Unpacking the Blackbox of 'Normal Gaming'

A Sociomaterial Approach to Video Game Controllers and 'Disability'

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INTRODUCTION

"[I]nteractivity and, crucially, modes of input for interactivity, are the literal engine that drives all video gaming."[1] It comes as little surprise that the ludic feedback loop between players, software, and input devices has often been considered one of video games' central characteristics[2] and that "interactivity is one of the key conceptual apparatuses through which video games have been theorized thus far."[3] Furthermore, the concept is usually used as a marketing strategy by game console companies to highlight the physical and participatory role the users play in the event of gaming.[4] In digital gaming arrangements, interactivity is a specific

1 Murphy, Sheila: "Controllers," in: Wolf, Mark J. P. (ed.), *The Routledge Companion to* Video *Game Studies*, New York: Routledge 2014, pp. 19-24, here p. 19.

2 Wysocki, Matthew: "Introduction," in: Wysocki, Matthew (ed.), *Ctrl-Alt-Play: Essays on Control in Video Games*, Jefferson, NC: McFarland 2003, pp. 1-8, here p. 2.

3 Garite, Matt: "The Ideology of Interactivity (or Video Games and Taylorization of Leisure)," in: Copier, Marinka/Raessens, Joost (eds.), *DiGRA 03—Proceedings of the 2003 DiGRA International Conference: Level Up, Vol. 2*, 2003, http://www.digra.org/digital-library/publications/the-ideology-of-interactivity-or-video-games-and-taylorization-of-leisure/

4 During the 1980s and 1990s, commercials or cinematic depictions of digital gaming situations usually showed screaming and laughing children or young persons in front

"interrelation"[5] practice that translates and mediates bodily, cognitive, discursive and technological, material and semiotic, human and non-human elements and actors.[6] In this process of "interfacing,"[7] the game controller plays an integral role as a "mediator."[8] Regardless of whether the mode of input is produced via a keyboard, mouse, joystick, trackball, paddles, steering wheel, lightgun, a Wii-Mote, or a standardized gamepad, the controller delegates the reciprocal relationships between input and output devices as well as the players and their (im)possible actions in the virtual space of the gaming situation. Input devices not only condition, enable or disable 'access' to the virtual and ludic space of video games.[9] By opening up a "semiotic and linguistic space" and translating the "player's concept of 'I' into the 'I' of the game language,"[10] they also enable the potential for the players' identification with the avatars and the subsequent involvement into the game's diegesis. In addition, controllers arrange and limit the non-diegetic,

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of a TV while holding and moving the controller in a most exaggerated manner to represent the physical involvement digital gaming requires from their users. With the introduction of the Nintendo Wii and the genre of Exergames, this trend toward an emphasis on the bodily aspect of gaming in marketing campaigns was revitalized and consequently also caught the attention of academic discourse.

5 Taylor, T.L.: "The Assemblage of Play," in: *Games and Culture* 4/4 (2009), pp. 331-339.

6 Cf. Giddings, Seth: "Events and Collusions. A Glossary for the Microethnog-raphy of Video Game play," in: *Games and Culture* 4/2 (2009), pp. 144-157.

7 Lipp, Benjamin: "Analytics of Interfacing. On the Materiality of Technological Interconnection Within the Prototypical Milieu of Roboticized Care," in: *BEHEMOTH A Journal on Civilisation* 10/1 (2017), pp. 107-129.

8 I use Bruno Latour's definition of the more flexible and fluid "mediator" in contrast to what he calls the more static "intermediaries," since this allows for conceptualizing controllers as nodes in sociotechnical arrangements that are capable of rearranging, delegating, transforming and translating the other actors and agencies in the course of gaming. Latour, Bruno: *Reassembling the Social. An Introduction to Actor-Network-Theory*, Oxford: Oxford UP 2005, here pp. 38-42.

9 Lipkin, Nadav: "Controller Controls: Haptics, Ergon, Teloi and the Production of Affect in the Video Game Text," in: Wysocki, Matthew (ed.), *Ctrl-Alt-Play: Essays on Control in Video Games*, Jefferson, NC: McFarland 2013, pp. 34-45, here p. 37.

10 McDonald, Peter: "On Couches and Controllers: Identification in the Video Game Apparatus," in: Wysocki, Matthew (ed.), *Ctrl-Alt-Play: Essays on Control in Video Games*, Jefferson, NC: McFarland, 2013, pp. 108-120, here p. 119.

sociotechnical space in which hands, feet, or arms can or have to move[11] and thus condition, enable and delimit the "bodily techniques"[12] and modes of play the players can enact in the game event. Consequently, game-related Media and Cultural Studies research has frequently attributed game controllers with being (one of) the central technological enabler(s) of participation in digital gaming activities.[13]

However, researchers like David Parisi[14] pointed out that game controllers function as the physical gatekeepers of access to digital gaming. Their technological setup and the spatial regimes imposed on the players are highly exclusory for gamers whose bodily characteristics do not match the standardized design of controllers of the most popular contemporary game consoles. In these cases, game controllers become the locus of inaccessibility and disable playing the game. Nevertheless, this problem cannot be simply reduced to a dualistic ableist model of "normal gaming,"[15] able-bodied gamers, and so-called 'normal control' devices on the one side and 'disabled' or "incompatible"[16] gamers and peripherals and 'other gaming' on the other side.

11 Gazzard, Alison: "Standing in the Way of Control. Relationships between Gestural Interfaces and Game Spaces," in: Wysocki, Matthew (eds.), *Ctrl-Alt-Play: Essays on Control in Video Games*, Jefferson, NC: McFarland, 2013, pp. 121-132, here p. 127.

12 Parisi, David: "Game Interfaces as Bodily Techniques," in: Management Association, Information Resources (ed.), *Gaming and Simulations. Concepts, Methodologies, Tools and Applications*, IGI Global: Hershey, 2010, pp. 1033-1047.

13 E.g. P. McDonald, "On Couches and Controllers," Kirkpatrick, Graeme: "Controller, Hand, Screen. Aesthetic Form in the Computer Game," in*: Games and Culture* 4/2 (2009), pp. 127-143; Wolf, Mark J. P.: "Introduction," in: Wolf, Mark J. P. (ed.), *The Video Game Theory Reader*, Oxon: Routledge 2003, pp. 1-24; Shinkle, Eugénie (2008): "Video Games, Emotion and the Six Senses. Media," in: *Culture & Society* 30/6 (2008), pp. 907-915.

14 Parisi, David: "Game Interfaces as Disabling Infrastructures," in: *Analog Game Studies* 5/1 (2017), http://analoggamestudies.org/2017/05/compatibility-test-videogames-as-disabling-infrastructures/

15 Cf. Boluk, Stephanie/Patrick Lemieux: Metagaming: *Playing, Competing, Spectating, Cheating, Trading, Making, and Breaking Videogames*, Minneapolis/London: Minnesota UP 2017, here pp. 180-181; Spöhrer, Markus: "'Hear the Difference': Audio Game Prosumer Communities in a Post-Media Context," in: *AUGENBlick: Konstanzer Hefte zur Medienwissenschaft* 80 (2020), pp. 17-38, here pp. 18-19.

16 D. Parisi, "Game Interfaces," p. 3.

Thus, this paper provides a relational, sociomaterial, and praxeological approach that lends from those branches of Game and Disability Studies that are informed by Science and Technology Studies (STS) and, most significantly, Actor-Network-Theory. Such an approach aims at describing controlling, enabling, and disabling or 'failing at'[17] digital gaming as *practices*—without presupposing the so-called "medical and the social models" as the premise of "the ordering and representation of disability."[18] By providing a contemporary example of adaptive game controlling, I will demonstrate how 'enabling' or 'disabling' gameplay is an effect of the situational interplay and functioning of a plethora of factors, practices, elements, and actors that reciprocally shape and translate each other. So rather than asking, "Which bodies are disabled?" or "Which devices make games inaccessible?" I will ask how specific and individual practices of access configure, arrange, act, and react upon the relationships between (non)human actors and en-/disable digital gaming. From this perspective, that which has been discursified as so-called 'normal gaming' is just one stabilized practice of access among many. In order to develop my argument, I will first focus on the black box of 'normal gaming' with game controllers and make an effort to 'unpack' it as a highly stabilized and practically invisible mode of playing that is based on ableist ideologies. In a second section, I will briefly explain how academic discourse on game controllers frequently resorts to these ideologies and to a priori dichotomies (abled/disabled). I will then present the alternative approach of 'en-/disabling' gaming practices, which, in a third section, will be discussed using the example of German gamer Dennis Winkens' gaming arrangement with the Microsoft Adaptive Controller.

SILENCING THE CONTROLLER AND UNPACKING THE BLACKBOX OF 'NORMAL GAMING'

Academic discourse, especially from a Media or Cultural Studies perspective, has been treating peripheral devices such as game controllers as black boxes—as stabilized "intermediaries,"[19] which, when functioning correctly or as intended,

17 Cf. M. Wysocki, "Introduction," p. 2; P. McDonald, "On Couches and Controllers," p. 109; D. Parisi: "Game Interfaces," p. 3.

18 Galis, Vasillis: "Enacting Disability: How Can Science and Technology Studies Inform Disability Studies?" In: *Disability & Society* 26/7 (2011), pp. 825-838, here p. 825.

19 B. Latour: *Reassembling the Social*, p. 39.

usually generate a certain, predictable output.[20] However, black boxes are not singular or detached objects but, in fact, clusters of relations in wider actor-networks. They are made of tight connections and translations between human and non-human actors and for the sake of being manageable, transportable, transferable, usable, conceptualizable, and describable, they "are made to act as one."[21] It seems that in academic game discourse, the logic is favored that all controllers work evenly predictable, are handled the same, and act upon the game in a fairly common sense—no matter whether the controller is handheld, operated with no hands, feet, or elbows or works via analog or digital mechanisms, touch sensors (tablets, smartphones), or mechanical principles (Atari 2600 Joysticks), motion capturing technologies (Xbox Kinect), gyroscopes (PS4 Controller), perpendicular consumer IR sensors (Broderbund U-Force), pressure sensors (Wii Balance Board), or a microphone (as in the Konami Laserscope Headset or various Alexa-controlled games). As long as the chain of "pings"[22] generated by the game's software is answered somehow, the mode of input—be it via human hands, a cat's paws, or a malfunctioning keyboard button—is considered irrelevant. Thus, with some notable exceptions,[23] video game research has not paid close attention to controllers' relation to narratives, aesthetics, gameplay elements, or sociopolitical discourse.[24] They are, to put it in Bruno Latour's words, "a silent and mute intermediary, taken for granted, completely determined by its function."[25] Hence, apart from techno-historical research,[26] game controllers are usually a blind spot of game research;

20 Ibid.

21 Latour, Bruno: S*cience in Action: How to Follow Scientists and Engineers Through Society*, Cambridge, MA: Harvard UP 1987, p. 131.

22 Pias, Claus: "The Game Player's Duty. The User as the Gestalt of the Ports," in: Huhtamo, Erkki/Parikka, Jussi (eds.), *Media Archaeology: Approaches, Applications, and Implications*, Los Angeles: University of California Press 2011, pp. 164-183.

23 E.g., D. Parisi: "Game Interfaces as Bodily Techniques," D. Parisi: "Game Interfaces as Disabling Infrastructures," P. McDonald: "On Couches and Controllers," G. Kirkpatrick: "Controller, Hand, Screen."

24 Cf. P. McDonald: "On Couches and Controllers," p. 110.

25 Latour, Bruno: "On Technical Mediation," in: *Common Knowledge* 4/2 (1994), pp. 29-64, here p. 36.

26 E.g., Lu, William: "Evolution of Video Game Controllers: How Simple Switches Lead to the Development of the Joystick and the Directional Pad," in: *How They Got Game* (2003), https://web.stanford.edu/group/htgg/cgi-bin/drupal/?q=node/843

they are framed as "transparent"[27] and "repressed,"[28] silenced[29] , or as involved in "natural" processes[30] that create the effect of some kind of (paradoxical) "non-mediation."[31] However, black-boxing, ignoring, or even forgetting about the controller, be it from an academic, a journalistic (e.g., video game magazines), or everyday perspective is not only some sort of inadvertency. Rather, it is a (or even the) constitutive element of accessing and playing digital games as it enacts, mediates, and "construct[s] the boundary between ordinary experience and the illusion we enter when we relate to screen imagery and other game feedback 'as if' they constituted an environment or immersive world for play."[32] According to Peter McDonald, controllers and (in many cases) bodies "are being excluded from our conscious attention and we are distracted by the illusion that is the 'game.'"[33]

This stabilized, naturalized, and discoursified invisibility of the controller remarkably relates to the concept of 'normality': That which is 'normal' is usually presupposed as functioning, unthreatening, as not being noteworthy, and, thus, normal 'bodies,' 'abilities,' sensory capacities, or handling of technological objects are hardly reflected upon outside of academic discourse and, as a matter of fact, are usually not even perceived as such. Normality is "opaque,"[34] it is a black box that is tightly knit into everyday practices; it is "that which no longer needs to be considered, those things whose contents have become a matter of indifference."[35] In conjunction with this, these stabilized networks of sheer infinite relationships relate to the norm that defines and demarcates those sets of instances, situations, practices, objects, bodies, and behaviors that are 'abnormal,' 'disabled,' 'failing,' 'not functioning,' or are simply being different. Normality generates the 'other.' In turn, when the black box does not work as expected, when something in the stabilized and routinized chain of operations goes wrong, when the

27 P. McDonald: "On Couches and Controllers," p. 110.

28 Ibid.

29 G. Kirkpatrick: "Controller, Hand, Screen," p. 135.

30 A. Gazzard: "Standing in the Way of Control," p. 124.

31 P. McDonald: "On Couches and Controllers," p. 110.

32 G. Kirkpatrick: "Controller, Hands, Screen," p. 135.

33 P. McDonald: "On Couches and Controllers," p. 137.

34 B. Latour: "On Technical Mediation," p. 36.

35 Callon, Michel/Latour, Bruno: "Unscrewing the Big Leviathan; Or How Actors Macrostructure Reality and How Sociologists Help Them to Do So," in: Knorr-Cetina, Karin (ed.), *Advances in Social Theory and Methodology: Toward an Integration of Micro- and Macro-Sociologies*, London, UK: Routledge & Kegan Paul 1981, pp. 277-303, here pp. 284-285.

interaction with the controller does not happen smoothly—be it as a consequence of interrupted circuits, stuck buttons, software incompatibilities, unplugged cables, cramps in the hand—, those elements that en- or disable the controller to function, instantly become the center of attention. The malfunctioning, the interruption, the "failure,"[36] the "spoilsport"[37]—and in our case: the being unable or 'disabled' to play—become hypervisible, either on the side of the technology or on the side of the human player. All of a sudden, the material, formal, bodily, and technological ties of game controllers become matters of relevance.

As I have formulated before, when the black boxes of normality break down, when actions of and with technical objects are

"unsuccessful or simply disturbed—abnormality (respectably: disability) becomes visible. While normality remains the stabilized, invisible black box, disability becomes visible in its instability and at the same time becomes a stabilizing factor for normality."[38]

To illustrate the workings of black boxes, Latour gives the famous example of the broken overhead projector that intermits any kind of meeting:

"The crisis reminds us of the projector's existence. As the repairmen swarm around it, adjusting this lens, tightening that bulb, we remember that the projector is made of several parts, each with its role and function and its relatively independent goals. Whereas a moment before, the projector scarcely existed, now even its parts have individual existence, each its own 'black box.' In an instant, our 'projector' grew from being composed of zero parts, to one, to many."[39]

36 M. Wysocki: "Introduction," p. 3.

37 Huizinga, Johan: *Homo Ludens. A Study of the Play-Element in Culture*, London: Routledge & Kegan Paul 1949 (1938), p. 11.

38 Spöhrer, Markus: "The (Re-)Socialization of Technical Objects in Patient Networks: The Case of the Cochlear Implant," in*: International Journal of Actor-Network Theory and Technological Innovation* 5/3 (2013), pp. 25-36, here p. 27. Such tendencies to discursify the 'abnormal' in relation to a perceived 'normality' were elaborately analysed in Alan Meades' book on counterplay. Here, Meades focuses on counterplay practices, in which the games' underlying and otherwise invisible structures and rule systems are unpacked and highlighted. Meades, Alan F.: *Understanding Counterplay in Video Games*, New York/London Routledge 2015.

39 B. Latour, "On Technical Mediation," p. 36.

This example can be applied to those instances in which supposedly 'disabled' persons are not able to handle the controller, as its material qualities or design does not match their bodily configurations or vice versa. As with the overhead projector, the controller is working in relation to the handling, maintenance, and setup by human actors enrolled in the gaming situation. After all, the human actors are "the permanent organizer[s] of a society of technical objects which need him as much as musicians in an orchestra need a conductor."[40] There is no controlling without the relationships and the mutual shaping and adjustments between humans and non-humans.[41] As Peter McDonald notes, the (successful) handling of the controller is conditioned by "not paying attention to what our bodies are doing"[42] with the gaming arrangement. It is obvious that in situations in which controllers work as expected but bodies do not, the controller's normed design and technological make-up remain fairly silent, while the supposedly 'deficit' body becomes (or rather is constructed as) the 'trigger' for a perceived interference, a 'shattering'[43] of an otherwise supposedly 'smooth' operational chain. While during a 'successful' or 'flowing' gaming situation, bodies and peripherals are usually intended to shift to the background of perception, such "disabling practices"[44] can be considered "material-discursive boundary-making practices that produce 'objects' and 'subjects,' and other differences out of, and in terms of, a changing relationality." [45] In this respect, the interactions, translations, negotiations, and resistances between otherwise entangled human and non-human objects generate and stabilize differences between bodies and objects, between normal/abnormal, between success and failure, and thus fortify those bodies not matching the material designs of controllers as 'disabled,' when it comes to handling digital games.[46]

40 Simondon, Gilbert: *On The Mode of Existence of Technical Objects*, Minneapolis, MN: Univocal 2017, p. 17, addition by M. Spöhrer.

41 Cf. Winance, Myriam: "Trying out the Wheelchair: Mutual Shaping and Adjustments Between People and Devices Through Adjustment," in: *Science, Technology, & Human Values* 31/1 (2006), pp. 52-72; cf. B. Latour: "On Technical Mediation," pp. 31 et seqq.

42 P. McDonald: "On Couches and Controllers," p. 137.

43 J. Huizinga: *Homo Ludens*, p. 11.

44 Schillmeier, Michael: "Dis/Abling Practices: Rethinking Disability," in: *Human Affairs* 17 (2007), pp. 195-208; Schillmeier, Michael: *Rethinking Disability: Bodies, Senses, and Things*, New York: Routledge 2012.

45 Barad, Karen: *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, Durham: Duke University Press 2007, here pp. 92-93.

46 For the concepts of translations, negotiations, and resistance as used in this text see Callon, Michel: "Some Elements of a Sociology of Translation: Domestication of the

However, enabling or disabling practices are not reduced to the specific configuration of bodies but also the way the body is used, practiced, and enacted in relation to the peripheral devices, which require a lot of practicing, learning, self-discipline, and body control.[47] These "bodily techniques"[48] are composed of a limited amount of relatively clearly defined movements and bodily parts. Thus, they are designed in mutual relationship to both digital gaming "ideologies"[49] that determine the formal and material configurations of controllers and a normative conceptualization of the morphological qualities of what is conceived to be a 'typical,' 'normal,' or 'healthy' body. So, both concepts and 'real-life' instances of human bodies, practices, discourses, and digital and material objects are entangled in a tight network of relations that form and hold together the black box that is 'normal gaming.' Since the 1970s (almost unbroken) success of video games in arcades and homes across the globe, video games' most popular and thus most profitable concept of how to play games in the "home console dispositive"[50] involves two hands and thumbs, a certain hand-eye-coordination, sensorimotor skills, a certain response time and the bimanual holding, balancing, or supporting of a game

Scallops and the Fishermen of St. Brieuc Bay," in: Law, John (ed.), *Power, Action and Belief: A New Sociology of Knowledge*, London: Routledge & Kegan Paul 1986, pp. 196-223.

47 Cf. D. Parisi: "Game Interfaces as Bodily Techniques;" also see G. Kirkpatrick, "Controller, Hand, Screen," p. 135.

48 D. Parisi: "Game Interfaces as Bodily Techniques."

49 M. Garite: "The Ideology of Interactivity (or Video Games and Taylorization of Leisure)."

50 When I describe the 'normative' gaming arrangements, I will refer to what Harald Waldrich describes as the "home console dispositive": A specific normate "sociotechnical arrangement" (ibid.) that usually consists of one or more able-bodied players, a bimanual controller as the input peripheral, and a display or TV screen as the audio-visual output device, which creates a distinct spatiotemporal configuration between players and gaming arrangement. Cf. Waldrich, Harald: The Socio-Technical Arrangement of Gaming," in: Spöhrer, Markus (ed.), *Analytical Frameworks, Applications, and Impacts of ICT and Actor-Network Theory*, Hershey, PA: IGI Global 2018, pp. 52-86. This, of course, is not the only type of gaming arrangement, especially considering the fact that a large portion of gamers plays games on smart devices or on home computers, which can require different sociotechnical configurations and bodily techniques, such as swiping or the handling of a computer keyboard or mouse. Nonetheless, though they are relatively flexible and can be adjusted individually, these setups are usually also fairly stable, normative, and ableist as it comes to the mutual affordances between players and peripherals.

controller that is usually designed with the directional controls materially stabilized on the left and the action-buttons on the right side.[51] This "script,"[52] a set of relations and practices that has discursively been accepted as 'controlling digital games,' has been set and stabilized as the norm during the last decades of video game history. Practicing, handling, habitualizing,[53] and repeating these bodily techniques, as well as designing and producing technical objects (controllers) in relation to bodies over and over again, have fortified this specific material setup. Its 'proper' usage has been accepted and incorporated by players, developers, and designers worldwide as the invisible "industry standard"[54] that prescribes a "standard way of playing."[55] One can argue that knowing, practicing, and incorporating this script is the inevitable condition for digital gaming with mainstream gaming dispositives. Whoever can or will not adhere to this script that, as a result

51 Up until the introduction and popularization of the one-hand-controller of the Nintendo Wii, numerous other game controller scripts have existed: There are a variety of attempts at introducing alternative game controllers such as light guns (e.g., the NES Zapper), balance boards (e.g., Roll 'n Rocker), foot pedals or other single- or no-hands-controllers—concepts that had been previously established in arcades. However, such controllers usually could not survive the post-novelty stages and thus were considered passing fads or, at best, gimmicks to the bimanual controllers. They did not alter the predominance of the bimanual controller and its inscribed bodily techniques. Even Nintendo's popular concept of the one-hand-held Wii remote control was applicable to only some genres—mostly exergames or casual games—, and usually, the most popular titles, such as Mario Kart (Nintendo 2008), required the players to hold and use the controller in a horizontal position with two hands and thumbs. Furthermore, contemporary Nintendo consoles and handhelds, such as the Switch, have mainly returned to the bimanual control scheme.

52 Akrich, Madeleine: "The De-Scription of Technical Objects," in: Bijker, Wiebe /Law, John (eds.), *Shaping Technology / Building Society: Studies in Sociotechnical Change*, Cambridge: MIT Press 1992, pp. 205-224.

53 See Holmes, Steve: *The Rhetoric of Video Games as Embodied Practice: Procedural Habits*, New York/London: Routledge 2018.

54 Maggiorini, Dario et al.: "Evolution of Game Controllers: Toward the Support of Gamers with Physical Disabilities," in: Holzinger, Andreas/Plácido Silva, Hugo/Helfert, Markus (eds.), *Computer-Human Interaction Research and Applications*, Cham: Springer 2019, pp. 66-89, here p. 66.

55 Boluk, Stephanie/Patrick Lemieux: *Metagaming: Playing, Competing, Spectating, Cheating, Trading, Making, and Breaking Videogames*, Minneapolis/London: Minnesota UP 2017, p. 277.

of its economic success, is mainly uncontested, will be unable to or disabled from playing these digital games. Nevertheless, from the perspective I will endorse in this paper and with a nod to Patrick Lemieux's and Stephanie Boluk's remarks about the "standard metagame," this very script is only one among many ways to play:

"In the same way male privilege (as well as white privilege, heteronormativity, ableism, etc.) has historically been produced largely through its ability to circulate as an unstated default subject position, so too does the standard metagame draw its power from the fact that it is easy to take for granted and easy to forget that it is only one metagame among many."[56]

The practice and effect of taking-for-granted and forgetting the normative script of how to play with a standard bimanual controller generate the well-known and widely criticized dichotomization of 'normal' subjects on the one side and 'disabled' or 'other' subjects on the other, that, for the most part, dominates game controller research as I will elaborate in the next section of this paper.

CONTROLLER RESEARCH: FROM PROBLEMATIC A PRIORIS TO EN-/DISABLING PRACTICES

Game controller and accessibility research tend to favor locating functioning, success, disability, failure, or interruption either in the controller's materiality, design, and affordances or in the player's ('missing,' 'malfunctioning' or 'disabled') bodily qualities. On the one side (non-accessibility), game design research usually presupposes a normative conceptual 'able-bodiedness'[57] of their player peer groups, which in turn generates specific techno-material manifestations (marketable/profitable controllers and consoles) that function as the matching parts to these 'ideal body types'[58] and thus can easily be mutually adapted:

"This assumes, problematically, that the player's body is capable of such an adaptation on its own—that the machine was initially designed in such a way that it would not overwhelm

56 S. Boluk/P. Lemieux: *Metagaming*, p. 280.

57 Ellis, Katie/Kao, Kai-Ti: "Who Gets to Play? Disability, Open Literacy, Gaming. Cultural," in: *Science Journal* 11/1 (2019), pp. 111-125.

58 Cf. ibid., p. 119; D. Parisi: "Game Interfaces as Disabling Infrastructures."

or 'overload' the body with commands that it was simply not equipped to respond to coherently."[59]

Thus, game research that is based on the theoretical implications of Disability Studies favoring a technodeterministic perspective or the "social model of disability" argues that "game interfaces embody and express ableist norms of bodily, sensory, and cognitive functioning"[60] and demand for alternative "solutions,"[61] designs, or adaptive technologies to grant access to digital gaming to any type of body, subject, or player respectively. Game controllers then are mainly framed as technical objects, "hard-coded with ableist assumptions,"[62] requiring optimization with regards to their usability, accessible properties, and inclusive design. In conjunction with the discussion of normality above, in the case of design research that targets an 'average' able-bodied peer group, the presupposed 'normal' bodily qualities of players are hardly discussed, as they are presupposed as the norm. This, again, then is a practice of invisibilizing and stabilizing 'normal' bodies, a preset mode of "hegemonic design."[63] On the other side, players with "limited mobility"[64] are usually constructed based on a logic of deficit by research areas that deal with game controller accessibility. Consequently, research on game-related design, therapy, or pedagogy frequently works on the premise that their test persons or player peer groups need to be framed a priori as "treatment-receiving objects"[65] to be able to provide the said technological 'solutions' to their sensory or bodily 'deficits.'

In this respect, the target peer groups are presupposed and produced as being able or unable to play; they are either framed and silenced as 'compatible' or

59 D. Parisi: "Game Interfaces as Disabling Infrastructures."

60 Ibid.

61 Grammenos, Dimitris/Savidis, Anthony/Stephanidis, Constantine: "Designing Universally Accessible Games," in: Stephanidis, Constantine (ed.), *The Universal Access Handbook*, Boca Raton/London/New York: CRC Press 2009, pp. 17/1-17/12.

62 D. Parisi: "Game Interfaces as Disabling Infrastructures."

63 Parisi, David: "A Counterrevolution in the Hands: The Console Controller as an Ergonomic Branding Mechanism," in: *Journal of Games Criticism* 2/1 (2015), http://gamescriticism.org/articles/parisi-2-1

64 Mangiron, Carme (2014): "Game Accessibility. Taking Inclusion to the Next Level," in: Antona, Margherita/Stephanidis, Constantine (eds.), *Universal Access in Human-Computer Interaction. Design Methods and User Experience. Part 1*, Cham, CH: Springer 2014, pp. 269-279, here p. 269.

65 K. Ellis/K.T. Kao: "Who Gets to Play," p. 13.

constructed and highlighted as 'incompatible' subjects, which in the process of gaming either smoothly flow or collide and provoke agential cuts. Again, this is a matter of a priori distinctions, objectivations, and subjectivations that create a blind spot for the interrelation and interplays between the actors enrolled in actual gaming situations, the distributed agencies, and the resulting (re)actions: "But at worse, such distinctions deny the coconstitutional [sic!] nature of gameplay as intense, intimate, and cybernetic—as relations and transformations of speed, slowness, and affect between all part(icipant)s: They break the circuit."[66] As shown in the example of the black boxes, neither subjects nor objects are 'failing,' 'successful,' 'functioning,' or 'disabled' in isolation;[67] instead, such attributes are effects or outcomes of the feedback loop that is digital gaming. As I have elaborated elsewhere, there are analytical reasons for isolating actors as discrete objects or abstract and generalized persons.[68] However, in disability and accessibility contexts, an a priori framing of actors/objects does not 'solve' the supposed problem but instead adds to the issue by producing otherness and disability and fortifying ableist ideologies. Although the neglect of these relations appears to be the core problem of the ability/disability divide in digital gaming research, discourse, and everyday practice, they have rarely been addressed. Outside of game-related research, the praxeological, processual, and relational aspects of handling technologies in everyday life have been conducted by disability research that lends from Science and Technology Studies and specifically Actor-Network-Theory.[69] The theoretical premise of such approaches is to consider disability as something that is

66 Giddings, Seth: "Events and Collusions. A Glossary for the Microethnography of Video Game Play," in: *Games and culture* 4/2 (2009), pp. 144-157.

67 Sprenger, Florian: *Epistemologien des Umgebens: Zur Geschichte, Ökologie und Biopolitik künstlicher environments*, Bielefeld: transcript 2019, p. 9.

68 See Spöhrer, Markus: "The Neglected Gaming Situation: An Approach to the Mediality of Digital Gaming," in: Spöhrer, Markus/Waldrich, Harald (eds.), *Einspielungen: Prozesse und Situationen digitalen Spielens*, Wiesbaden: Springer VS, pp. 21-58, p. 54.

69 See M. Schillmeier: "Dis/Abling Practices;" M. Schillmeier: *Rethinking Disability*; Mol, Annemarie: *The Body Multiple: Ontology in Medical Practice*, Durham/ London: UP 2002; Moser, Ingunn: "Disability and the Promises of Technology: Technology, Subjectivity and Embodiment within an Order of the Normal," in: *Information, Communication and Society* 9/3 (2006), pp. 373-95; M. Winance, "Trying out the Wheelchair;" Galis, Vasillis: "Enacting Disability: How Can Science and Technology Studies Inform Disability Studies?" In: *Disability & Society* 26/7 (2011), pp. 825-838.

not an essential category, state, attribute, or inherent quality that can be presupposed or predefined but needs to be considered as something that is enacted in the interplay of human and non-human actors. Furthermore, the same is true for the concept of 'game' that is replaced by the processual and situated concept of 'gaming.'[70]

A focus on the processes and reciprocal (re)actions "removes the focus from interpretative approaches of what disability is and shifts the sociological analysis to how disability is actively created through different interacting practices between the […] body, the built environment and policy-making."[71] Thus, describing the en-/disabling practices in digital gaming situations does neither require to fixate and presuppose subjects as deficit or disabled, nor does it predefine technological objects, such as game controllers, as necessarily inclusory, therapeutical, or as an instrument of "fixing a person with a disability by equipping him or her with an accommodation that fits the way the world is currently designed."[72] This, in turn, leads to a possible description of a plethora of heterogeneous ways to play, sociotechnical arrangements, modes of interfacing, strategies, counterplays, and various enabling practices that are not congruent with so-called 'normal gaming.' In fact, from the perspective of such an "indeterministic heuristic,"[73] any gaming situation can turn out to be successful, uninterrupted, or enabled—independent of the way we would discursively predefine their actors and events. In this respect, the script that is considered to be 'normal gaming' is merely one among countless possibilities of how to enact and enable a gaming situation. Also, such an approach does not require the researcher to a priori 'locate' the time, space, and action that creates the agential cuts and the 'disabling moments' in the sequence of events of a gaming situation. It rather allows us to observe those relations, negotiations, translational attempts, and successes as well possible resistances between actors that might not be presupposed or anticipated in advance. There are numerous reasons and outcomes why

70 M. Spöhrer: "The Neglected Gaming Situation," p. 24.

71 V. Galis: "Enacting Disability," p. 825.

72 Rosner, Lisa: *The Technological Fix. How People Use Technology to Create and Solve Problems*, New York: Routledge 2004, p. 55; also see Sterne, Jonathan/ Mills, Mara: "Dismediation: Three Proposals—Six Tactics," in: Ellcessor, Elizabeth/Kirkpatrick, Bill/Kirkpatrick, Milton William (eds.), *Disability Media Studies*, New York: UP 2017, pp. 365-378.

73 Schüttpelz, Erhard: "Der Punkt des Archimedes: Einige Schwierigkeiten des Denkens in Operationsketten," in: Kneer, Georg/Schroer, Markus/Schüttpelz, Erhard (eds.), *Bruno Latours Kollektive: Kontroversen zur Entgrenzung des Sozialen*, Frankfurt a.M.: Suhrkamp 2008, pp. 234-258, here p. 238.

a gaming situation can turn out to be a disabling practice: The difficulty level does not match the player's skills and vice versa; the output devices are not configured according to the player's sensory characteristics; the game's button mapping does not correspond with the player's habituated muscle memory schemes; the distance to the output device is too low/high; the game's goals, mechanics or aesthetic structure is incomprehensible; the frequency of prompts or sensory signals is too high/low; the subtitles are missing or too small; there are no language options and various other reasons external to the hard- or software components of the gaming dispositive.

Most significantly, conceptualizing gaming situations in terms of en-/ disabling practices allows for observing practices in which otherwise (pre)supposed 'disabled' subjects would be anticipated to 'fail.' Finally, an indeterministic approach to digital gaming corresponds with its characteristic "open potentiality,"[74] "indeterminacy,"[75] and "uncertainty"[76] that has been a definitory element in even the earliest of game theories.[77] This basically means that a gaming situation with a fully predictable outcome is probably not even a gaming situation.

INTERMEZZO: HACKING AND WORKING AROUND

One traditional example of an enabling practice are players with one hand who control a game with non-"time critical"[78] game mechanisms, such as point and click adventures like MANIAC MANSION (1990) for the Nintendo Entertainment System (NES). The game, like most games in the NES library, is intended to be played with the standard bimanual NES-controller by using the D-Pad to move the cursor on the screen with the left hand/thumb and executing an action by pushing the A- or B-button with the right hand/thumb. By placing the controller on a flat

74 Apperly, Tom: *Gaming Rhythms. Play and Counterplay from the Situated to the Global*, Amsterdam: Institute of Network Cultures 2010, p. 13.

75 Rheinberger, Hans-Jörg: "Wie spielt man mit Zufällen, Herr Rheinberger?" In: Rheinberger, Hans-Jörg (ed.), *Experimentalität: Hans-Jörg Rheinberger im Gespräch über Labor, Atelier und Archiv*, Berlin: Kadmos 2018, pp. 201-210.

76 Johnson, Mark. R.: *The Unpredictability of Gameplay*, New York: Bloomsbury 2019.

77 See Spöhrer, Markus: "Technische Dinge im Wechselspiel: Spielsituationen als Experimentalsysteme anhand einer autoethnographischen Studie zu Tetris 99," in: Wiedmann, Astrid et al. (eds.), *Wie forschen mit den "Science and Technology Studies"? Interdisziplinäre Perspektiven*, Bielefeld: transcript 2020, pp. 143-174.

78 Pias, Claus: *Computer Game Worlds*, Berlin: Diaphanes 2017.

surface or holding it vertically, the D-Pad and the buttons can be pushed alternately with only one hand/thumb. A skilled player, who habituated this bodily technique, will be perfectly enabled to play the game and, in fact, is not produced a 'disabled subject' in this specific gaming situation. So, using an a priori definition of a single-handed person playing MANIAC MANSION in this manner as being disabled is at best a generalized statement that does not apply to every real-life-situations—especially not to this situation—and, at worst, is simply wrong and fueled with ableist ideologies:[79]

"As a result, twiddling dual thumbsticks with two thumbs; viewing the display straight on from a certain distance; and even progressing in the game by scrolling left to right, accumulating points, unlocking content, and reaching the credits are voluntary choices but have become tacitly understood as the 'normal' or 'correct' way to play. These standard forms of play not only disavow their status as a metagame, but, in doing so, inhibit the production of more diverse forms of play."[80]

In addition, such "work-arounds"[81] can be replaced or complemented by controller hacks that alter the controller's chip sets, wiring, circuiting or material shape, or moving buttons to different locations in order to generate enabling practices. In the case of the NES controller, online DIY-hacker communities developed, for example, the single-handheld controller or an inverse controller for left-handers (see fig. 1 and fig. 2).[82]

79 *Maniac Mansion* was originally released for home computers in 1987 and introduced the point and click mechanics to larger audiences. These mechanics were reworked, with some modifications, by many other contemporary graphic adventures. Originally it was intended to be played with a computer mouse, which, to strengthen my argument, is usually operated with one hand. Up to today, controlling adventure games and also strategy games with a computer mouse has been stabilized as the computer dispositive. So again, without presupposing a one-handed player as disabled, this can be considered an enabling practice.

80 S. Boluk//P. Lemiuex: *Metagaming*, p. 280-281.

81 See Ellcessor, Elizabeth: *Restricted Access: Media, Disability, and the Politics of Participation*, New York/London: New York UP 2016, p. 174.

82 This hack is a somewhat traditional one: Some joysticks for the Atari 2600 (1977-1985) were designed with only one fire button (on the left side) and thus made it hard for left-handed persons to play games, as it required them to cross their arms in order to play according to their incorporated everyday bodily techniques. As a result, quite similar to the NES customs, some players developed DIY-'hacks' and rewired their

Figures 1 and 2: One-hand NES controller with buttons on the bottom; Rewired and inverted left-hander controller

Sources: Onefatsurfer, "Custom One-Handed NES Controller," *Imgur*, 2017, https://imgur.com/gallery/HDEHM; Day, Lewin: "Making a Left-Handed NES Controller," in: *Hacka day*, 2021, https://hackaday.com/2021/08/10/making-a-left-handed-nes-controller/

So, instead of fixating, producing, and othering 'disabled subjects' in advance who, in fact, in specific concrete situations, are thoroughly *enabled* to play games,

joysticks to functionalize them as left-hand-operated controllers. See Morgenstern, Steven: "Make Your Own Left-Handed Joystick," in: *Atari Age* 1/5/ (1983), p. 4.

we should focus on those "diverse forms of play,"[83] the heterogeneous enabling configurations of sociotechnical arrangements and the heterogeneity of modes of play that are overshadowed by the script of 'normal' gaming as well as the standard video game dispositive. By elaborating on the modes of play of gamer Dennis Winkens and his sociotechnical configurations of his Adaptive Controller, I will give an example for such a description of enabling practices in the last section of this paper.

MANY MODES OF PLAY: DENNIS WINKENS' ADAPTIVE CONTROL

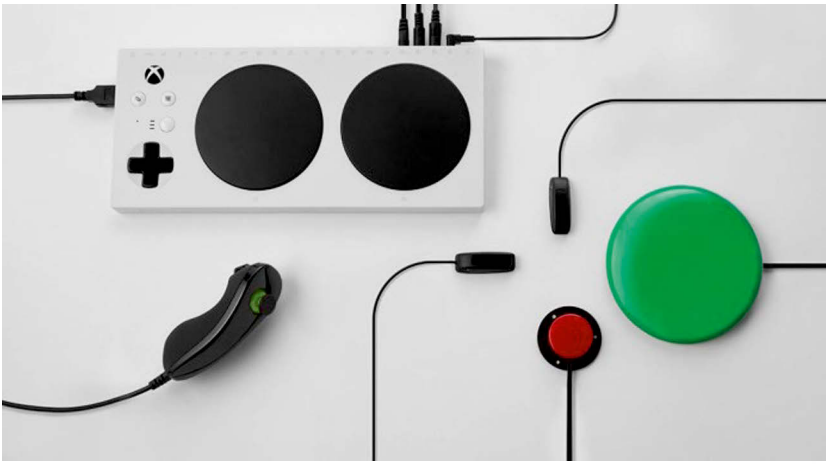
In a series of testimonials on YouTube, his blog Wheely World, and Microsoft commercials, German gamer and blogger Dennis Winkens showcases some of his gaming setups and his individual modes of playing digital games. As a person with tetraplegia, who was paralyzed because of a mountain bike accident, he uses an assortment of technical devices, such as his wheelchair, which he operates with his mouth, his shoulders, and his elbows. A central element of his gaming equipment is the Microsoft Adaptive Controller (fig. 3), a "unified hub for devices that help make gaming more accessible."[84] The hub follows a modular approach by allowing for individually arranging and connecting over 20 different elements. Among the combinable elements provided by Microsoft are mounts, joysticks, buttons, and switches in various shapes, sizes, and colors that also differ in pressure sensitivity. However, as the hub's input system is based on standard USB and 3.5mm jacks (fig. 4), it can be combined with numerous other commercial or custom peripheral devices, such as pedals, voice controllers, motion sensors, gyroscopes, etc., and allows for customized button mapping. By introducing this adaptive system, Microsoft faced the "paradox of inclusivity and individuals, where designers must consider the collective needs of many and the exceptional needs of individuals"[85] that has been widely discussed in accessibility research.

83 S. Boluk/P. Lemieux: *Metagaming*, p. 281.

84 Microsoft: "XBOX Adaptive Controller," in: Microsoft.com, 2022, https://www.microsoft.com/en-gb/d/xbox-adaptive-controller/8nsdbhz1n3d8

85 McCauley, Lindsay/Frankel, Lois: "An Interdisciplinary Framework for Designing Adaptive Snowsports," in: Bucchianico, Giuseppe Di et al. (eds.), *Advances in Industrial Design*, Cham: Springer 2020, pp. 484-490, here p. 484.

Figures 3 and 4: Adaptive Controller and different buttons; USB ports and 3,5mm jacks



Sources: Microsoft: "Barrierefreies Spielen mit dem Xbox Adaptive Controller," in: Microsoft.com, 2022, https://news.microsoft.com/wp-content/uploads/prod/sites/418/2018/07/Adaptive-Controller.jpg; Petzold, Sara: "Neuer Xbox One Adaptive Controller—Käufer können Verpackung mit den Zähnen öffnen," in: Gamestar, 2018, https://images.cgames.de/images/gamestar/226/xbox-adaptive-controller_6031514 .jpg

Instead of 'failing' to play in the course of disabling practices that adhere to the above-described script of normative gaming that materializes in bimanual game controllers, the Adaptive Controller allows for individual setups and control scripts. In a sense, it allows for disassembling the normative control schemes—both on a technological and a bodily level—and reassembling them in accordance

with the individual and subjective needs, bodily configurations as well as the spatiotemporal properties and affordances of their gaming environments. By creatively and reciprocally configuring and adapting bodies, agendas, devices, and software, such sociotechnical (re)assemblages allow for the enactment of enabling practices.

Dennis Winkens narrates his personal gaming history as being a gamer who, before the accident, played and liked heterogeneous game genres, mechanics, and computer systems:

"It all started with a Game Boy when I was about five or six years old. Later, I added a Commodore 64 computer. I basically played all of the classic games: SUPER MARIO and THE LEGEND OF ZELDA on the Game Boy, and the WINTER GAMES on the Commodore—that one was a tough nut to crack. […] I mostly use my PC since my accident. I have played most games on my new computer that I purchased at the beginning of last year. Even though I also have a PlayStation 4 system, it is easier to start a game off my hard drive, since I am already on my PC."[86]

Winkens' examples of the gaming dispositives he used to enact—the computer dispositive, the handheld dispositive, and the home console dispositive—are, as far as control mechanisms are concerned, materializations of the scripts, modes of play, and ableist ideologies of 'normal gaming' as described above. Equivalent to playing MANIAC MANSION on the NES, most central to playing games, such as THE LEGEND OF ZELDA (1993) or SUPER MARIO LAND (1989), in the handheld dispositive of the Gameboy are the bimanual controls, corresponding motor skills, and bodily techniques as well as a certain sense of balance in order to handhold the handheld device in mid-air and in relation to the player's face. However, in contrast to MANIAC MANSION, such games are time-critical in nature, meaning that there are situations in which the player has to react to prompts in short time periods—often by pressing two or more buttons at the same time. In the case of older home consoles and computers such as the C64, the controllers are cable-bound, which creates a limited distance to the output devices, determines the player's position in relation to the screen, and limits the physical space of bodily movements. Additionally, operating the classic C64 joystick requires a nowadays archaic

86 Hofmann, Anne: "Gaming Tools: DIY Community," in: MEDICAlliance, Jan 3 2018, https://www.medicalliance.global/en/News_aus_den_Portalen_[online!]/Topic_of_the_Month/Topics_of_the_Month_2018/January_2018_Playfully_accessible_in_rehabilitation_and_leisure_time/Gaming_tools_DIY_community

bodily technique, in which the controller is placed on a flat surface and operated with the left ('fire' buttons) and right hand (stick).

From the perspective elaborated above, before his accident, Dennis Winkens had internalized, incorporated, and adapted the script of 'normal gaming' as the dominant mode of play. In the course of practicing the prescribed bodily movements, arranging his gaming dispositives, and acquiring normed bodily techniques according to this script, he acquired gaming literacies and what one might call "skilled expertise"[87] in normative gaming. This "kinaesthetic training"[88] desensitized Dennis Winkens from the script's "disciplinary connotations"[89] and naturalized[90] his thoroughly sociotechnical embeddedness in the dispositive, thus 'silencing the controller' and shifting his attention away from what his body is doing. However, after the mountain bike accident and as a result of his tetraplegia, the relations and ties between Winkens' bodily and neurological characteristics and the incorporated modes of play were cut, changed, and disassembled. What used to be hardly reflected and transparent enabling practices were now enactments of disability: "There was a break, because there were no controllers on the market that I could operate,"[91] as Winkens puts it. And as most games required more than one button and most accessible controllers did not allow for more than one button, Winkens mainly resorted to point-and-click adventures—for the reasons described in the example of MANIAC MANSION. The single buttons Winkens had at his disposal were either operated with his head, his mouth, or his elbows, thus creating alternative modes of play as a means of enabling practices. Again, there is neither an essentialist incompatibility inherent in his body nor in the sociotechnical setup of the gaming arrangements. Rather, as Sky LaRell Anderson puts it, failing or success is a matter of relationality and processuality that emerges in the event of playing a digital game: "Game bodies will always be mutually constitutive beings given the interactive nature of gaming: games require bodies, and bodies create, play, and watch games."[92] Enacting digital play then "is a form of cyborgization—

87 Reeves, Stuart/Brown, Barry/Laurier, Eric: "Experts at Play. Understanding Skilled Expertise," in: *Games and Culture* 4/3 (2009), pp. 205-227.

88 N. Lipkin: "Controller Controls," p. 37.

89 G. Kirkpatrick: "Controller, Hand, Screen," p. 137.

90 A. Gazzard: "Standing in the Way of Control," p. 124.

91 Blogdot: "Tipps für ein Xbox Adaptive Controller-Set Up für Tetraplegiker," in: *Blogdottv*, August 30, 2019, https://www.blogdot.tv/tipps-fur-ein-xbox-adaptive-controller-set-up-fur-tetraplegiker/ (my translation)

92 Anderson, Sky LaRell: "The Corporeal Turn: At the Intersection of Rhetoric, Bodies, and Video Games," in: *Review of Communication* 17/1 (2017), pp. 18-36, here p. 31.

the act of becoming a metaphorical cyborg through participation in cybernetic feedback loops."[93] It is in the course of this mutual negotiation between Winkens and his digital and material objects that his gaming situations were translated into disabling practices.

With the introduction and availability of the Microsoft Adaptive Controller, Winkens was provided with a toolkit that allowed him to reassemble and rearrange technical objects, his physical environments, and software components in mutual relation to his bodily configuration. This, in turn, allowed for an assortment of enabling practices according to different individual game mechanics and genres: "Instead of only playing easy point and click adventures, he now can play what he like before the accident: complex sports games that require skill and fast reactions."[94] Besides the Adaptive Controller's hub, the QuadStick (fig. 5) is central to Winkens' gaming arrangement and the main actor in his enabling practices:[95] "This controller, which was specifically developed for people with tetraplegia, can be used with the mouth. It consists of three input holes [with pressure sensors] that are operated by a sip/puff-control and can be configured with different setups for playing on consoles and personal computers,"[96] as Winkens puts it. Since the Adaptive Controller's hub allows for placing any possible action that is implemented in the game software's code onto an individual port, Winkens can arrange his mode of input so that any given action can be triggered by a corresponding sip/puff-input, either by activating a single hole (or more at the same time), which allows for "over 20 different combinations."[97] In this way, by, for example, configuring the middle hole of the Quadstick to trigger avatar movements, Winkens is able to move his avatar to the left or to the right by executing sip, puff and/or breathing techniques, respectively (fig. 6). Similar configurations and bodily techniques in relation to the games' mechanics or aesthetics can be used to separately control the camera perspective of, for example, a game with a central perspective.

93 Jansen, Dennis: "Ludic Cyborgism Game Studies, Cyborgization, and the Legacy of Military Simulation in Videogames," in: *Press Start* 6/1 (2020), pp. 36-53, here p. 36.

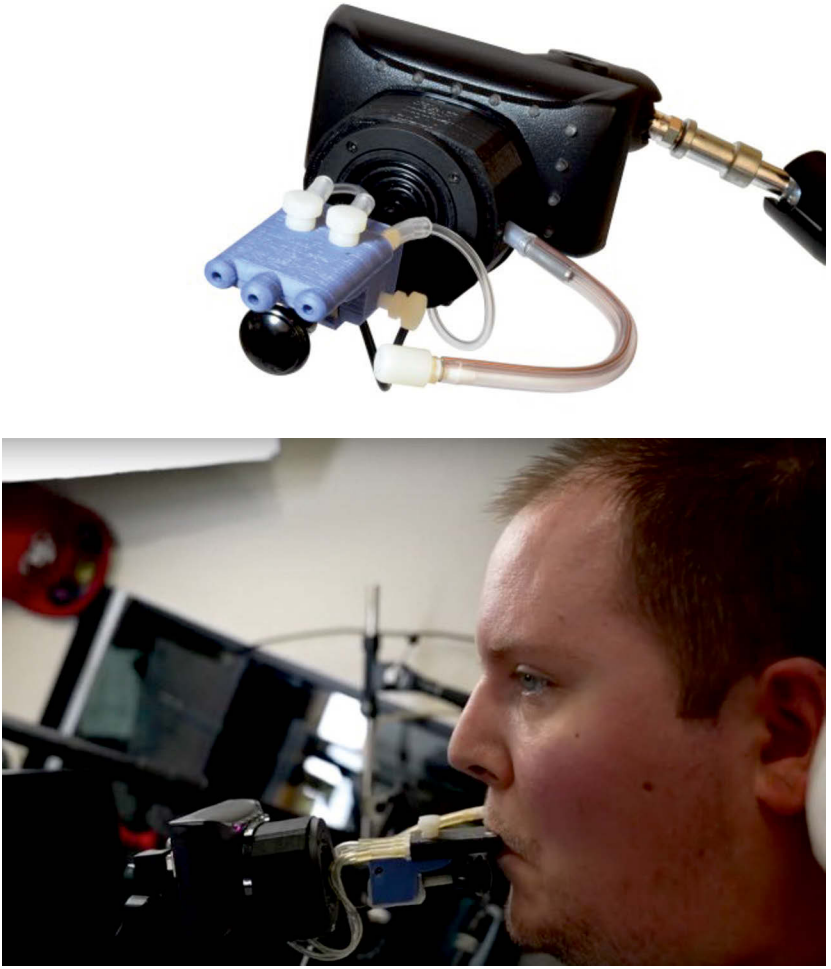
94 Lenßen, Sebastian: "F1 mit dem Mund," in: *YouTube*, August 23 2021, https://www.youtube.com/watch?v=QK-l_PET5W0

95 In some cases, but to a lesser extent, Winkens also uses eye-tracking controllers, which enable him to operate games with his eyes. Cf. Mainz, Marco: "Gaming ohne Grenzen: Dennis Winkens über Inklusion bei Spielen," in: *RP Online*, September 28 2020, https://rp-online.de/digitales/games/gaming-ohne-grenzen-dennis-winkens-ueber-inklusion-bei-spielen_aid-53615179

96 Blogdot: "Tipps," (my translation).

97 S. Lenßen: "F1 mit dem Mund."

Figure 5 and 6: The QuadStick with pressure sensors for mouth control; Dennis Winkens' mouth control technique



Sources: Quadstick: "Quadstick: A Game Controller for Quadriplegics," 2020, https://www.quadstick.com/; Schienke, Lukas: "Barrierefreies Zocken ohne Hände," in: *EPD Video*, 2021, https://www.epd-video.de/themen/beitrag/barrierefreies-gaming-zocken-ohne-haende

Using Actor-Network-Theory's rhetoric, one might say that the well-defined, discrete, and usually materially sealed off 'standard' game controllers cannot be mobilized and enrolled in Winkens' sociotechnical "alliance" between human and

non-human actors.[98] They can be considered "non-negotiable objects,"[99] as they are thoroughly resistant to translational efforts.[100] The bodily and sociotechnical control scheme that is inscribed in and prescribed by these controllers is relatively stable. In contrast, the extendable set of buttons in relation to the adaptive controller's adaptability and configurability renders this technological constellation an "open machine":[101] It is relatively 'open,' unresistant, and well-disposed to translations and, in fact, *requires* and *demands* active negotiation between the human player's body, skills, and senses and the techno-digital objects. In a sense, the Adaptive Controller's toolkit demands that players develop their own scheme of how to set up and design the "cybernetic feedback loop"[102] in which their bodies and skills are going to be embedded.

By being made to act by Winkens (and vice versa), the Adaptive Controller functions as a mediator of the gaming arrangement that redistributes roles, agencies, and "inter-related sets of actions"[103] between the "software and hardware components, between databases and software engines, user input and algorithmic processing of information and responses."[104] In the adaptive process between Winkens and his individual sociotechnical arrangement, compatibility, connectivity, and controllability are enabled between all the actors involved. However, this setup is "stable only for a certain location at a particular time"[105] and, one might add, for particular bodily characteristics and individual modes of play.

The enabling practices based on the connection between the QuadStick, the configurable ports of the Adaptive Controller, and Winkens' bodily techniques of mouth-control allow him to "play any game that is offered on the market,"[106] says Winkens. In relation to the situation's affordances, Winkens can develop his individual scripts and assemble both input and output devices according to the gameplay mechanics (games that afford a high frequency of reactions), the aesthetics (central perspective, side-scrolling aesthetics), the agonal nature of the situation (casual, relaxed, competitive), the duration of the situation and the sensory or cognitive attention the situation requires (single-player, intense multiplayer matches).

98 Cf. M. Callon: "Some Elements."

99 G. Kirkpatrick: "Controller, Hand, Screen," p. 147.

100 Cf. M. Callon: "Some Elements."

101 G. Simondon: "On the Mode of Existence," p. 17-18.

102 S. Giddings: "Events and Collusion," p. 145.

103 P. McDonald: "On Couches and Controllers," p. 110.

104 S. Giddings: "Events and Collusion," p. 148.

105 M. Callon: "Some Elements," p. 222.

106 Blogdot, "Tipps," (my translation).

The same applies to the position of his body (horizontal or vertical) and the body parts he uses to operate the input devices (elbows or mouth only) based on the script that fits a particular situation. In contrast to the above-described gaming arrangements of MANIAC MANSION that require non-time-critical and low-frequency input, Winkens' setups with the QuadStick and the Adaptive Controller allow him to "flexibly control his avatar with fewest movements, minimal expenditure of energy in and with quick reactions."[107] According to the game's affordances, he switches between two main setups: (1) Sitting up straight or (2) lying down in the bed. The 'sitting setup' is supposed to be used for shorter play sessions that do not necessarily require a high level of concentration. For these, he is sitting in the wheelchair in front of a table on which a display is adjusted perfectly to his visual area of perception. Different modules such as the QuadStick and two to four smaller buttons are mounted to the table at a 45-degree angle by use of (flexible) ball-and-socket joints. In addition to this, he distributes different in-game actions to self-adhesive buttons, which are attached to his wheelchair or his elbows. The Micro Light Switch can be arranged and functionalized in such a manner, as it is a button with an extraordinary low resistance to pressure (only 0.4 ounces/10 grams of pressure are needed to activate it) and thus can be operated by minimal taps with his elbows or shoulders.

The second individual gaming arrangement, the 'lying-setup' is intended for playing "extensive multiplayer matches or longer race tracks such as in FORZA HORIZON."[108] FORZA HORIZON is a series of racing games for Microsoft systems (2014-2021, XBOX360, XBOX One, Windows) that features open-world/multiplayer mechanics. Comparable to other games with 3D graphics, the specific distance and position in relation to the visual output device are crucial in order to generate the effect of a central or point-of-view perspective that simulates sitting in a race car. As a result of the high frequency and pace of objects (other cars) appearing on the screen, the time-critical nature of the game (the goal is to finish the track in the lowest time possible), and the agonal multiplayer-setting, a sociotechnical gaming arrangement is required that allows for a high reaction time, a high degree of concentration and sensory alertness. In order to meet the game's requirement with regard to his technological 'availability'[109] and bodily characteristics, Winkens needs to distribute actions like hitting breaks, shifting gears, acceleration, or steering to the left/right to individual buttons that are distributed all over his wheelchair and in minimal distance to those body parts that operate

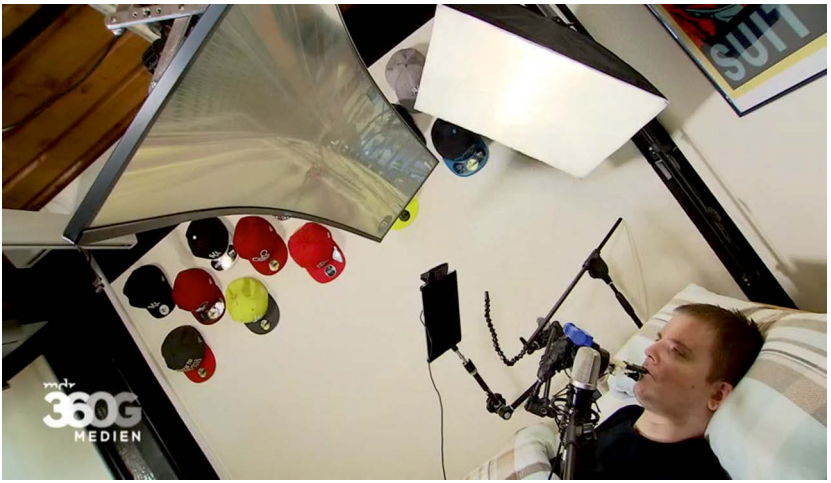
107 Ibid. (my translation).

108 Ibid. (my translation).

109 B. Lipp: "Analytics of Interfacing."

them. Depending on the menus or accessibility options provided by the game's software, the XBOX One or Microsoft Windows, Winkens then configures the digital connections between the game's possible input choices to his individual material input triggers. These "profiles,"[110] as he calls the digital configurations, are related in a reciprocal manner to specific bodily techniques he has developed and routinized (e.g., slightly moving the left shoulder/elbow to break or the right shoulder/elbow to accelerate): "For example, if I want to achieve course records in FORZA, I disable the automatic gears, switch to manual gear and change the gears via the buttons under my shoulders."[111]

Figure 8: Dennis Winkens' horizontal mode of playing



Source: Rünker, Maximilia/Kiesler, Johanna: "Gaming und Barrierefreiheit: Im Spiel werde ich einfach als Mensch wahrgenommen," in: *MDR Medien 360G*, 2019, https://www.mdr.de/medien360g/medienkultur/gaming-handicap-100.html

Also, as standard flat widescreens require the player to move their head, and since Dennis is lying almost horizontally, he mounted an adjustable curved ultra-wide display parallel to his room's ceiling in perfect relation to his head's position. The

110 Rünker, Maximilian/Kiesler, Johanna: "Gaming und Barrierefreiheit: 'Im Spiel werde ich einfach als Mensch wahrgenommen,'" in: *MDR Medien 360G*, September 3 2019, https://www.mdr.de/medien360g/medienkultur/gaming-handicap-100.html

111 XboxDACH: "So nutzt Dennis Winkens den Xbox Adaptive Controller," YouTube, August 30 2019, https://www.youtube.com/watch? v=doi7SdhhrTQ

modes of play that can be enacted and enabled with this arrangement avoid bodily and cognitive exhaustion and provide a comfortable lying position (fig. 8).

In this setup, equivalent to the sitting setup, the Adaptive Controller delegates the Quadstick as the main mode of input, which "executes, depending on the game's affordances, various basic functions, such as steering and changing camera perspectives and thus replaces the classic navigation with two sticks."[112] This arrangement also allows for playing 3D-shooters such as APEX LEGENDS (2019), requiring maximum responsiveness from both player and input devices. In order to do so, Winkens connects two to four Specs Switches to the Adaptive Controller. In congruence and attuned to the Micro Light Switch, these round and sensitive 1,4-inch buttons allow him to quickly "dodge bullets and aim" at opponents.[113]

However, as lying on the hard plastic switches and operating them with the shoulders or elbows can be uncomfortable, Winkens cushions them with foam pads that guarantee maximum comfort. In case buttons or devices on the market do not correspond with his demands, Winkens also opts for customizing existing buttons or creating 3D-printed ones that are perfectly tuned to his modes of play.

CONCLUSION

Playing digital games, or rather en-/disabling digital play, is, as any other form of interaction in sociotechnical arrangements, a "dance of agency."[114] Be it in the case of adaption of bodily techniques and routines, reacting to in-game-prompts or actively prompting in-game-actions, setting up the gaming arrangement, configuring the gameplay modes or the button mapping via the game, taking part in a gaming situation is a practice that "consists in the reciprocal tuning of machines and disciplined human performances:"[115]

"[T]he dance of agency, seen asymmetrically from the human end, thus takes the form of a dialectic of resistance and accommodation, where resistance denotes the failure to achieve an intended capture of agency [of an entity] in practice, and accommodation an active human strategy of response to resistance, which can include revisions to goals and intentions

112 Blogdot: "Tipps," (my translation).

113 Ibid. (my translation).

114 Pickering, Andrew: *The Mangle of Practice: Time, Agency, and Science*, Chicago/London: Chicago UP 1995, p. 20.

115 Ibid.

as well as to the material form of the machine in question and to the human frame of gestures and social relations that surround it."[116]

In this respect, the grade of (in)stability of both human and non-human actors is crucial in the process of enabling or disabling gaming practices. Enabling gaming is closely related to the potential for the negotiation of reciprocal "making available."[117] Setting the perspective on the interplay and the process of configuring and arranging (non)humans allows for analyzing the (in)stabilization, resistance, translation, and "procedures of restabilization"[118] of gaming arrangements and gaming practices, in which, in any case, enabling and disabling are basic mechanisms of the processual and reciprocal being "in-play."[119]

Neither humans nor technical (or other) actors are indefinitely stable and thus open to adaptability, modification, and translation, and, in a sense, are required to adapt to each other in order to play together at all. Consequently, both game objects, gamers, and the situations are "part(icipant)s,"[120] "always in the process of becoming."[121] However, having said that, the material shape of 'standard' controllers tends to be relatively resistant. Thus, individually modifying and translating their usually hard, bolted-down plastic materials require engineering skills and sensorimotor dexterity that go well beyond the incorporated and learned practices of standard gaming, as demonstrated in the examples of controller hacks. In this respect, the adaptive or configurative approach embraced by the Microsoft Adaptive Controller appears to be a fruitful one—as it is a partially stabilized, pre-disassembled device that requires and allows the players to integrate individual

116 Ibid., p. 22

117 B. Lipp: "Analytics of Interfacing," p. 114 (my translation).

118 Ibid.

119 Huizinga: *Homo Ludens*, p. 11; cf. M. Spöhrer/H. Waldrich: "Introduction." Interestingly, the concept of resistance to translations also relates to Huizinga's concept of the "spoil-sport": "The spoil-sport, or cheat, on the other hand, as can be argued with reference to Michel Callon, refuses and resists being part of the in-play process, and cannot be translated into a mode of play. He therefore constitutes an 'other' outside of the game process: he or she 'shatters' the possibility of being a part(icipant) in the processes and situations of gaming. This also implies that gaming situations follow not only a binary logic of playing or not-playing." (Ibid., p. 11.)

120 S. Giddings: "Events and Collusions."

121 Malaby, Thomas M.: "Beyond Play. A New Approach to Games," in: *Games and Culture* 2/2 (2007), pp. 95-113.

experimentation, assemblage, and configuration themselves.[122] Instead of having players face insuperable, highly stable, and untranslatable material chunks and forcing them to unpleasant or unfeasible bodily behaviors, they are requested to design their own modes of play.

In this respect, maybe comparable to trends such as Nintendo Labo,[123] the setting up of the gaming arrangements becomes an experimental mode of play, a "configurative practice" itself.[124] This does not mean that there is no work left for video game designers and developers. As Winkens states:

> "[o]verall in gaming, there are definitely situations where I, even with my controller, which can really do a lot, reach my limits. In FIFA, for example: Due to the variety of all possible combinations, of course, my repertoire of configurations is limited."[125]

However, Winkens elaborates that this is rather a problem of the resistance of software as the programs and coding sometimes do not provide enough flexibility and configurability for the Adaptive Controller to tap into its full potential.

As discussed in detail above, both the Adaptive Controller's approach to enabling practices, as well as the concept of en-/disabling gaming practices, do not require players to be conceptualized by use of a rhetoric or logic of deficit. Especially in cases in which the supposed bodily 'deficit' has no visible or recognizable influence on the progress and outcomes of the gaming situations, as both player, software and hardware are perfectly interplaying, leveling, and flowing. On the one hand, Winkens demonstrates this by referring to the reactions of fellow online

122 Setting up Dennis Winkens' gaming arrangement, however, is a practice that is not conducted by himself alone, but a cooperative practice in which he delegates his mother/assistive care givers to mount specific part(icipant)s according to his individual connection scheme.

123 See Schmidt, Hanns Christian: "Ludo Labo Literacy. Papphäuser, Bauhäuser und der Versuch einer medienpädagogischen Selbstentfaltung," in: *Navigationen—Zeitschrift für Medien- und Kulturwissenschaften. SPIEL|MATERIAL* 20/1 (2020), pp. 161-177.

124 Eskelinen, Markku: "The Gaming Situation," in: *Game Studies* 1/1 (2001), https://www.gamestudies.org/0101/eskelinen/. In many ways, the development of such configurations can be considered a form of experimentation, which, as I have elaborated elsewhere, has been described as a constitutive element of playing games throughout the history of (digital and analog) game theory, cf. M. Spöhrer: "Technische Dinge."

125 Schienke, Lukas: "Barrierefreies Zocken ohne Hände. EPD Video," in: *EPD Video*, 21st Octobre 2021, https://www.epd-video.de/themen/beitrag/barrierefreies-gaming-zocken-ohne-haende (my translation)

players, who, after they learn that he played the game with his mouth, initially are surprised and believe that they are being fooled or pranked:[126]

"Usually, these people are really cool with it, support it and think it is great that I can keep up with them on such a level. […] It's all about the fun, and during gaming situations, I'm being perceived as a human being and not reduced to anything else. These are normal situations, the way everyone should treat each other. We're just having fun by gaming together, and that's the main focus."[127]

In these situations, his gaming skills, his bodily techniques, and his results are by no means inferior to standard gaming practices, which in fact, renders him an abled gamer (if this attribute is even necessary, as he is simply not a priori marked as 'the other' or disabled in these situations). Moreover, mocking the script of bimanual gaming, Winkens tauntingly asks: "Who needs hands anyway?"[128] Being asked by interviewer Marco Mainz whether he can keep up with competitive players, he answers:

"Definitely. At some games, I'm even better than them (laughing). But of course, this varies from game to game. But that is true for other gamers, too. Nobody is perfect in every game. But all in all, I would say that with my arrangement, I can easily keep up with the average player."[129]

So, skill and being enabled to play digital games is not necessarily a quality essential to bodies, but instead a matter of configuration and arrangement. Winkens impressively proved this at the Gamescom 2016, where he won the F1 (2016) racing time challenge against pro-gamer Sebastian Lenßen (PietSmiet).[130] Furthermore, being asked whether he could imagine himself a pro gamer, Winkens explains that this would be just a matter of extensive and intensive training, routinization, and time investment, which, of course, applies to any gamer who strives to reach this goal.[131] On the other hand, Winkens refers to flow moments in multiplayer online situations in which the constitutive forgetting and silencing of the

126 Cf. L. Schienke: "Barrierefreies Zocken," (my translation).

127 Ibid. (my translation).

128 Hyperbole: "FRAG EINEN GAMER: Dennis über's Zocken ohne Hände," September 3 2020, https://www.youtube.com/watch?v=XEmUAh6Qa4w

129 M. Mainz: "Gaming ohne Grenzen."

130 S. Lenßen: "F1 mit dem Mund."

131 Cf. Hyperbole: "Frag einen Gamer."

controller, the "not paying attention to what our bodies are doing," and the effect of "non-mediation"[132] are enacted, which are, as described above, the results of enabling practices and usually attributed to that which has been called normal gaming:

"When I'm in an intensive session, when I'm playing together with other players, I have nothing but the game on my mind. I don't think anything except for; hopefully, I'm fast enough. What do I have to do? What does the situation require? In such situations, my handicap is entirely secondary, in fact, I hardly even think about it."[133]

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132 P. McDonald: "On Couches and Controllers," p. 10.

133 L. Schienke: "Barrierefreies Zocken," (my translation).

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