4. Screenshots by the author, Guerilla Games 2017.

Fig. 5: Screenshot by the author, Ubisoft 2017.

Fig. 6: Screenshot by the author, Ubisoft 2018.

Fig. 7: Screenshot by the author, Ubisoft 2014.

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