Corporeal Capture: The Rhetoric of Boundaries in Procedurality

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ABSTRACT

This work offers a philosophical reflection on the nature of boundary-drawing in software and video games, specifically, how boundary-drawing within software can embed perspectives, assumptions and rhetoric. The concept of *corporeal capture* is offered to understand boundaries as capable of localizing relational qualities, as in, something produced distributively is attributed locally to a boundaried entity. We study two video games: *Crusader Kings III* and *Civilization VI*, to demonstrate how boundary-drawing can open up opportunities to inject assumptions and biases about the human bodies, genetics and state bodies. For example, coding negative qualities such as Ugly as character traits highlights a certain view about the causal relationship between the character and ugliness, where ugliness is no longer co-produced in a distributed, inherently social environment, but is mainly attributed casually to the character. This is also applicable to ownership of the state, which is often justified by highlighting the state as the main causal source of its internal productions. The general goal of this paper is to critique boundary-drawing as at once a technical and design practice as well as a cultural and philosophical practice. As a result, the rhetoric of boundary-drawing goes beyond the level of authoring or appreciation, to the level of a techno-cultural infrastructure that makes those rhetorical expressions through the medium possible in the first place.

Keywords

Crusader Kings III, Civilization VI, Deleuze and Guattari, Karan Barad, Procedural Rhetoric

INTRODUCTION

The central topic of reflection of this work is boundaries. A boundary's basic function is to mark what is internal/external, intrinsic/extrinsic and inherent/extraneous. This includes the simplest example of spatial boundaries, from which one can make the inside/outside distinction. Beyond spatial boundaries, a boundary can also be an abstract marker to an entity, marking what its intrinsic properties are. For example, when one says "the die is fair," one interpretation is that the die has an internal quality of fairness, which is typically associated with the die's shape and weight

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distribution. This intrinsic relation could also be stated with the following pseudocode snippet:

```
class Die {
        bool fairness = true;
}
```

The above snippet creates an object class called die, with an internal attribute of type boolean (either true or false) named fairness. Die and fairness constitute a has-a relationship (class Die has a boolean value named fairness). This relationship is seen everywhere in software schema and video game systems: the player and enemies have health and magic bars; an item has a status buff; a user has a name and an ID etc. In fact, object-oriented programming languages, commonly used in game development, make the creation and manipulation of boundaries their primary conceptual construct (Abadi and Cardelli 2012). It is within this function of drawing internal/external distinctions that we wish to examine boundaries in procedural systems critically.

We situate this work within a larger philosophical investigation towards the nature of meaning making. In the context of software and games, there is a well-documented lineage from the development of logical systems in analytic philosophy to their adoption as the basis for digital computers (Davis 2018). The initial goal of formal logic was to develop a logical system to ground human meaning-making by expressing meanings in logical expressions (Martinich and Sosa 2001). Computational thinking thus enjoys a privileged status, often promoted as the foundation to other disciplines like science and mathematics (Sack 2019, 7).

However, the logical approach to meaning making faced no small amount of criticism and many alternatives. Most notably, the later writing of Ludwig Wittgenstein explicitly criticizes the logical approach and cautions against grounding meaning in “calculi which have fixed rules” and “logic for a vacuum” (Wittgenstein 2010). Separately, the structuralist tradition in philosophy also proposes a similar theory of meaning grounded within the relationality of its symbols (Dosse 1997). Post-structuralism, developed in the second half of the 20th century, further embraces the grounding of meaning within relations and rejects the existence of a larger and stabilized system consisting of those relations (Dosse 1998). The Wittgensteinian, structuralist and post-structuralist perspectives share a common rejection of the logical approach by defining meaning in terms of the relationality that situates symbols in a larger context that can’t be captured in a closed and formal system. Meaning making in this case is not only epistemological but also ontological — to explicate how we come to mean also implicates the nature of the entity that we come to represent.

Thus, the very practice of software writing and game building, through its lineage of the analytical perspective, already embeds a particular way to understand the world. Computation is no longer a neutral medium, but a material foundation that already primes certain ways of thinking, opinions and arguments. The aim of this paper is to unearth and denaturalize this view by showing how it is already biased, and thus already rhetorical. Object-oriented programming, although advertised initially as

more akin to human thoughts than previous paradigms (Casey 2011), nevertheless treats boundaries more rigidly than natural language, because mapping internal properties is its fundamental operation. We also wish to demonstrate a critical attitude towards *descriptions of causality* itself that lie at the heart of procedurality. Similarly, the selection of causal chains is also not a neutral act, influenced by how one draws boundaries and determines how different boundaried entities interact.

This work takes a position similar to what Barad would categorize as "critical social theories" (Barad 2007, p26). Specifically, our position resembles the agential realist ontologies developed by Karan Barad (Barad 2003; Barad 2007) and post-structuralist theories mainly developed by French philosophers Gilles Deleuze and Félix Guattari (D&G) (Deleuze and Guattari 2009; 1988). Both sets of theories emphasize relationalities as their foundational philosophical practices, as opposed to what Barad would call "individualism," which supposes individual entities at the root of metaphysics (Barad 2007, 56). These theoretical perspectives can help reflect on the limits of a purely analytical and logical approach to representing human meaning. From here, we demonstrate how rhetorics can be embedded in the material inscription of procedural systems. We propose a concept called Corporeal Capture, with a starting argument that boundaries can capture outside interactions or objects into themselves and mark them as if they are intrinsic to the (boundaried) entity/body. We study two video games: *Crusader Kings III* (CK3) and *Sid Meier's Civilization VI* (Civ6) (ParadoxInteractive 2020; FiraxisGames 2016), and show how boundary-drawing can be used to inject cultural and ideological assumptions about the human body, ownership and the state.

To this end, we want to extend the analysis of procedural rhetoric proposed by Bogost (2010). By positioning our investigation against core assumptions of computation and attaching our case studies to a specific programming paradigm, the rhetoric of boundary-drawing goes beyond studying digital game rules immediately perceivable to the player. It necessarily involves processes of naturalization and embodiment to enable meaningful authoring and appreciation of the medium in the first place. The rhetoric of boundary-drawing, then, is not just about intentional or unintentional expression, but also the underlying layer that makes expressions possible. We'll specify the rhetorics of boundary-drawing in our case studies, and then reflect on its implications for game studies in the conclusion.

CORPOREAL CAPTURE

Our starting argument is that boundaries do not merely demarcate a space, but also *capture* qualities or objects outside of what is demarcated. We propose the term *corporeal capture* to describe this phenomenon. “Corporeal” is used because the process concerns bodies. The body is understood generally as a boundaried being, by having an explicit internal and external distinction. The body of a die is typically understood as spatially drawn, while the body of more abstract objects like “culture” is vague, but nevertheless boundaried. D&G would also suggest that representations can have their own bodies separate from the object that they are supposed to represent (one might think of signifiers, although D&G avoid the direct use of the term) (Deleuze and Guattari 1988, 86).

The die example, where fairness is considered internal to the die’s body, is the most basic case of capture. The production of fairness as a quality necessarily involves more than the die’s body. This basic intuition about production and causal interactions already undermines a strict sense of boundary-drawing. To go further, we want to say that such a process of production is characterized by an openness, where the inherent sense of boundary does not exist. Objects and qualities are purely defined by their relations: the quality of fairness is created through the interaction between the die’s body and the multiple bodies within the environment — the die has to roll in the air, hitting floors and walls along the way and landing on a side. Even though fairness is typically associated with the shape of the die, one cannot deny the multi-body environment required to (re)produce a die’s fairness: the hand has to throw it with adequate force; the area has to be big enough for the die to bounce around, etc.

Corporeal capture takes place when a boundaried body captures the result of such production, to close the open-endedness of production. “The die is fair” is comprehended as if the die body possesses the quality of fairness. The code snippet in the INTRODUCTION explicitly makes this quality intrinsic to the die object. There are two notable aspects of corporeal capture. First, a localization underlies this process of capture: a body is seen to possess a quality that is in fact created by a more global and holistic interaction between multiple bodies. Hence, corporeal capture denotes a capturing of a global product into a local body. Second, the spatial and temporal specificity of the productive process is severed from the product. The quality of fairness is (re)produced through rolling the die in an environment with specific physical, social and formal configurations. It is global (not localized to the die’s body) as well as temporally and spatially specific, because the environment and the movement of the die are all involved within this production of fairness. Can one say a six-sided die is fair if it is stuck in a tube? But the notion of a “fair die” not only localizes this product, but it also separates the quality from parts of the context that produce it in the first place, as if fairness can be defined completely through a die’s body.

While localization and severance of spatio-temporal specificity may seem generally undesirable epistemically, these processes exhibit many practical benefits. In the context of engineering, boundary-drawing is indeed a way to regulate the workflow of software development. Alan Kay, one of the most notable proponents of OOP, argues that OOP to him means only “messaging, local retention and protection and hiding of state-process, and extreme late-binding” (Kay 2003). In other words, the

programmer responsible for an object (e.g., die) does not need to know the internal working of another object (e.g., floor) in order to program their interaction (die hitting the floor). One usually only needs to know are its methods — an object's external-facing functions. Everything else is trusted to be handled internally ("local retention") and will be handled on runtime ("extreme late-binding"). Under this light, corporeal capture shows its practical value in regulating *the distribution of attention*; the boundaries explicate what the others may or may not know in order to interact with the boundaried entity. As we'll explore in the following sections, this regulation of attention distribution also has its consequences in the context of gameplay. But on a philosophical level, we want to denaturalize this act of boundary-drawing, and by extension, corporeal capture. Through a commitment to relationality-based metaphysics, we argue that boundaries are not given as first principles, but rather are constructed afterwards.

We are inspired by Karen Barad's ontological and metaphysical insights regarding boundary-drawing. Her agential realism proposes the term "intra-action" to replace "interaction" as a way to argue that determinate (boundaried) entities and their separability do not emerge prior to their intermingling, "phenomena are ontologically primitive relations—relations without preexisting relata." (Barad 2003) Boundaries and determinate entities are only "locally determined" through a specific discursive practice and material arrangements. Barad also argues that these determinations of boundaries cannot be separated from "agencies of observation" (Barad 2007, 140), thus echoing our argument that boundaries are not inherent within the production of qualities, but rather are mediated through a third party. It also pinpoints what our subtitle means by "rhetoric" — in that boundary-drawing itself already points to the involvement of a third party in determining a clear differential structure (differential in terms of separability between entities, subject and object, etc.). The concept of corporeal capture is more specific, in that it points to a particular capture relation that occurs in the construction of boundaries.

It is within this intellectual tradition that this work sets out to reveal the limits of boundary-drawing as a long-established feature of the logical and analytical approach, and by extension, computation. Computation has a long history of setting individualism and boundaried entities as its basis of ontology, especially within the tradition of object-oriented programming. Revealing rhetorics on this foundational level of computation necessarily complicates Ian Bogost's study of procedural rhetorics, in that the rhetoric of corporeal capture is no longer about authoring meaning into or reading meaning from software processes (Bogost 2010), rather, the meaning that one has to internalize so software authoring and games playing can become meaningful in the first place. The conclusion of this paper will expand on this extended notion of procedural rhetorics.

Examining video game systems is helpful in this regard because video games systems are more representational than usual software. As a result, video games are more likely to adopt colloquial boundary drawing practices, thus revealing certain tendencies within the larger cultures that support them. This work will conduct textual analysis of two video games (CK3 and Civ6) through this lens to reveal the hidden assumptions and premises within their ludic structures.

CRUSADER KINGS 3: HUMAN BODIES AS CAPTURE

The grand strategy game *Crusader Kings 3* (CK3) puts the player in a detailed simulation of the Middle Ages. The series is noted for its mixture of Sims-like roleplaying and classical strategy gameplay like developing settlements, growing armies and conquering territories (roleplaying in the sense of taking actions based on character features). CK3 is described as Sims-like because instead of playing as a nation, the player is a specific person in the simulation, where they have to navigate interpersonal relationships, roleplaying with personalities and beliefs as well as dealing with family dynamics. Because of this mixture, the series is often praised for highlighting the "personal nature of rulership" (Devereaux 2022; Franklin 2014; Wardrip-Fruin 2020, 220), where the characters have their own interests and motivations instead of selflessly acting to serve an abstract state body.

In CK3, *traits* and *skills* are the primary ways the game system represents characters. Skills consist of six numerical values, each representing how good a character is at a category of activities. It is within the player's interest to increase these skills as much as possible, as they influence almost all aspects of gameplay such as war, realm management and interpersonal dealings. Among many things, the *traits* of a character modify these values and are the main ways the player engages with roleplaying as their character. This section will first apply the concept of corporeal capture to reveal the rhetorical moves behind CK3's trait system, and then attempt to relate these rhetorical moves to both player experiences and software structures of the game, in order to complicate what it means for an interactive software to function rhetorically.

The trait system is an exemplary case of corporeal capture, as traits are contained within a character. Traits thus explicitly attribute certain qualities (shyness) to a boundaried entity (character). But even personality traits are not independent of the situations in which they occur. A shy person may become gregarious when situated among people with common interests, or a cowardly person may become braver when acting for a cause they believe in. But in the context of CK3, a shy person is shy everywhere, regardless of whom they are interacting with and what environment they are situated in.

The case becomes more troubling when looking at congenital traits and physical traits. Congenial traits are traits that can pass down along the familial line while physical traits cannot. There are two issues with how CK3 implements these traits. First, many effects of these traits boil down to simple penalties to skills and interpersonal relations such as Dwarf subtracting 4 from Prowess and 20 from Attraction, or physical traits like One-Eyed reducing Attraction and Disfigured reducing Diplomacy. Disabilities in CK3 are thus often coded as intrinsically undesirable. Because the effects of these traits are internal to a character, the undesirability becomes independent of the global situation. Lisping will always mean the person takes a penalty with Diplomacy. Even though one might argue that the penalty is small and can be mitigated by other traits that boost Diplomacy, what's troubling here is that the penalty to Diplomacy is coded as inherent to Lisping. On this point we echo disability scholar Rosemarie Garland-Thomson's perspective, who proposes the term *misfit* to think of disability not as an essential bodily trait nor a purely social phenomenon, rather a misfitting between the body and the world in a particular space and time, thus "emphasizes context over essence, relation over

isolation, mediation over origination" (Garland-Thomson 2011). Garland-Thomson argues that disability is always produced by a combination between bodily features (e.g., one-handedness) and worldly features (e.g., non-inclusive game design) that leads to a quality of misfitting (e.g., unable to play the game) highly specific in space and time.

Second, some congenital traits describe qualities that are rather subjective such as Ugly/Beautiful and Stupid/Intelligent. The same criticism levied at personality traits can be used here, as an ugly person is modeled as inherently ugly, independent of their societal context. But there's another corporeal capture happening. Since these traits are subject to inheritance, the qualities are also coded as inherent to genetics, independent of non-genetic interactions within a person's body. This understanding of genetics confuses phenotypic traits (observable traits influenced by genetics) and actual biological effects of genes (LarsPorsenna 2022). This makes genetics predictable and controllable in CK3. Since the effects of these traits are also inherent and associated with skills, the system thus explicitly encourages selective breeding. It is not surprising, then, that a gameplay guide about congenital traits is named "How to Run a Successful Eugenics Program" (Zieley 2021). Even though the title is clearly tongue-in-cheek, it highlights that neither the procedural rhetoric nor the presentation in CK3 provides critical distance from this narrow, inaccurate way of viewing genetics. The audience has to actively inject irony to foster a sense of remoteness from this point of view. A missing opportunity here is to model how a cultural setting can change the effect of a certain bodily feature. As Oma Keeling points out in their critique of CK3, medieval France has a more institutional and cultural recognition of the blind (Keeling 2020). One of the reasons is that France instituted blinding as punishment (Wheatley 2010, 29), resulting in more blind people compared to England, which shared many common medieval histories with France. But because these traits and their effects are captured within a character, the medieval culture and society that CK3 tries so arduously to simulate become contemporary and generic in regard to their attitudes towards disabled bodies.

By capturing qualities within a body, the ludic form of CK3 has the effect of localizing the player's understanding of those qualities to the capturing body. Again, we hold that the production of qualities such as fairness and smartness, as in, the underlying causal processes of their creation, is global and without an inherent sense of boundary at first. The consequence of dissolving its boundary means that the mapping of its productive process is never finished. Corporeal capture, however, creates the finish line, the marker where the investigation ends. If disability and its effects are inherent within a CK3 character, then there's no need to look further at outside causes as sources of production. This is not to say that there's nothing within a capturing body that causes those observations. But those intrinsic qualities are already interpreted and determined before production. What's important here is that *corporeal capture engages with an explicit hiding of the more distributed situation that brings those qualities about*; those qualities are thus perceived in a localized body rather than a more global and distributed whole. The mapping of causal mechanisms becomes sufficient to stop at where the boundary is drawn, thus obscuring the exterior causal sources.

This obscuring of the external causal source inherent within corporeal capture also has its consequences on gameplay dynamics, and as a result, how the developers inject and how the players experience its procedural rhetorics in general. The

organization of the player's attention underlies the gameplay implications of corporeal capture. The player would naturally direct their attention from the local, the immediately observable and interpretable, to the global, the dynamics gradually revealed through interactions. In this case, from the immediately available traits and skills of their character (local) to how those characters would play out in the simulated medieval world (global). This is a natural trajectory of learning the game system, in which the implications of a character's traits become clear as experience of the gameplay accumulates. This localization of traits and skills on the character level also affords features such as the "ruler builder," with which the player can replace any in-game character with a custom-made one. Traits and skills can be added and swapped, in other words, *being controlled locally*, without engaging with the external simulation. From this point of view, statements about character traits such as "this character is shy" become legible *before* "being shy means X in gameplay." Shyness is no longer an interpretation from observing a certain gameplay dynamic, but rather a signifer referring to certain character-level modifications with no immediate relevance to gameplay patterns. We want to make the distinction between the *definition* of a trait (what is shyness? how does it happen?) and the *implication* of a trait (what does this trait do? how can it be changed?). Although the two are inseparable philosophically, CK3's trait system captures the definition of traits on the local level, while attributing the implications of traits to the global level.

This has a fundamental impact on how the procedural rhetorics about traits are experienced. As mentioned, an aspect of corporeal capture is to separate the product from its spatio-temporally specific process of production. The result is that the product no longer possesses a specificity within time and space (where? when? who? how?) and is conceived as stable. Parts of learning the game system concern how stable traits can influence and be influenced by the external worlds — their implications. For example, the Shy trait means penalties to the Diplomacy skill and additional risk to stress, among other effects. And once a character has the trait, it is retained and cannot be changed without special occasions such as educational events. Learning these rules is mainly about understanding the Shy trait's implications during gameplay, rather than definitions of the trait itself (e.g., what is shyness in terms of the gameplay system?). Both the definitions and implications of traits open up opportunities for procedural rhetoric, where the developers have to conduct interpretations and inscribe them through game rules. But the trait system in CK3 separates definition and implication to very different levels of modifiability on the software level. The definition of traits exists on the level of program structure (e.g., they are internal to characters), while the implications of traits exist on the level of data (e.g., a trait modifies skills numerically). Changing the definitions of traits means fundamentally altering the design of the simulation (e.g., from a trait owned by a character to co-produced by multiple characters), while changing the implication means editing the number and function calls of the specific trait mentioned (e.g., increase the penalty to Diplomacy when a character is shy). This makes rhetorical exchanges uneven, as disagreement over implication can simply mean gameplay patches, single-file edits or modding, while disagreement over definition can mean system overhaul or dismissal of the game altogether.

To conclude, this section first points out how boundary-drawing in CK3's trait system opens itself up to injection of biases and assumptions, and then points out the consequences of boundaries in terms of gameplay experiences and software structures. This case study complicates the concept of procedural rhetoric. Bogost's

initial discussion of the concept draws a parallel between software/games and spoken/written arguments, suggesting procedurality is to be authored and read as rhetorical argument. Here, we further complicate this notion to point out that interacting with a software is merely one way to extract rhetorical statements, among other ways of extraction, such as reading code. Different ways of extraction implicate different dynamics of rhetorical exchange. The rhetoric of corporeal capture is so ingrained in the system that it becomes tied up with the materiality of the software/game system itself. This means that the efforts implicated in even imagining alternative rhetorics are deeply tied to one's knowledge about software/game's technical specifications. It is much easier to imagine what traits a specific historical character has, or what having a specific trait implies, than to alter what a trait even is on a system level. Although corporeal capture implies injection of assumptions and biases, many of its rhetorical moves are so ingrained within CK3's system design that (provisionally) accepting them is required to even start considering the gameplay as meaningful in the first place. We might think of this as "suspension of disbelief" regarding parts of the system itself, in order to gain the understanding necessary to engage with other parts of the system. Thus, procedural rhetoric is no longer just about just extracting rhetorics from procedural systems, but also about how the extraction is conducted in the first place. The positionality of the meaning-maker and the materiality of the meaning-making artifact thus are entangled with the meaning extracted in the result.

CIVILIZATION VI: OWNERSHIP AND SIGNIFICANT CAUSALITY

This section will focus on examining *Sid Meier's Civilization* (Civ) series through the lens of corporeal capture, focusing on the most recent entry *Civilization VI* (Civ6). Civ is a turn-based strategy game series where the player plays as one among a selection of leaders representing their respective civilizations (Civ for game titles, civilization for what the player plays as). Over 6000 years of human history, or 500 in-game turns typically, the player develops and expands their civilization and strives to be the first to achieve victory over other competing civilizations. The gameplay loop centers on exploring a randomly generated map, building and developing cities to extract resources. Those resources are then used for a variety of purposes such as expansion, scientific research, military building and diplomacy. Different civilizations have advantages in different activities. For example, Mali gets bonuses for building cities and commercial districts around deserts. The game also offers different victory conditions, such as cultural, scientific and military victories that cater to different playstyles.

Civ is not a stranger to criticism of how it portrays human societies and histories, both in its ludic forms and its representations (Lundblade 2020). As early as 2002, Christopher Douglas criticized Civ's division between civilizations and barbarians (non-playable factions that are hostile to civilizations by default), and its expansionist play loop; both of which justify a colonialist view of history (Douglas 2002). Kacper Pobłocki further critiques Civ's linear representation of scientific progress and its emphasis on mastery over the game system as a despotic "illusion of ultimate agency [...] the game is constructed in such a way that we can only become all-powerful by becoming the US" (Pobłocki 2003). Even further, Alexander Galloway suggests the game's design precludes Civilization from representing history, as it "embodies the

logic of informatic control itself [...] the diachronic details of lived life are replaced by the synchronic homogeneity of code pure and simple" (Galloway 2004). These critiques follow a similar line of exposing the logic that elevates the state to an all-seeing and all-controlling body. We follow a similar line of criticism by connecting this fetishism of the state to corporeal capture. Two additional rhetorics of boundary-drawing are also discussed: *ownership and significant causality*. But beyond reiterating these critiques of state authoritarianism through procedurality, we want to juxtapose it with the often advertised reading of Civ as a celebration of humankind, which on the surface appears to be contradictory. What we argue is that, similar to CK3, there are certain procedural rhetorics that are naturalized so as to become conventional to the medium itself, which makes certain readings, and their contradiction with other readings, invisible as a result.

Douglas' criticism of Civ's colonialist view, as well as Pobłocki's criticism of Civ's emphasis on the ultimate agency of the state, are closely related to another effect of corporeal capture, which we term *significant causality*: the boundary not only captures an object or a quality, but its body also lays claims to its productive process (condition of possibility, genealogy or the familial line). D&G term this "quasi-cause, the source and fountainhead and estuary of the apparent objective movement" (Deleuze and Guattari 2009, 194). It is a quasi-cause because the capturing body appears *as if* it causes the quality to happen. This is also implicit in almost all the examples given in the previous section. One can conceive of a die's physical body possessing the quality of fairness, because its shape is the significant source of the production of fairness. CK3 captures shyness in a character's body, because one can conceive of shyness as originating from within their physical body. The notion of beauty and intelligence is captured in genetics because there's a common perception of genes significantly determining these qualities. The boundary of the capturing body thus marks a reasonable endpoint of investigation. It is not that outside influences are not acknowledged, but that they *do not matter as much*. This reinforces the logic of localization and the severance of spatio-temporal specificity — society, culture and history are thus obscured and deemed unsubstantial. The claim of significant causality lies at the heart of the corporeal capture of the state body in Civ, which justifies its existence by reinforcing the agency and capacities of the state: both the state and the player appear to be a unified decision maker and the author of activities such as diplomacy, internal development and military actions. The player, playing as a state body, as is common in many strategy games, is simply another substantiation of the state body's capture. The deterministic aspects of the game, where actions and their effects have precise numeric values, also promote a hyper-rational, disembodied approach to civilization development (Voorhees 2009), further reinforcing a colonist and "becoming-the-US" fantasy.

Another effect of corporeal capture, which has been implied throughout but not explicitly addressed, is the *establishment of ownership relations*. One comes to understand the body as not only the causal source of production, but also a body that *possesses* the captured object/quality. In Civ6, the player owns and stockpiles resources, including those extracted from the environment such as oil and aluminum, and the productions of the populus such as science, culture and gold (resembling tributes and taxations).

Both the ownership relation and significant causality are used by D&G for their social critique. They propose the term *socius* as a body that "[appropriates] for itself all

surplus production, and arrogating to itself both the whole and the parts of the process, which now seem to emanate from it as a quasi cause" (Deleuze and Guattari 2009, 10). One example of the socius is what D&G call the body of the despot, which can be either the actual despot in a monarchy, or more abstract bodies such as God or the state. Despots are "the sole and transcendent public-property owner, the master of the surplus or the stock, the organizer of large-scale works (surplus labor), the source of public functions and bureaucracy" (Deleuze and Guattari 1988, 427). The despot, God and the state can legitimize their possession of lands and productions, because it is socially accepted that the despot is the significant factor that brings them into being: everything is under the purview of deities or kings/queens (Deleuze and Guattari 2009, 154). The people and their surroundings thus become directly subordinated to the despot in a hierarchy. One mechanism of subordination is the concept of infinite debt ("we owe everything to the despot") and thus the establishment of tribute and taxation (Buchanan 2008, 105).

Ownership and significant causality underlie the logic that subordinates lands, productions and culture (as parts) to the whole that is the body of the state/civilization. This logic also underlies the core goal of the game: to achieve victory before other civilizations/players by owning, accumulating and taking control of lands, resources and units. Similar to CK3, corporeal capture is deeply entrenched in the ludic system of Civ6, influencing how various systems and game features are depicted and implemented.

For example, civilizations in Civ6 can earn points towards recruiting Great People, which include Great Scientist, Great Writer or Great General. Once recruited, the Great People becomes a unit whose movement and effect are under the player's control. Their benefits also exclusively belong to the player's civilization. The game provides textual descriptions for this ownership relation. The "recruit" event description reads, "After deliberation, [Great People] chooses to bring their talents to [Player's Civilization]." If the player has the game advisor enabled, the advisor will also say that the Great People is "inspired by our civilization." Here, the ownership relation — justified by the claim of significant causality — colors the way Great People function in Civ6, which ultimately serves gameplay victories against other civilizations. This is in contrast to much of the advertising for the game series, which focuses on the appreciation of human ingenuity and progress. But the ludic goals of exclusionary competition and the capture logic of the state body are naturalized to a point that the procedural rhetorics and the thematic/public-facing rhetorics of the series are no longer seen as contradictory.

The capture logic of the state body is also demonstrated in how science and technology are implemented. In Civ6, each city outputs science as a numeric value, which is then summed into the total science output belonging to the civilization (the player). This science output is then used for unlocking technologies along a linear tech tree. This implementation of scientific achievement is at once too fast and too slow. It is too fast in how it gets adopted within a civilization's spatial borders and units. Once a technology's research is completed, the bonuses (e.g., Replaceable Parts adding one additional food yield to farms) are immediately applied throughout the land. It is too slow in how technology adoption stops completely and absolutely at the border. Science and technology, whose logic itself has no internal sense of national boundaries, become sublimated to the logic of the state body. The same goes for any resource directly owned by the player such as culture and money. The

stockpiles are at once everywhere (within the state's boundaries) and nowhere (not a specific point within these boundaries).

One can imagine science and technology escaping the state logic by making the player lose some control of technological development, and adding different causal reasons like geographical proximity and information-sharing infrastructures like conferences or the internet. Thus, scientific development is driven by a spatio-temporal specificity: where the state is positioned, what enables certain scientific knowledge to spread in what way, and at what particular time. Science does not need the boundary to flow and produce. Instead, the boundary has to impose its own logic on the parts that are already flowing and producing, as with our world's federal intellectual property and border control regimes. This change would denaturalize the boundaries that frame science, culture and production as internal. Rather, the boundaries have to be imposed on them after the fact.

Beyond capturing resources and production, the state body also captures space and time itself, in that the logic of space and time is subordinated to the boundaries of state bodies. Civ is often criticized for representing civilizations as timeless entities, as in, persistent and unchanging throughout history (Franklin 2014). The player picks a predefined civilization with certain traits before the beginning of the game. Although the player develops technologies and cultures as the game progresses, their civilization's bonuses, its names and appearances remain unchanged. This has consequences even beyond its ludic form, as youtuber KyleKallgreenBHH points out, many leaders for Germany throughout Civ existed long before the nationality of a unified Germany existed (Kallgreen 2016). In addition, as Muñoz highlights in Civ6, the terrain generation system has a bias to generate certain environmental features near the player based on their civilization's traits (more likely to be placed next to the desert if the player has desert bonus) (Bijsterveld Muñoz 2022). Thus, the player's relation to "space and the environment has become more mediated by nationhood". Recalling corporeal capture's effect to sever a product from its specificity in time and space, Civilizations in Civ are no longer situated within a particular point in space and time. Their features are not molded and conditioned by space and time. Rather, they transcend both space and time and can divide them and lay claim to them.

It is not difficult to see how the depiction of human society in Civ is distorted by the capture of the state logic, to the point that it becomes difficult not to see a deep irony in the framing of Civ as celebration of human ingenuity. But this is not to position procedural rhetoric as revealing what the game is actually about, as opposed to what the game says it is about. Rather, it reveals that finding meaning behind a game is fundamentally selective. There is plenty of effort put into the series to justify itself as some form of appreciation of humankind: the wide range of cultures represented as civilizations, a huge collection of scientific and cultural achievements across the millennium, and flavor texts that boast about leading humans to their greatness. In a way, the competitive nature of the gameplay is naturalized as what a game needs in order to give platform to these features. The ludic system, along with its corporeal capture logic, becomes part of the "suspension of disbelief." Similar to how we argue for CK3's corporeal capture as deeper than game rules at the point of playing, we argue that the rhetoric of the state body also exists on a deeper level, more specifically, as the conventional approach of the genre. The smooth control of the player and the competitive rules are the most common tropes in strategy game design. Thus, Civ's portrayal of the state is no longer

particular to it, but rather comes with a sense of naturalness within the genre (which Civ also helps naturalize as a long-running series), if not the medium of video games itself. The seeming contradiction between celebration of mankind and state authoritarianism is thus resolved, because Civ itself is freed of the main accountability to embody the logic of the state.

CONCLUDING THOUGHTS: RHETORICAL INFRASTRUCTURE

This paper has two focal points that are co-constituted but nevertheless lead to two different theoretical discussions. First, we propose the concept of *corporeal capture* as a way to denaturalize boundary-drawing, and conduct studies of game systems to demonstrate how biases, assumptions and rhetorics can be injected in boundary-drawing. As a result, the procedurality within these systems is revealed to embed rhetoric that biases the players to a certain way of understanding physical and genetic traits in the case of CK3, and the state body in the case of Civ6.

Second, we encounter corporeal capture at a level different from the procedural rhetorics typically described and applied in game studies. For CK3, we point out that corporeal capture embeds itself in the very software structure that makes the complex simulation possible. For Civ6, we point out that corporeal capture embeds itself in the state logic and the logic of competition typically naturalized in the gamic form itself. Both cases go beyond reading rhetorical statements merely by observing the game rules, discovering corporeal capture at levels unique to the medium of video games. Specifically, we find corporeal capture operating in the underlying software structures and programming paradigm, as well as in the conventions of consumption around video games that naturalize certain ludic forms. We argue that it is too limited to see procedural rhetoric as pure expression of the authors that can be extracted from game rules. Rhetorical force must also be seen in the underlying techno-cultural infrastructure that makes authorial expression possible in the first place, as well as in the types of rhetoric that both the authors and the players have to internalize in order to achieve communication of intent. As procedural rhetoric, corporeal capture has to be part of the suspended disbelief in both games in order to make interaction with the game meaningful and believable. For CK3, it is how the effects of traits exist independently within the characters themselves. For Civ6, it is how almost every game mechanic is subordinated to the boundaries of the state body.

The presence of rhetorical infrastructure complicates the study of procedural rhetoric beyond reading rhetorical statements from the artifact. It acknowledges that any extraction of rhetoric is necessarily *selective* of the rhetorical field in the artifact. This necessarily leads to the question *why* certain interpretations of the game are more likely while others lie largely latent — a question which brings us to the level of cultural analysis that sees both players and developers as embedded in a larger field of discourse, conventions and assumptions. We argue that an effective analysis of boundaries via corporeal capture necessarily touches on these levels precisely because boundaries are so easily naturalized as part of the suspension of disbelief and a requirement to find the game meaningful in the first place.

We want to emphasize software studies as relevant to taking procedural rhetoric to an infrastructural level. As Gaboury describes, the paradigm of object orientation shapes “the conditions of possibility for the ways we have come to design our world” (Gaboury 2021, 155). Corporeal capture thus describes a particular way of designing the world enabled by the boundary-drawing practices of object orientation. Needless to say, programming paradigms, languages and frameworks are also part of the rhetorical infrastructure. They resemble the ideas and biases that the developers themselves have to internalize in order to make their artistic expressions possible. From this perspective, we argue that engineering practices, technical materiality and algorithmic specificities are all relevant factors to consider when studying rhetorical strategies within computation. Beyond object orientation, boundary-drawing can take place in various levels — variables, function calls, data structures, all of which change how corporeal capture is realized in the software structure. The paradigm of component-based engineering, most notably implemented as the core of the Unity engine, also loosens the boundary-drawing practices in the object orientation paradigm to push it towards a more data-driven approach. We understand corporeal capture as a concept applicable to critically reflect on computational practices in general. This is also why we situate our philosophical position in contrast to computationalism in the first place — to offer a radical alternative to fundamental epistemological and ontological assumptions that make computational practice possible.

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