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Bettina Bodi and Jan-Noël Thon* Playing stories?

Narrative-dramatic agency in *Disco Elysium* (2019) and *Astroneer* (2019)

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Abstract: Drawing on Janet Murray (1997), Katie Salen and Eric Zimmerman (2004), and other previous proposals, this article conceptualizes player agency as the possibility space for “meaningful” choice expressed via player action that translates into avatar action, afforded and constrained by a videogame’s design. It further distinguishes between four core dimensions of agency thus conceptualized: First, *spatial-explorative agency* is afforded by those elements of a videogame’s design that determine the player’s ability to navigate and traverse the game spaces via their avatar. Second, *temporal-ergodic agency* is afforded by those elements of a videogame’s design that determine the player’s options for interacting with the videogame as a temporal system. Third, *configurative-constructive agency* is afforded by those elements of a videogame’s design that allow the player to configure their avatar and/or (re)construct the game spaces. Fourth, *narrative-dramatic agency* is afforded by those elements of a videogame’s design that determine the player’s “meaningful” impact on the unfolding story. The article then moves on to analyze two case studies of independently developed videogames: ZA/UM’s role-playing game *Disco Elysium* (2019), whose complex non-linear narrative structure primarily affords configurative and narrative agency, and System Era Softworks’s sandbox adventure game *Astroneer* (2019), whose procedurally generated game spaces and “open” game mechanics primarily afford explorative, constructive, and dramatic agency.

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In general terms, the concept of agency refers to our ability to act in the world. Perhaps unsurprisingly, then, a number of influential theorists from Michel Fou-

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cault (1982) via Anthony Giddens (1984) to Bruno Latour (2005) have grappled with the question what it means for someone (or, indeed, something) to have agency. Likewise, media studies has long been concerned with questions of agency in contexts such as processes of filmic meaning-making (see, e.g., Bordwell 1989), the politics of representation (see, e.g., Hall 1997), or the more recent emergence of a participatory (media) culture (see, e.g., Jenkins 2006). All of this being said, the present article is primarily concerned with the kind(s) of agency that videogames afford their players. Yet, while our scope is necessarily more narrow than that of Foucault, Giddens, or Latour, it is worth stressing that the concept of agency has received a fair bit of attention within the interdisciplinary field of game studies as well. An early influential conceptualization of agency was developed by Janet Murray, who defines it as “the satisfying power to take meaningful action and see the results of our decisions and choices” (1997: 126), while also stressing that “[a]ctivity alone is not agency” (1997: 128). Perhaps self-evidently, however, game studies has seen considerable development since the late 1990s, and the area of player agency is no exception.

Broadly speaking, we can distinguish between two different approaches to the conceptualization of agency that evolved from Murray’s early intervention: On the one hand, what could be described as narratologically-oriented approaches follow Murray in framing agency as narratively “meaningful” action, often focusing on the player’s ability to influence the course of a videogame’s story (see, e.g., Domsch 2013; Hammond et al. 2007; Stang 2019; Tanenbaum and Tanenbaum 2010). On the other hand, what could be described as ludologically-oriented approaches connect the concept of agency to a videogame’s game mechanics, its game goals, and other aspects of its ludic system (see, e.g., Boonen and Mieritz 2018; Cheng 2007; Habel and Kooyman 2014; Harrell and Zhu 2008; Jørgensen 2013; King and Krzywinska 2006; Sicart 2008). As useful as this initial broad distinction may be to map the contours of the field, however, it should not be misconstrued as suggesting that narratologically-oriented approaches to player agency are completely uninterested in game mechanics, nor that ludologically-oriented approaches to player agency are completely uninterested in narrative choice.¹ In fact, while the main focus of the present article is on the connection between player agency and videogames’ narrativity, our exploration of the latter

1 It is also worth stressing here that the distinction between narratologically-oriented and ludologically-oriented approaches to player agency is meant as a shorthand to refer to broad differences in emphasis between existing conceptualizations of agency, but does not aim to frame those approaches in terms of the so-called “ludology/narratology debate” (see, e.g., Frasca 2003a; Murray 2005; Pearce 2005), nor indeed to contribute to “perpetuating the myth that there was a group of narrative theorists who had a quarrel with another group called ‘ludologists’” (Aarseth 2019: n.p.).

draws on a multidimensional conceptualization of agency that not just aims to combine narratological and ludological perspectives but in fact goes significantly beyond many of the existing approaches in acknowledging the complexity of how videogames may afford “meaningful” action.²

A multidimensional conceptualization of agency in videogames

Drawing on Janet Murray (1997), Katie Salen and Eric Zimmerman (2004), and other previous proposals, we conceptualize player agency as the possibility space for “meaningful” choice expressed via player action that translates into avatar action, afforded and constrained by a videogame’s design.³ As already mentioned above, however, our conceptualization of agency is not limited to *narratively* “meaningful” player choice. Rather, we propose to distinguish between four dimensions of agency, the differently realized interplay of which constitutes the specific experiences of agency that a particular videogame may afford its players.⁴ First, *spatial-explorative agency* is afforded by those elements of a videogame’s design that determine the player’s ability to navigate and traverse the game spaces via their avatar. Second, *temporal-ergodic agency* is afforded by those elements of a videogame’s design that determine the player’s options for interacting

2 One can, however, also find earlier attempts such as those by Fox Harrell and Jichen Zhu (2008) to develop an explicitly multidimensional conceptualization of player agency. Still, Harrell and Zhu’s distinction between “agency dynamics,” “agency scope,” and “agency relationships” is quite different from the conceptualization of player agency we propose (and could, in fact, be seen as complementing rather than contradicting our approach; see also the broader transmedial perspective on different conceptualizations of agency developed in Eichner 2014).

3 The scope of the present article will have to remain limited to the kind(s) of agency that avatar-based videogames afford their players (for further discussion of avatars and videogame characters, see also, e.g., Backe and Thon 2019; Bayliss 2007; Isbister 2006; Klevjer 2006; Linderoth 2005; Schröter and Thon 2014; Vella 2015; Westecott 2009; Willumsen 2018). While expanding the conceptualization of player agency proposed here to videogames that do not employ an avatar would certainly be interesting, such an expansion would also open up a number of additional theoretical problems that we do not have the space to address.

4 It may be worth stressing yet again that videogames afford agency within the often quite narrow constraints of their overall design, which has led some theorists to talk about the “illusion of agency” (Charles 2009: 285–286), “illusory agency” (MacCallum-Stewart and Parsler 2007: 6), or “temporary agency” (Nguyen 2020: 57). While there certainly are merits to these kinds of arguments, we would still maintain that the agency videogames afford their players is very rarely exclusively “illusory,” and is worth analyzing carefully in any case.

with the videogame as a temporal system. Third, *configurative-constructive agency* is afforded by those elements of a videogame's design that allow the player to configure their avatar and/or (re)construct the game spaces. Fourth, *narrative-dramatic agency* is afforded by those elements of a videogame's design that determine the player's "meaningful" impact on the unfolding story.⁵ While it is clear that all of these dimensions of player agency influence and interact with each other in various ways that are sometimes difficult to disentangle, we would still maintain that the heuristic distinction proposed here has considerable analytical value when exploring the agency-related affordances and limitations of concrete videogames. Before we can illustrate this via two detailed case studies of recent avatar-based videogames, however, we will need to unpack some of the theoretical complexities of each dimension of agency in at least slightly more detail.

Drawing on existing studies of space in videogames (see, e.g., Aarseth 2000; Arsenault and Perron 2008; Juul 2005: 164–167; Klastrup 2003; Nitsche 2008; Wolf 2001), our conceptualization of the spatial-explorative dimension of agency aims at the ways in which the spatiality of videogames affords as well as constrains player action. A first helpful distinction we can draw here is between space-as-ludic and space-as-representational. While space-as-ludic focuses on the game-play-related affordances and constraints of a videogame's game spaces, space-as-representational foregrounds the question what kinds of objects these game spaces are represented as consisting of. It is worth stressing, however, that game spaces are usually both ludic and representational spaces in that the objects they consist of fulfil both ludic and representational functions at the same time, even if the ludic functions will often be foregrounded and the representational functions will not necessarily contribute to the representation of what could be described as a storyworld.⁶ In any case, a videogame's game spaces (as both ludic and representational spaces) will often afford spatial and explorative agency. Spatial agency refers to the actions that the player can make the avatar perform in order to navigate a videogame's game spaces, focusing on questions such as: Can the

⁵ While unpacking this would once more go beyond the scope of the present article, an argument could be made that the increasingly social nature of videogame play in general and multiplayer games in particular necessitate adding a fifth dimension here: *Social-communicative agency* could then be conceptualized as afforded by those elements of a videogame's design that encourage player-to-player communication within or outside of the game (including players' discussion of design elements connected to the previous four dimensions; see, e.g., Taylor 2006; 2018; and the contributions in Kowert and Quandt 2017; Quandt and Kröger 2013).

⁶ Very briefly put, this means that not everything that is represented as part of the game spaces is represented as part of the storyworld of a given videogame, which in fact adds a considerable layer of additional complexity to traditional notions of "representational correspondence" (Currie 2010: 59). See also Thon 2015; 2016a; 2016b; 2017; as well as the more detailed discussion below.

avatar walk, jump, sprint, or take cover? How do the game physics, the level design, and the arrangement of the objects that make up the game spaces afford or constrain avatar movement and, thus, the player's spatial agency? If spatial agency manifests in individual game spaces and tends to foreground their ludic functions, explorative agency aims at the sometimes quite complex arrangement of all game spaces of a given videogame and tends to foreground their representational functions, focusing on questions such as: How are the game spaces arranged and connected to each other (see, e.g., Debus 2016; Gazzard 2009)? To what extent is exploration incentivized by the game goals and/or supported by interface elements such as maps (see, e.g., Gazzard 2011; Jørgensen 2013)? But also: How do the game spaces relate to what could be described as the storyworld space of the videogame in question (see, e.g., Thon 2015; 2016b)? How much of the (exclusively representational) storyworld space can the player/avatar actually explore (in the form of ludic-representational game spaces)?

As important as both spatial and explorative agency are for the gameplay experiences that many videogames afford, however, “[w]e should not forget that the temporal dimension of gameplay prevails on its spatial characterization” (Arsenault and Perron 2008: 113), which brings us to the second dimension of player agency we propose to distinguish. Again, we can draw on a range of existing works that explore the many ways in which time and temporality are relevant to the gameplay experiences that videogames afford their players (see, e.g., Aarseth 1997; Aarseth et al. 2003; Elverdam and Aarseth 2007; Eskelinen 2012; Juul 2005; Lindley 2005; Tychsen and Hitchens 2009; Zagal and Mateas 2010). At a minimum, existing approaches tend to distinguish between the time of the player and the time of the videogame, but just as with the space of the videogame (which should not be conflated with the space of the player), it will be helpful to further distinguish between different temporal regimes that govern the gameplay. While there are different ways to draw these distinctions, we will need to at least further distinguish between the time of the game spaces, which tends to foreground ludic functions, and the time of the storyworld, which tends to foreground representational functions. As with the distinction between ludic and representational space, the degree of integration varies: It is, for example, quite common for videogames to implement temporal mechanisms such as day-and-night cycles, various kinds of countdowns, and the like, either as primarily ludic devices that are only represented as part of the game spaces (without being integrated into the storyworld and thus impacting storyworld time) or as primarily narrative devices that are only represented as part of the storyworld (without being connected to the time of the game spaces and the resulting ludic challenges).

However, the distinction between the time of the player, the time of the game spaces, and the time of the storyworld does not yet say much about the kind(s) of

agency that a videogame's temporal structure may afford its players. To get the latter into clearer focus, we propose to distinguish between temporal and ergodic agency.⁷ Put in a nutshell, temporal agency here refers to the affordances and constraints of player/avatar action *within* the temporal structure constituted by a videogame's design, while ergodic agency refers to the affordances and constraints of player/avatar action *on* these temporal structures. When analyzing temporal agency, on the one hand, we might ask questions such as: How is the passage of time marked, and how does the time of the game spaces relate to the time of the storyworld? What are the temporal constraints affecting players' decision-making in the context of turn-based, real-time, or otherwise "timed" gameplay (see also, e.g., LeBlanc 2005)? Is the gameplay open-ended or is a temporal endpoint established (see also, e.g., Fassone 2017; Herte 2020)? When analyzing ergodic agency, on the other hand, we might focus on questions such as: Can the player influence the temporal structures of a videogame? Is time manipulation part of the game mechanics, allowing the player/avatar to stop, rewind, or fast-forward the time of the game spaces (see also, e.g., Hanson 2018: 56–85; 135–155)? To what extent is the player/avatar able to manipulate the time of the storyworld as well, allowing for various forms of time travel?

As important as the temporal-ergodic dimension of agency certainly is for many videogames, the ways in which player action can affect the game spaces or even the storyworld(s) of these videogames often go beyond what we have discussed so far. Much of these additional affordances and constraints can be described in terms of configurative-constructive agency. On the one hand, many videogames tap into the tradition of tabletop role-playing games, allowing their players to "build" a character from a large set of options as well as continue to "develop" that character during gameplay (see, e.g., Bienia 2016; Fine 2002; and the contributions in Deterding and Zagal 2018). In many videogames, this kind of configurative agency is not limited to the avatar's equipment (clothes, armor, weapons, tools, etc.), but also includes a specific corporeality, mentality, and sociality (see, e.g., Schröter and Thon 2014, who draw on Eder 2008 and others to describe what Willumsen 2018 calls the

7 In one of the founding texts of the field of game studies, Espen Aarseth (1997) proposes the term "ergodic" to describe texts that require non-trivial efforts from their "players" to traverse them, later also arguing that ergodic time specifically depends on user action (see Aarseth 1999). The concept of "ergodicity" has been further developed by scholars such as James Newman (2002), who suggests that another important quality of it is its sequentiality, meaning that the entire videogame cannot really be described as ergodic or non-ergodic, but rather should be understood as containing "ergodic elements" in a sequence of gameplay segments. As important and influential as these previous conceptualizations of "ergodicity" certainly are, however, we use "ergodic" in a somewhat more narrow sense in the following.

avatar's "figurative attributes"). No less importantly, some videogames also allow players to use their avatars in order to affect lasting and potentially "meaningful" change within the game spaces and/or the storyworld. Once more drawing on Murray (1997), we propose to describe these affordances and constraints in terms of constructive agency,⁸ focusing on questions such as: Can the player/avatar alter the perimeter or make-up of the game spaces by, for example, raising, lowering, adding, or removing terrain? Can they mine, harvest, or in other ways gather materials that may fulfill ludic or narrative functions? To what extent do changes in the game spaces that are caused by the player/avatar also lead to changes in the storyworld space of the videogame in question?

As will have become clear already, the spatial-explorative, temporal-ergodic, and configurative-constructive dimensions of player agency are all connected to both ludic and representational functions. Yet, we have thus far only hinted at another complication of what "representational functions" may entail in the context of videogames, namely whether certain elements of the audiovisual representation that a videogame generates should only be taken to represent certain elements of the game spaces, or whether they should also be taken to represent certain elements of that videogame's storyworld(s). While the question of videogames narrativity has been fiercely debated in the early days of the interdisciplinary field of game studies (see, e.g., Frasca 2003a; Murray 2005; Pearce 2005), recent years have seen a consensus emerge that at least some videogames are narrative in some way and that theorizing and analyzing how these videogames tell stories can be a worthwhile endeavor (see, e.g., Aarseth 2012; Backe 2012; Domsch 2013; Eskelinen 2012; Jenkins 2004; Neitzel 2014). Different approaches within game studies and transmedial narratology offer different ways to think about these issues, but it seems clear that videogames' interactivity and nonlinearity complicate and at least partially subvert established notions of narrative representation and narrativity⁹ because the representation of spaces, events, and characters in videogames is not predetermined to the same extent as it is in non-

⁸ Murray writes about "constructivist pleasure" as a form of agency, which she argues is "the highest form of narrative agency the medium allows, the ability to build things that display autonomous behaviour" (1997: 149).

⁹ In light of the broad range of different approaches within current narratological practice, it will come as no surprise that there is no single answer to the question of what a narrative is. However, recent works by scholars such as Monika Fludernik (1996: 12–52), Fotis Jannidis (2003), Marie-Laure Ryan (2006), and Werner Wolf (2004) have developed what could be described as "prototypical" definitions of narrative, emphasizing gradual rather than binary distinctions between "narratives" and "non-narratives." Ryan, for example, proposes to regard "the set of all narratives as fuzzy, and narrativity (or 'storyness') as a scalar property" (2006: 7) that recipients may or may not attribute to a given cultural artifact depending both on that artifact's design and their own personal

interactive and linear narrative media forms such as novels, comics, films, or television series (see, e.g., Thon 2015; 2016a; 2016b; 2017).

Perhaps unsurprisingly, these kinds of questions are at the core of what we propose to conceptualize as the narrative-dramatic dimension of player agency. Narrative agency here refers to the potential for player action to affect prototypically narrative elements of video games, such as cut-scenes or scripted sequences of events. Following Hancock (2002), the term “cut-scene” can be used to refer to any noninteractive element in a videogame that is employed either in order to contribute to the unfolding of the story or, more generally, in order to flesh out the storyworld in which the characters and events of that story are situated (see also, e.g., Klevjer 2014).¹⁰ No less importantly, predetermined events can also be represented within the game spaces themselves, allowing the players to continue to interact with the videogame in question while a scripted sequence of events takes place. In terms of narrative agency, however, the main question to ask is perhaps not what forms such prototypically narrative elements take.¹¹ Instead, we propose to focus on how prototypically narrative elements are arranged and to what extent the player is afforded opportunities to influence the overall order of events: Are there “forking paths” in the predetermined narrative (see, e.g., Aarseth 1994)? Does the nonlinear narrative structure take the form of, say, a vector with side branches, a tree, or a maze (see, e.g., Ryan 2015: 165–175)? But also, and no less importantly: How do the prototypically narrative elements (i.e., various kinds of cut-scenes and scripted sequences of events) relate to what could perhaps be more precisely characterized as interactive simulation than as narrative representation (see also, e.g., Aarseth 2004; Frasca 2003b; Ryan 2006: 181–203)?

While we would maintain that there is a narratologically significant distinction to be drawn between those differences across playthroughs that arise from

understanding of what is and is not part of the set. Indeed, such an approach is also well suited to exploring the narrativity of videogames.

10 Cinematographic sequences remain most common, with “pre-rendered” cut-scenes increasingly being replaced by “in-engine” cut-scenes that allow for a greater degree of customization based on, say, the current equipment of the avatar. Since computers are capable of “remediating” the multimodal characteristics of most of the more established narrative media (see Bolter and Grusin 1999), however, one can also find a variety of nonfilmic cut-scenes, such as still pictures or comics pages.

11 That being said, it is worth noting that contemporary videogames increasingly complicate this basic distinction between cut-scenes and scripted events, as configurable cut-scenes and scripted sequences with reduced interactivity as well as so-called “quick-time events” and even “ludic” cut-scenes that are used to represent ludic rather than predetermined narrative events become more common (see, once more, Thon 2015; 2016b for a more detailed discussions of these “hybrid” forms).

the nonlinearity of a predetermined narrative structure (consisting of prototypically narrative elements such as cut-scenes and scripted sequences of events) and those differences across playthroughs that arise from the interactivity of the gameplay (which makes videogames appear as particularly effective “machine[s] for the production of variety of expression” [Aarseth 1997: 3]),¹² it is also clear that the ludic events that emerge from the player’s interaction with a videogame’s game mechanics, its game goals, and other aspects of its ludic system afford a range of narrativity-related agency to the player as well. For reasons of terminological clarity, we propose to conceptualize this kind of agency as dramatic rather than narrative agency (see also, e.g., Fullerton 2014; Mateas 2000; Murray 1997), upholding the distinction between the prototypically narrative representation of events in cut-scenes or scripted sequences and the interactive simulation of the ludic events that often make up the bulk of the gameplay, while also acknowledging the narrative potential of the latter. In principle, players can attribute narrative qualities to all kinds of ludic events, but we would still mainly speak of dramatic agency in those cases where a videogame’s design affords its players opportunities to “heighten” the narrativity of the gameplay without relying primarily on predetermined narrative events. Applying the concept of “eventfulness” developed by neoclassical narratologists such as Schmid (2003), questions we might ask here would primarily aim at the kind of ludic events that emerge from the player’s interaction with a videogame’s game mechanics, its game goals, and other aspects of its ludic system: Are the ludic events relevant for the storyworld in which they occur and/or for the future development of the story? Are they unpredictable in the sense that they deviate from the baseline expectation of what “would have happened anyway”? Are they persistent, irreversible, and non-iterative?¹³

12 Again, this argument has been unpacked in more detail elsewhere (see Thon 2015; 2016b) and can also be connected to a transmedial conceptualization of storyworlds as intersubjective communicative constructs (see Thon 2016a; 2017). Indeed, this kind of distinction between the predetermined narrative structure of a videogame and the more “local” narrative representation that emerges from the player’s interaction with its game mechanics, its game goals, and other aspects of its ludic system is quite common within current game studies (see, for example, the similar distinctions between “designer story” and “player story” in Rouse [2005: 203–206], “logocentric narrative design” and “mythocentric narrative design” in Chandler [2007: 102–108], or “scripted narrative” and “alterbiography” in Calleja [2011: 113–134]).

13 Schmid rightly notes that “the five features are gradational and can be realized to varying degrees,” which “means that events can have varying levels of eventfulness” (2003: 24). It is also worth noting that this approach to conceptualizing the “eventfulness” of ludic events in order to gauge the extent to which a videogame may afford dramatic agency to its players is broadly in line with existing accounts of the latter from game studies. Murray, for example, understands dramatic

While there would evidently be more to say on each of these four dimensions of agency, we still hope that this brief presentation has made the advantages of going beyond “one-dimensional” conceptualizations sufficiently clear. Indeed, we would maintain the heuristic value of distinguishing between spatial-explorative agency, temporal-ergodic agency, configurative-constructive agency, and narrative-dramatic agency even in cases where the main focus is on the latter, emphasizing that these four dimensions of player agency interact with each other in complex ways and thus ultimately all influence a videogame’s narrativity at least to some degree. At the same time, we would readily concede that the complexity of how actual videogames’ design may afford and constrain player agency as the possibility space for “meaningful” choice expressed via player action that translates into avatar action can go significantly beyond what we have discussed thus far, suggesting the need to balance our attempt to offer a theoretical exploration of the underlying concept with its analytical putting-into-practice in the context of detailed case studies of what the literary narratologist David Herman might call “tutor texts” (2002: 213).¹⁴ As noted above, our comparative analysis of ZA/UM’s *Disco Elysium* (2019) and System Era Softworks’s *Astroneer* (2019) acknowledges the interrelation between all four dimensions of agency, but our main focus is on the narrative-dramatic agency that these recent indie games afford their players, as well as on the ways in which the respective design goes beyond established notions of nonlinear narrative structures.

Narrative agency in *Disco Elysium* (2019)

In ZA/UM’s role-playing game *Disco Elysium*, the player controls an amnesiac detective with serious substance abuse issues, tasked to investigate a murder case in the fantastic-realism storyworld of Elysium, which consists of island-like “isolas” connected by the reality-bending substance of the “pale.”¹⁵ In contradistinction to

agency as “the cueing of the interactor’s intentions, expectations, and actions so that they mesh with the story events generated by the system” (Murray 2005: 85) and connects it to “the pleasure we feel when we actively engage with the fictional world” (Murray 2015: n.p.).

14 It will likely go without saying that we are not suggesting that the kind of literary texts Herman refers to here share a particularly large amount of features with the kind of videogames that the present article explores, or that it would be of particular analytical value to conflate the two, but we would certainly accept that the latter can still appropriately and productively be conceptualized as a form of “text” in a broader sense (see also, e.g., Aarseth 1997; Eskelinen 2012; Fernández-Vara 2019).

15 While the question of audiovisual aesthetics is not at the center of the present article, it is worth noting that *Disco Elysium* employs unusual watercolor-like graphics that offer a perhaps even better

many other role-playing games, the core game mechanics of *Disco Elysium* do not include a fighting system, but rather limit themselves to exploration, dialogue with nonplayer characters, and avatar configuration. During exploration, the player directly controls the avatar as he¹⁶ traverses the audiovisually represented game spaces, leading to a comparatively limited but still noteworthy degree of spatial-explorative agency.¹⁷ At the same time, dialogue and challenges linked to avatar configuration use primarily language-based modes of representation and their success is checked by simulated dice rolls that echo the nondigital precursors of the role-playing game genre. As *Disco Elysium*'s gameplay does not foreground time-critical decision making, then, agency in the temporal-ergodic dimension is likewise not very salient, except for an in-game clock and a day-and-night cycle that impacts the accessibility of certain objects and nonplayer characters. Finally, while *Disco Elysium*'s design also largely constrains constructive agency, it does afford a fairly high degree of configurative agency (to be discussed below), which in turn is closely connected to the videogame's nonlinear narrative structure and the narrative (albeit not necessarily dramatic) agency it affords.

It would be difficult to list the many cut-scenes or scripted sequences of events that *Disco Elysium* employs, as indeed most of the "eventful" events taking place in the storyworld of any single playthrough are represented using prototypically narrative elements of some sort. The explorable parts of *Disco Elysium*'s storyworld consist of a diverse set of locations, nonplayer characters, and objects, interaction with which often opens one of the videogame's many "dialogue windows." In addition to the complex nonlinear structures of the ensuing dialogues between the avatar, other characters, various objects, and even some of the avatar's skills (see Figure 1), both the choices that the player makes here and the out-

example of what Jesper Juul (2019) calls "independent style" than the cartoonish abstraction that characterizes *Astroneer* (2019) does. For more detailed discussions of indie game aesthetics, see also, e.g., Garda and Grabarczyk 2016; Kagen 2018; Lipkin 2013; Thibault 2016; Thon 2020; Westecott 2012.

16 Somewhat unusually for a contemporary role-playing game, the configurative agency that *Disco Elysium*'s design affords its players does not extend to configuring the gender or, indeed, bodily appearance of the avatar, though the developers have said that they may add "a pregnant woman as a second protagonist" (O'Connor 2019: n.p.) in a potential sequel. For further discussion of videogame genres, see, e.g., Apperley 2006; Arsenault 2009; Rauscher 2012; for further discussion of gender and videogames, see, e.g., Cote 2020; Ruberg 2019; Shaw 2014.

17 While an important part of the gameplay, the spatial-explorative agency afforded by the traversal of the game spaces does not go much beyond what players would expect from a point-and-click adventure. Indeed, while *Disco Elysium* self-identifies as a role-playing game, it might be more appropriately characterized as combining elements of the role-playing game and the point-and-click adventure genre.

comes of various skill checks can trigger a variety of cut-scenes and scripted sequences of events, many of which can in turn be realized in numerous different ways across different playthroughs. The resulting narrative complexity is present throughout the gameplay to an extent that the latter could be described as being primarily defined by the player's choices in terms of which of the many possible versions of the “designer story” (Rouse 2005: 204) is actualized in any given playthrough. In the following, however, we will primarily focus on two more specific aspects of *Disco Elysium's* design that afford narrative agency, namely irreversible “forking path” choices within the main storyline and the skill management system that includes an unusual game mechanic called the “thought cabinet.”

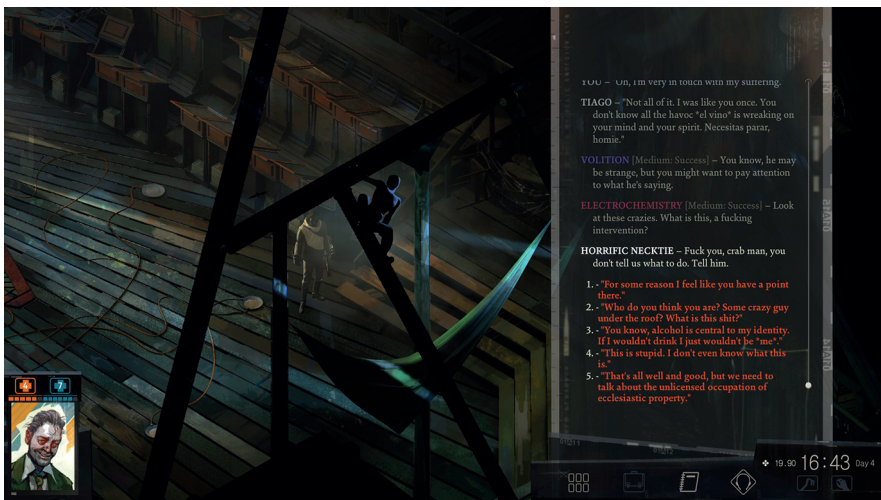


Figure 1: One of the avatar's skills participating in a dialogue in *Disco Elysium*.

While many of the situations that the avatar will encounter as part of *Disco Elysium's* main storyline are predetermined, there is some flexibility in the order in which clues need to be investigated. As mentioned above, various “key moments” are fully predetermined and player/avatar action has no impact on them at all. For example, there is only one route to recovering the avatar's lost gun and only one fridge that can be used to hide the corpse of the murder victim when the avatar needs to buy himself more time to examine it. Yet, there are many opportunities for narrative choice, usually presented as dialogue options. A good example of this comes in the form of a decision of whether or not to arrest a nonplayer character called Klaasje for the murder that the avatar is investigating. Klaasje is an enigmatic woman who turns out to be a former government employee turned corporate spy on the run. Depending on how many details previous conversations

with other suspects and the investigation in general have already revealed, the confrontation with Klaasje will vary in terms of how much information she is willing to share with the avatar (and, thus, the player). Subsequently, the player can decide what should happen to Klaasje based on what they know about her and also depending on which kind of detective they are building as their avatar (see Figure 2). In this situation, then, *Disco Elysium*'s design affords a significant degree of narrative agency to the player, opening up four yet again largely predetermined paths of how Klaasje's fate can unfold. If the player decides to have the avatar arrest her, it will later be revealed that she is likely to be executed for her espionage work. If she is not arrested on the spot, or she is let go with a warning, she is later revealed to be boarding a ship to leave for the unknown. She can also be handed over to another mysterious character linked to her employers, though the availability of this last option depends on other decisions made prior to the interrogation scene. All this being said, Klaasje's fate will ultimately turn out to be largely inconsequential to the overall plot, which is also already hinted at when the player/avatar has to make their/his choice. Indeed, this "forking path" and the interrogation dialogue that precedes it (with numerous of the avatar's skills chiming in to provide different readings of Klaasje's words) seem to be less about Klaasje than about which kind of detective the player wants to build, while simultaneously challenging the player's interpretation of what the avatar has discovered about the murder so far.



Figure 2: The player choosing Klaasje's fate in *Disco Elysium*.

While these kinds of “forking path” choices already result in a rather complex nonlinear narrative structure composed of prototypically narrative elements, *Disco Elysium* also uses its skill management system to afford not just configurative but also narrative agency, and it does so in an arguably more interesting way than many other role-playing games. Following the player’s initial choice of an archetype that defines a general limit to the development of the avatar during any given playthrough (see Figure 3), avatar configuration then happens via a skill point system that comprises the four core attributes “intellect,” “psyche,” “physique,” and “motorics.” Each of the four attributes have six skills affiliated with them, resulting in a total of twenty-four skills available to the player for customization (see Figure 4). These skills have unusual names such as “inland empire” (representing the power of imagination which determines how far-fetched some of the avatar’s ideas are) or “esprit de corps” (representing the avatar’s knowledge of police culture and bureaucratic procedures) and it will take most players quite a few hours of gameplay to get a better grasp of their various uses. No less importantly, skill points for each skill can be unlocked upon accumulation of the required amount of experience points and can also be temporarily raised or lowered by the consumption of substances or the use of clothing and items. All skills are regularly checked via the abovementioned simulated dice rolls, determining whether the avatar succeeds to resolve a given situation in a certain way and thus affording the player a fair amount of configurative agency, as different avatar builds translate into different playstyles and role-playing experiences.

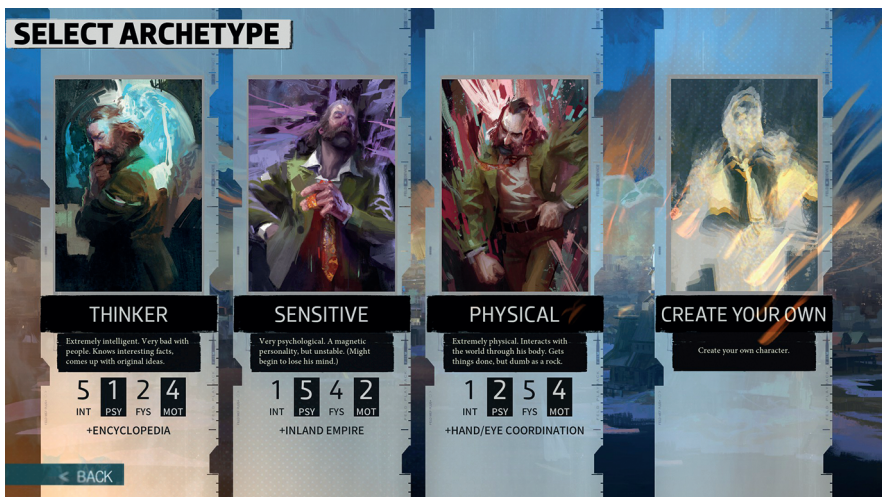


Figure 3: The player choosing an archetype for their avatar in *Disco Elysium*.

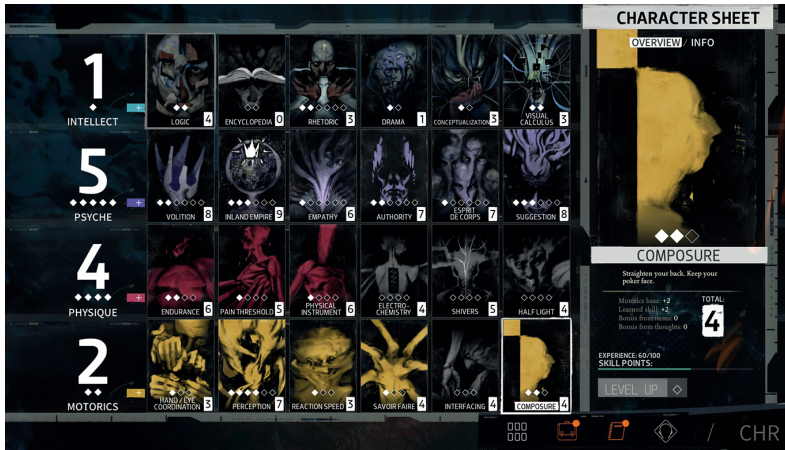


Figure 4: A possible configuration of the avatar's skills in *Disco Elysium*.

There is, of course, nothing particularly unusual about the player's ability to choose between developing an avatar with an emphasis on, say, physical prowess or heightened cognitive skills, but *Disco Elysium* puts a rather noteworthy twist on this genre-typical approach to configurative agency. Passing skill checks is often a desirable outcome and failing them can sometimes result in a game-over screen instantly followed by the reloading of the latest autosave, thereby ensuring that little progress is lost (see also Juul 2013; Herte 2020). However, failing skill checks can also lack any grave consequences like that, instead leading to minor diversions from the main plot. When the avatar's confrontation with the cafeteria manager Garte goes awry, for example, an attempt to run away triggers a skill check for "savoir faire" (which is a "motrics" skill that allows for both stealth-related and acrobatic challenges to be overcome). If the skill check is successful, a scripted sequence of events is used to represent the avatar running to the door while the manager yells at him (see Figure 5). If the skill check is failed, however, the following scripted sequence of events shows the avatar tripping and attempting to flip both of his middle fingers mid-air while a dialogue window asks the player what the avatar's last words should be before he lands on the cold tile flooring and loses his consciousness (see Figure 6). This loss of consciousness is represented via a pitch-black screen and a conversation with the avatar's subconsciousness, during which the player/avatar is prompted to reflect on the avatar's life choices. After a few lines of dialogue, the avatar regains consciousness and the main storyline is picked up where it was left when the avatar passed out, but even this brief diversion conveys various snippets of information about the avatar's background, motivations, and identity that the player would not have been able to access without having failed the skill check. Failure in the traditional

sense is thus not heavily penalized by *Disco Elysium's* game mechanics and can in fact often lead to a richer narrative experience for the player.¹⁸

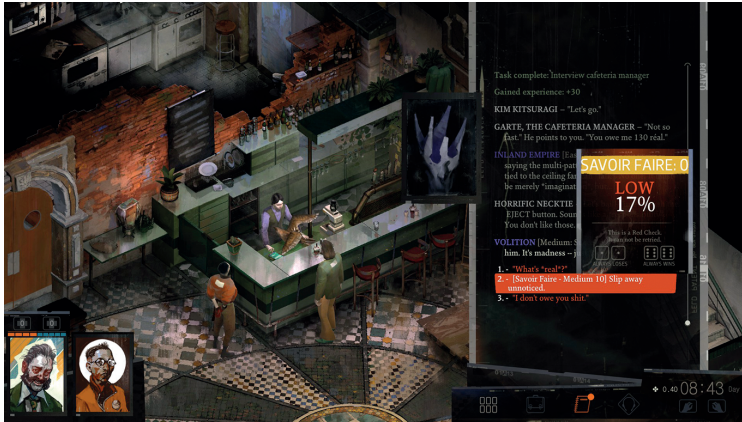


Figure 5: The avatar escaping from the yelling cafeteria manager Garte in *Disco Elysium*.

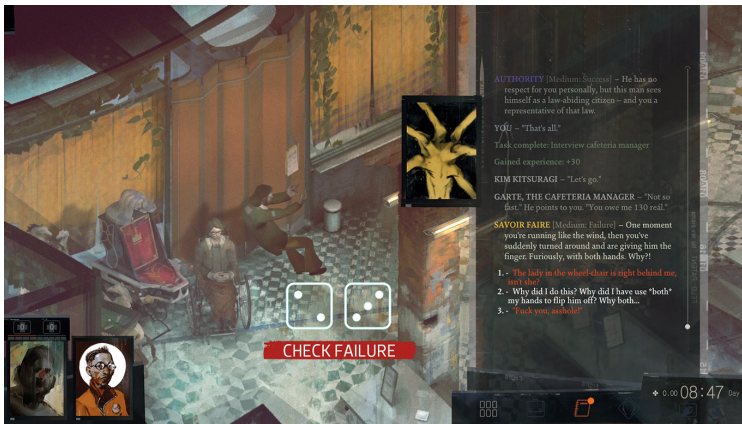


Figure 6: The avatar tripping and attempting to flip a double finger mid-air in *Disco Elysium*.

¹⁸ Another good example of *Disco Elysium's* subversion of generic expectations regarding its skill management system would be the fact that putting “too many” points into a skill can result in that skill not in fact fulfilling its greatest potential, but rather approaching an unwieldy extreme. In the case of the “empathy” skill, for example, this means that the avatar becomes overly sensitive to everything and is likely to overreact as a result, which annoys certain nonplayer characters, making them reluctant to share information and forcing the avatar to pursue other leads.

As already hinted at above, however, the ways in which *Disco Elysium* uses its skill management system in order to generate “eventful” events does in fact go much further than what we have discussed thus far, with the so-called “thought cabinet” providing a particularly salient example: After the avatar has done or said something a requisite amount of times, a “thought” is made available in the interface of the “thought cabinet,” where it can be “internalized” using a skill point. During the process of “internalization,” some of the avatar’s skills are decreased, but once a “thought” is “internalized,” it may result in permanent skill increases or other advantages. For example, by calling oneself homeless, a “thought” called “hobocop” is unlocked. It takes 4 hours and 20 minutes of in-game time to internalize it, during which time one point from the avatar’s “composure” skill level is temporarily taken away (see Figure 7). Upon completion of the “internalization” process, however, this negative effect is removed and the player/avatar is rewarded with an increase in both the number of “tare” (empty containers) that appear on the streets and the “return fee” that the avatar receives for them. Similarly, making the avatar constantly apologize for his actions unlocks a “thought” called “rigorous self-critique,” the “internalization” of which temporarily reduces the “authority” skill level, but eventually grants an increase in the “pain threshold” skill level.

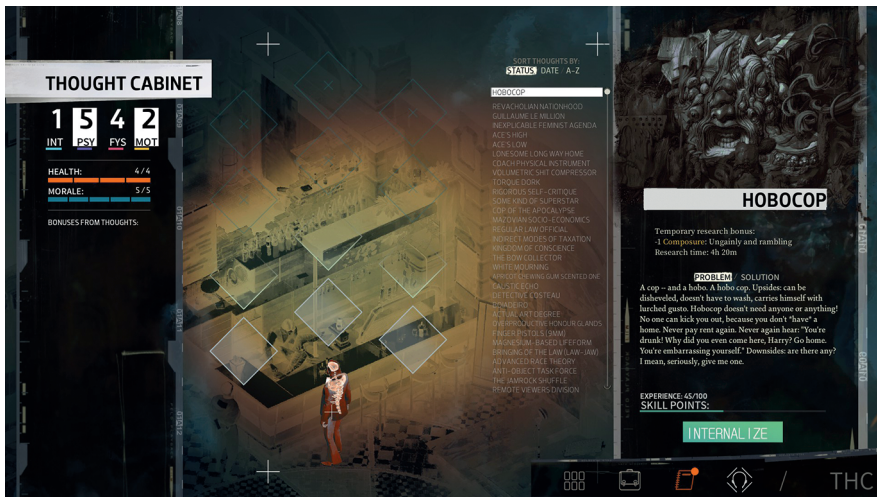


Figure 7: The “internalization” process for the “thought” called “hobocop” in *Disco Elysium*.

No less importantly, certain “thoughts” are unlocked as a result of opposing “thoughts” being simultaneously “internalized.” For example, the avatar can have two communist “thoughts” in their “thought cabinet,” “Mazovian socio-economics” and “big communism builder.” Both of these “thoughts” are made avail-

able for internalization after having opted for a minimum of four left-leaning dialogue options that align with communist values. However, there are no restrictions in the design that would stop the simultaneous internalization of a capitalist “thought” such as “indirect modes of taxation,” which is made available upon repeated selection of capitalist dialogue options, the bribing of certain officials, etc. (see Figure 8). While *Disco Elysium*’s skill management system is closely connected to its nonlinear narrative structure, it is worth noting that the resulting choices are still best described as affording narrative rather than dramatic agency to the player: The complexity of the “forking paths” that *Disco Elysium*’s nonlinear narrative structure and its narratively inflected skill management system generate means that the player will never get to see more than a fraction of the possible ways in which their avatar’s story can unfold, but that does not change the fact that all of these “forking paths” are fundamentally predetermined. This is notably different in our second case study, the design of which focuses less on affording narrative agency than it does on affording dramatic agency.



Figure 8: The simultaneous “internalization” of communist and capitalist “thoughts” in *Disco Elysium*.

From narrative to dramatic agency in *Astroneer* (2019)

System Era Softworks’s *Astroneer* is a sandbox adventure game created by former Ubisoft and 343 Industries developers that distinguishes itself from the iconic

first-person shooters and action-adventures produced by these studios not just by a complete absence of gunplay, but also by its emphasis on the kind of narrative-related agency that we have previously framed as dramatic rather than prototypically narrative. Indeed, there are only very few prototypically narrative elements in the videogame's design: Any new playthrough begins with a highly scripted sequence of events that represents how a landing capsule transporting an "astroneer" departs a space station and enters a planet's atmosphere (see Figure 9), with the player only being capable of moving the "virtual camera" around before the shuttle lands and they take full control of their avatar. Throughout any given playthrough, the various instances of interplanetary travel that the game mechanics allow for are framed via similarly scripted sequences of events that represent the avatar's take-off and landing, and the player/avatar can also unlock cross-planetary transporter beams as part of *Astroneer*'s "endgame," which is rewarded with a more traditional filmic cut-scene representing the current iteration of the "astroneer" stepping into a mysterious energy portal and disappearing (see Figure 10). Finally, the player/avatar can find debris that was presumably left behind on each of the planets by previous "astroneers" and thus also hints at a more extensive backstory.¹⁹ Instead of presenting a (non)linear "progression" (Juul 2005: 71) of predetermined narrative elements that might afford narrative agency, then, *Astroneer*'s gameplay can be described as primarily "emergent" (2005: 76), with procedurally generated²⁰ game spaces and "open" game mechanics affording considerable spatial-explorative and constructive as well as dramatic agency.

19 *Astroneer* has been available in an early access version since 2016 and there have been several content updates since its initial full release in 2019, adding individual mechanics like a jet pack or more storage units. For methodological reasons, this analysis only considers *Astroneer 1.0* for PC, as it was released via Steam in early 2019, but we want to acknowledge that some of the subsequently released updates, such as the *Wanderer update* (2019), contains more prototypically narrative content in the form of an optional quest to collect certain objects. However, engaging with this quest remains entirely optional and its addition thus does not impact our overall analysis of *Astroneer* as primarily affording dramatic rather than narrative agency.

20 The phrase "procedural content generation" was popularized after the success of *Minecraft* (2009), a sandbox game where the main activity is building structures with blocks in sprawling 3D game spaces (see Martin 2018). In a basic sense, procedural content generation can be defined as "the algorithmic creation of game content with limited or indirect user input," where "content" is understood as everything contained in a game, bar nonplayable character behavior and the engine itself, namely "levels, maps, game rules, textures, stories, items, quests, music, weapons, vehicles, characters, etc." (Shaker et al. 2016: 1). Procedural content generation is often favored by indie studios with smaller teams and budgets, as it can be cheaper and less time-consuming than it would be to manually craft the in-game "content."

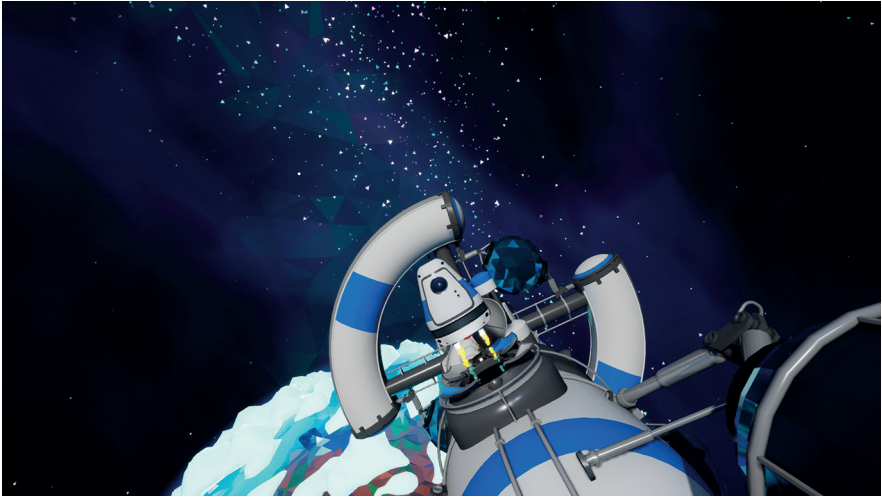


Figure 9: The initial cut-scene-like scripted sequence in *Astroneer*.



Figure 10: The optional ending cut-scene in *Astroneer*.

In each individual playthrough, *Astroneer*'s game spaces are created via a specific combination of noise-based terrain generation²¹ and hand-crafted assets, such as

²¹ Noise-based generation was initially created as a solution for “develop[ing] naturalistic looking textures” (Perlin 1985: 287) in computer-generated imagery for Disney, but comes in a significantly larger number of variations today. In general, noise-based generation is most useful “whenever

biomes (Bradley 2018; System Era 2018). The planets and their attributes are thus determined algorithmically according to pre-set conditions with every new game, leading to randomized playthroughs. While certain constants such as the difficulty of the terrain, or that on X planet there will always be Y resource, are pre-determined, the exact landscapes, location of resources and other such in-game objects are procedurally generated. Against this background, the player/avatar's primary goal is survival, which can be maintained by the constant exploration of the starting planet as well as the planets surrounding it, the gathering of resources, and the continuous expansion of the base camp. The core game mechanics include terrain alteration, power management, a tiered crafting system, and the mitigation of planet-specific hazards. The gameplay loop, in a nutshell, could be summarized as follows: The avatar seeks out and extracts resources using their multifunctional gun-like "terrain tool" (see Figure 11), a process during which they may also discover researchable objects, which yield an in-game currency called "bytes" that can be used to unlock recipes for objects and buildings to be printed out using one of several 3D printers (see Figure 12). Most of the various machines that the player/avatar can thus construct require power to function and can also be upgraded, which increases the efficiency of both the base and the "astroneer," so that the latter can wander ever further and overcome ever greater challenges, resulting in a fairly standard "upgrade cycle."



Figure 11: The avatar using the "terrain tool" in *Astroneer*.

small variations need to be added to a surface (or something that can be seen as a surface)" (Shaker et al. 2016: 58).



Figure 12: “Research chamber” recipe in the 3D printer in *Astroneer*.

What does that mean in terms of narrativity? We can think of *Astroneer*’s design as taking the form of “scripts” that “become apparent as technical manifestations of design decisions which not only include the set of rules of a game but also the enabling and restricting conditions of the game world and the degree of freedom provided to the users by the overall gameplay” (Abend and Beil 2015: 2). Indeed, the narrativity of *Astroneer* is closely connected to the “degree of freedom provided to the users,” as opposed to a rigid structure that determines progression, with the use of procedurally generated game spaces and “open” game mechanics opening up a possibility space for a broad range of different “player stories” (Rouse 2005: 204) to emerge, and hence for dramatic agency to be realized via avatar action. The player and their avatar do not follow or choose one of the “forking paths” within a nonlinear narrative structure, but instead “create their own story” within the possibility space afforded by the design of the game spaces and the game mechanics. They gradually learn about planetary resources, how to mine and refine them, how to expand the base camp, and how to research new recipes to use in one of the 3D printers. As already noted above, however, the emergence of these “player stories” is supported by agency affordances in other dimensions, particularly those of spatial-explorative and configurative-constructive agency.

In terms of agency afforded in the spatial-explorative dimension, *Astroneer* allows for the player to use their avatar to traverse the game spaces using fairly standard game mechanics that include 360° movement of the virtual camera angle, running, and jumping, while the videogame’s procedurally generated planets, “tether poles” that supply the avatar with oxygen (see Figure 13), and a vari-

ety of terrain and space-faring vehicles afford and incentivize exploration beyond the avatar's immediate surroundings. While both temporal-ergodic²² and configurative agency remain limited, the "terrain tool" affords constructive agency that goes well beyond the initial task of building a base camp on the respective planets. Instead, the "terrain tool" allows the player/avatar to dig, raise, or flatten ground, and can also be further configured with upgrades and attachments. Another major incentive for exploration is the variety of resources that the player/avatar can find. Some of these, such as "resin" or "compound," are required for setting up a base camp, and hence are available on every planet. Others, like "wolframite," are only available on a select number of planets and are thus more challenging to acquire. In any case, resources can be mined, refined, and combined into other resources, which enable more sophisticated equipment to be crafted. For example, smelting "organic" and "wolframite" makes "carbon" and "tungsten," which can be combined into "tungsten carbide" in the "chemistry lab," which then, in turn, can be used to print advanced drill modifications for the "terrain tool," making the penetration of even deeper terrain possible.

All of this being said, our main point here is that the combination of agency affordances in the spatial-explorative, temporal-ergodic, and configurative-constructive dimension can generate infinitely different playthroughs, which in turn moves the focus of *Astroneer*'s design from narrative to dramatic agency. As noted above, the player is very much in control of creating their own narrative experience, using the procedurally generated game spaces and "open" game mechanics to create a vast range of potentially very different "player stories."²³ On the one hand, *Astroneer* of course uses a variety of animations to represent certain events that most players will ascribe a basic degree of "eventfulness" to, such as the

²² Some game mechanics, such as dodging defensive flora that spews toxic liquid, may confront the player with time-critical challenges of varying complexity, but these can usually just as easily be ignored by either circling around the area they are in, or not visiting a specifically hazardous planet altogether. Some activities are also influenced by predetermined temporal structures, such as the day-and-night cycle (solar power can only be harvested in the daylight), how much power remains in the "terrain tool" (which requires power when it has augments installed on it), and how long it takes to recharge it (via various power generator machines or batteries). That being said, these activities tend not to be time-critical.

²³ While it is possible to read the "achievement system" as implying a predetermined "designer story" (see the more detailed discussion below) and the player can also find a few nods toward more extensive world-building in the optional endgame cut-scene, *Astroneer*'s design is primarily about affording dramatic agency to the player, allowing them to make use of the procedurally generated game spaces and "open" game mechanics to evoke a broad range of ludic events with high "eventfulness" and thus create highly localized "player stories" of varying complexity and duration (see also, once more, Thon 2015; 2016b).

avatar's death (see Figure 14), or the operation of certain machinery (see Figure 15), some of which (such as the avatar grabbing its throat as they run out of oxygen or automated levers on a 3D printer that is used to print one of the various recipes) will allow the attribution of at least some degree of narrativity to what would be considered primarily ludic events from a structural perspective. On the other hand, and more importantly, however, *Astroneer* affords dramatic agency on a bigger scale as well. If, say, the player wants to have their avatar go to a hill on the horizon, all they need to do is mine some “compound,” a commonly found resource, and print “tether poles” from the printer in their “backpack,” which allows them to traverse the surface with a safe supply of oxygen.

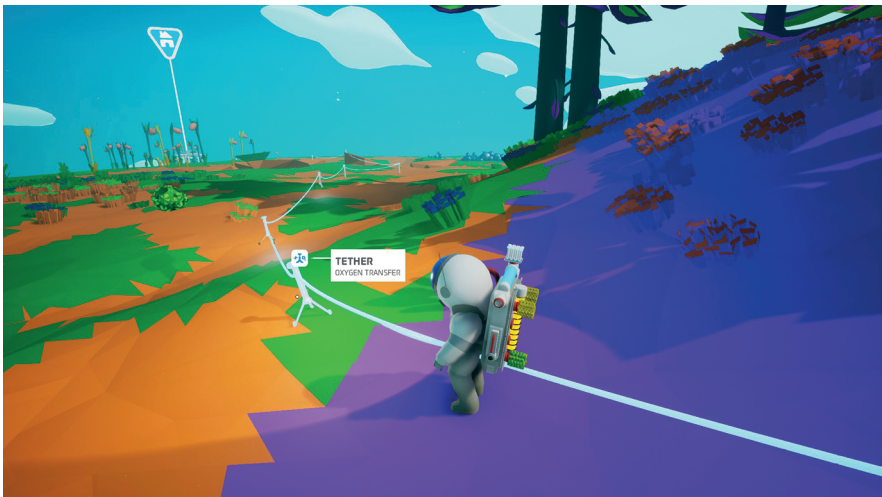


Figure 13: “Tether poles” supplying the avatar with oxygen in *Astroneer*.

But if they want to make “nanocarbon alloy,” a complex chemical reagent necessary for printing the “radioisotope thermoelectric generator,” the most powerful generator in the game, the player/avatar would be in for a longer adventure. The avatar would first need to travel to Astrox, the highest difficulty level planet and the only planet with “helium” in its atmosphere, which is the necessary fuel for creating “nanocarbon alloy.” In order to be able to condense “helium” from Astrox, the avatar must build the largest available shuttle, as that is the only one capable of carrying a packaged up “atmospheric condenser.” Having traversed the space between the planets, the avatar would then need to supply the “atmospheric condenser” with sufficient energy, which is more difficult than it may sound as the amount of solar and wind power that can be generated on Astrox is severely limited. To overcome this problem, several “large batteries” must be printed, which



Figure 14: The avatar dying from lack of oxygen in *Astroneer*.



Figure 15: Automated levers on a 3D printer in *Astroneer*.

require “lithium” to be mined on either Vesania or Novus, and so forth. In this way, *Astroneer*’s production lines create the possibility space for “eventful” avatar action. As noted above, interplanetary travel in pursuit of rare resources brings new challenges, which in turn require the player’s successful engagement with other game mechanics within the resource management system, resulting in the potential for thrilling adventures. At the same time, the construction of, say, a

“radioisotope thermoelectric generator” is not an obligatory game goal in any way and is in fact not even necessary for *Astroneer*’s “endgame” (which consists of the player/avatar unlocking cross-planetary transporter beams).

While these brief examples certainly emphasize the ways in which the player can use the dramatic agency that *Astroneer*’s design affords to create various different “player stories,” it is also worth noting that many if not all of the highly “eventful” events that these “player stories” may include will already have been anticipated by the game developers. This becomes particularly clear via the “achievement system” that tracks whether players fulfil certain conditions and “rewards” them with one of more than 50 “achievement badges” if they do. While there is yet again nothing in *Astroneer*’s design that would require the players to pay any attention to the “achievement system,” not least because they can indeed unlock “achievement badges” without being aware of their respective requirements, it is just as clear that the latter do offer additional guidance to players who might be looking for it and thus at least imply a set of game goals as well as, perhaps, a fragmentary “designer story” behind the emergent gameplay. Some of these “achievement badges” are awarded for mundane tasks such as doing something for the first time: “One small step” requires the player/avatar to visit Sylva’s moon Desolo for the first time, while planting their first seed is the condition for “Making a new friend.” Others are awarded for what might be happy accidents: “Where we’re going, we don’t need roads” commemorates the player/avatar driving an airborne rover for 10 seconds, while “Hang 10-Squared” is earned by sliding uninterrupted for 10 seconds. Arguably, then, these as well as many other “achievement badges” illustrate not only that *Astroneer* was indeed designed to afford the kind of dramatic agency that the associated (often highly relevant, unpredictable, persistent, irreversible, and/or noniterative) events manifest but also that the former further heighten the narrativity of the latter, as revealing that certain events were anticipated by the game developers may make them more narratively meaningful for at least some players. At the same time, however, the dramatic agency that *Astroneer*’s design affords its players clearly goes well beyond what the game developers will have specifically anticipated—and that is, of course, also very much “by design.”²⁴

24 Incidentally, we are not suggesting that *Astroneer*’s configurative-constructive agency affordances should be completely subsumed under the header of “narrativity.” When looking at the player community, one can easily find a variety of creative base camp-building solutions that make rather ambitious use of the “terrain tool”: Tower bases or sky bases are common (see, e.g., Tactile Object 2019), as are garages for rovers or other vehicles (see, e.g., BuldingaBap 2020). Some players create intermedial references, such as the magical gauntlet of Thanos from the Marvel cinematic universe (see Man in a Van with a Plan 2019), while others create games within the game, such as an

Conclusion

This article has presented a conceptualization of player agency as the possibility space for “meaningful” choice expressed via player action that translates into avatar action, afforded and constrained by a videogame’s design. In order to further come to terms with the various ways in which contemporary videogames can afford their players agency, we have proposed to distinguish between four dimensions of agency, namely spatial-explorative agency, temporal-ergodic agency, configurative-constructive agency, and narrative-dramatic agency. While our main interest in the preceding pages was in narrative-dramatic agency, such a multidimensional conceptualization of agency still offered a more precise understanding of how different aspects of player agency influence and interact with each other in various sometimes rather complex ways. We then moved on to analyze two case studies of independently developed and recently published videogames, ZA/UM’s role-playing game *Disco Elysium*, whose complex nonlinear narrative structure primarily affords configurative and narrative agency, and System Era Softworks’s sandbox adventure game *Astroneer*, whose procedurally generated game spaces and “open” game mechanics primarily afford explorative, constructive, and dramatic agency. While there would evidently be much more to say on both of these case studies and it would also seem productive to expand the scope of analysis to other videogames and videogame genres, our necessarily brief analyses will still have illustrated the heuristic value of our proposed conceptualization of agency, while also underscoring the range of different ways that contemporary videogames’ design can afford player agency across all four of the dimensions that we proposed to distinguish.

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outsized chess board (see u65535 2019). Arguably, such player practices shift the focus from narrativity to more general forms of creativity.

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