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Theologies of the Digital



The Human Person

Kate Ott // Florian Höhne

Freedom

Benedikt Friedrich // Peter Dabrock //
Hanna Reichel

Scripture

Michael Hemenway et al. //
Frederike van Oorschot

Memory

Clifford Anderson //
Gotlind Ulshoefer



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Cursor_What

Editorial. Theologies of the Digital Hanna Reichel and Frederike van Oorschot	7
Digital Spiritual Embodiment. Power, Difference, and Interdependence Kate Ott	11
The Porous Mask. A Theological Reflection on Concepts of Personhood and Personal Agency in the Digital Age Florian Höhne	27
Exploring Freedom. A Conversation between FLOSS-Culture and Theological Practices of Freedom Benedikt Friedrich	47
From Data Protection to Data Sovereignty. A Multidimensional Governance Approach for Shaping Informational Freedom in the 'Onlife'-Era Peter Dabrock	71
'Worldmaking knowledge'. What the Doctrine of Omniscience Can Help us Understand about Digitization Hanna Reichel	87
Bible as Interface. Reading Bible with Machines Michael Hemenway, Justin O. Barber, Shawn Goodwin, Micah Saxton, and Timothx Beal	121
Scripture as Interface. A Hermeneutical Reflection on a Concept based in Media Theory Frederike van Oorschot	137

A New Hermeneutics of Suspicion?. The Challenge of deepfakes to Theological Epistemology Clifford Anderson	153
Changes in Remembrance?. The Digitalization of Biblical Texts under Theological and Ethical Considerations Gotlind Ulshöfer	177
Digital Theology. In plain language Jonas Kurlberg	191
Cursor_Who Autor_innen-Verzeichnis	193





Editorial

Theologies of the Digital

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In the digital age, all aspects and subsystems of life are undergoing transformations, sometimes radically and other times subtly. What, if anything, can theology as a discipline contribute to the analysis, conceptualization and assessment of the emergent logics of “the digital”? And how are theological concepts and topics themselves transformed by “the digital”?

These questions were taken up by a group of theologians from the USA and Germany in November 2019. It was a theological experiment: exploring constructive approaches to relate theological thought to digitalization. In planning this workshop, we wanted to bring two interests together: On the one hand, we were looking for impulses for interdisciplinary reflection on the digital that makes visible what theology has to offer to reflect on “the digital” – digital technologies, changing media structures and emergent cultures. On the other hand, we want theological thinking and modeling to be challenged and enriched by contemporary developments, prompting us to rethink theological conceptions such as authority, the human person, freedom etc. Since this crossover is a somewhat untypical endeavor for theologians, we felt the need to organize a workshop as a constructive space for developing ideas in an explorative and creative manner.

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The contributors challenged themselves to use dogmatic loci as lenses to read and interpret contemporary developments in the context of digitalization, as well as challenge and reformulate theological insights in light of said developments. Proposals were invited to be tentative or bold in experimenting with new ideas. Because of this open nature of the inquiry, the workshop was conducted in an exploratory and collaborative spirit – linking theology and the digital also in terms of form and performance.

Therefore the conference did not only discuss cutting edge technologies and the societal transformations they engender, it also made use of them to create a different mode of engagement: more intimate and more open, more collegial and more critical, more interactive and more focused. Papers were posted to *pubpub* ahead of time and advertised via twitter ([#theodigital2019](#)). Public input was solicited and encouraged. The involved online platforms allowed for a participatory discussion before, during, and after the workshop. The contributing scholars came together at *Princeton Theological Seminary* and the *Center of Theological Inquiry* in November 2019, with additional support by the *Forschungsstelle der evangelischen Studiengemeinschaft in Heidelberg* and the *Evangelische Kirche in Deutschland*. One scholar participated remotely from Germany. Workshop participants were invited to read and comment each others' contributions in preparation for the discussion. During the meetings, the contributing scholars as well as a select group of respondents and graduate students presented formulated responses to open up discussion, while the audience was at all times invited to further add questions and comments online. Designated persons would collect these responses and feed them back into the live discussion.

For our workshop, we identified four salient areas of exploration: theological anthropology with special emphasis on accountability and diversity; concepts of freedom; memory and knowledge; and scripture as authority and interface.

A first session centered on theological anthropology: “the human person.” In her contribution, “Digital Spiritual Embodiment: Power, Difference, and Interdependence,” Kate Ott reflected on the relationship between embodiment and digitality and described ways in which digital technology fosters a sense of the self as plural and interconnected: networked ways of being in the world. Florian Höhne added a Bonhoefferian reading with “The Porous Mask: A Theological Reflection on Concepts of Personhood and Personal Agency in the Digital Age.”

The second session explored conceptions of freedom. Benedikt Friedrich compared the free open software movement with the transformation of the church by the Reformation and proposed an ecumenical model of negotiation of differences in anal-

ogy to the standards of the free open software movement to foster free communal processes. Peter Dabrock addressed the impact of big data on Western democracy and individual privacy and presented perspectives for an ethic of data sovereignty and data governance for personal freedom in digital spaces in “From data protection to data sovereignty.” In a critical response to Dabrock’s underlying optimism, Hanna Reichel pointed out deeper structural transformations through the technologies employed and reflected on the relationship between knowledge, surveillance, and freedom from the doctrine of omniscience in “Worldmaking knowledge: What the doctrine of omniscience can help us understand about digitization.”

The third session dove into theological understandings of biblical authority in a time of its technological reproduction, hypertextualization, and potential delimitation. Michael Hemenway presented collaborative work from the *Experimental Humanities Lab @ the Iliff School of Theology* in “Bible as Interface: Reading Bible with Machines” and mused how our understanding of scripture changes when it is read and produced by machines. Hemenway’s phrase of the “bible as interface” then prompted Frederike van Oorschot to doctrinal reflection on the authority of scripture in her contribution, “Scripture as Interface: A Hermeneutical Reflection on a Concept based in Media Theory.”

In a final session on “Memory and Knowledge,” Clifford Anderson drew out the hermeneutical and epistemic challenges of deep fakes in “A New Hermeneutics of Suspicion? The Challenge of deepfakes to Theological Epistemology.” Gotlind Ulshöfer investigated practices of memory and the theological implications of the digitization of biblical sources in “Changes in Remembrance? The Digitalization of Biblical Texts under Theological and Ethical Considerations.”

These four sessions always followed the same rough blue print: scholarly proposals from different contexts, pre-circulated, a response drawing out issues and perspectives emergent between them, collection of comments, and extensive time and space for discussion.

Linking the possibilities of a digital platform with the analogue and embodied community of the workshop experience was especially rewarding. The discussions were enriched both by exchanges and feedback among the scholars in anticipation of the event as well as by third parties before and during the live workshop. The platform also allowed to present the contributions to a broader public, and partially engage it in our conversation in different media, e.g., on Twitter. The version tracking on

Cursor_ allowed for transparency in how inputs were processed, discussed, and led to revisions.

In our discussions at and around the conference, further topics emerged that we envisioned discussing in a similar manner: “power,” “subalternity,” “media(lity),” “reality,” and “community.” These open questions as well as the success of the format inspired us to aim for a follow-up conference, which took place at the *Berlin Institute for Public Theology* in April 2021 in collaboration with the *Forschungsstätte der Evangelischen Studiengemeinschaft*. Due to pandemic conditions, this second conference took place in fully virtual form, as well as with more interdisciplinary contributions after this more exclusively theological first installment.

We were excited to see how interdisciplinary perspectives and constructive collaborative work emerged in the format of this workshop. The discussions demonstrated that participants were able to relate to different contributions and weave new connections between different areas of knowledge and their discursive and disciplinary contexts. What we had hoped for, emerged: innovative perspectives, lively discussion, collaborative and constructive explorations to open ends. We are deeply grateful to the participants for their boldness and openness to participate in this theological experiment, and in the generosity of our hosts and sponsors to facilitate this space. We hope that more discussion can be generated through the collection of all contributions into this journal volume, and that others might be inspired to similar collaborative explorations in their own fields.



Digital Spiritual Embodiment Power, Difference, and Interdependence

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Womanist and feminist anthropologies prompt us to respond to the challenges raised by the advent of digital technologies as relational, interdependent, and multiple selves in community and in communion with God without underestimating the suffering caused by systemic oppression. By Analyzing technological stories through a womanist and feminist lens, Kate Ott explores the promise of understanding human beings defined as thoroughly technologically as theologically.

The self-as-networked in a digital era seems to be a consensus point among technologists and theologians. Networking as the primary organizing principle of digital existence relates to hardware and software as well as online and offline connections between others and one's self.¹ I appreciate this shift in perception or description as the primary way of being in a digital world. The "new" way of being in digital networked relationships mirrors feminist and womanist theological constructions of personhood and agency that have long argued for relationality and interdependence. These theologies push Western Christianity away from centralizing autonomy, rationality, and independence as key features of personhood. In response to this push, concerns arise that interdependence, relationality, affective forms of knowledge, and difference trouble easy assessments of accountability and ultimately punishment. In womanist and feminist understandings, individual sin is recast in the network of social or communal

¹ See Campbell and Garner (2016).

sin which does not eliminate individual accountability, rather it expands responsibility to communities and social systems. These movements also require theology to be historically and contextually located, paying attention to the embodied life of Christians. Yet, few womanist and feminist theologies have sought to engage questions of how digital technology, a new form of being that is not only spiritual and embodied, but digital, relates to theological anthropology.

I continually return to a quote by feminist, Ghanaian theologian, Mercy Oduyoye. In telling the narrative of how her relationship to her mother informs her theology, she writes, “Blood may be myth, genes too scientific, but there is nothing like a story to help fix one’s self-image.”² By self-image, I take her to mean a sense of self in a deep and abiding way that relates to who we are as *created by God* and *shaped by those in our lives* – a theological anthropology. Stories or lived experiences are a cornerstone for feminist theological reflection. Here, I will begin with three stories or iterations of stories. They exemplify moments of encounter between a reader, a story, and the new narrative that arises. Then, I bring representative feminist and womanist theologies into conversation with the themes in these stories to propose a vision that incorporates and disrupts digital aspects of theological anthropology. These stories show liberative aspects of digital technology and also demonstrate the confining and disciplining powers embedded in technologies that perpetuate systemic sin reinforced by human actions and now, artificial intelligence or machine learning.

1. Generative Stories

Story One³: “Smug email me is not my only online incarnation. There are dozens more of my avatars scattered across the web.” Incarnation would be a conspicuous choice of word from a Christian point of view when avatars are all but fleshly embodiments. The original use of avatar is from the Hindu tradition, the columnist Amanda Hess tells me. Avatars are forms that gods take to descend to the earth. Incarnation, again in the Hindu tradition, is any of one’s lifetimes, a meaning that includes a lived, material existence and only happens one at a time. Yet in a digital era, a small group of early adopters of digital technology reconceived the avatar. “The technological co-opting of the word replicated the power dynamic in the original avatar myth - the avatar helps a higher being interact with a lesser realm, one he or she controls. But it

² Oduyoye (1988), 35.

³ Story one is in direct conversation with the following article and all quotes in Story one come from the article. See Hess (2016).

also retained the idea of the avatar’s task of delivering righteousness to a lawless world.” In the early days of the internet, mostly geeky, young people with few connections offline claimed social status through their online avatar’s embodiment, a marker of their technological creational prowess. The question at this point in our digital lives is whether our online representations are us, not in the sense of representational, but substantively making us known to ourselves and others. “Our avatars represent a self image that’s fractured across dozens of sites and text bubbles and email chains.” What is the distinction between self image or the other people’s image of us and personhood? Is there a difference between a bitmoji and a Facebook profile picture (usually a photo of oneself)? Which form of communication – text message, voice memo, or talking self-designed emoji – is the true me? In other words, am I digitally incarnated? And if so, does that incarnation carry the image of God in the same way as my fleshly incarnation?

Story Two⁴: “But for Melissa, ‘they’ was the pronoun that made sense evoking the liquidity, expansiveness, and even plurality they experience.”⁵ The use of pronouns to be gender inclusive or gender expansive challenges the social construction of gender and the technological construction of grammar. When referring to a single person as *they*, do I use a singular or plural verb, and how often will my brain spit out a plural regardless of personal caution? “When I use ‘she’ by accident, I’ve decided not to consider myself immoral or even impolitic, just... slow. But sincere. And committed to learning this new grammar – and its implied post-structuralist worldview, as well as the many-in-one, something akin to the absorbing paradox of Christianity’s Trinity.”⁶ The multiplicity and oneness of *they* as a personal pronoun fits a robust theological tradition smashed by Enlightenment individualism. Has Western Christianity rewired our brains with a toxic individualism and gender binary through the technology of language in story and grammar? Can *they* undo hundreds of years of rewiring personhood from autonomous, individuality to being in the image of a multiply triune oneness? Virginia Heffernan admits to her readers that “while trying to shake awake my stubborn left brain, I’ve begun to wonder whether resentment over new populations, new idioms, and new dialects – xenophobia and bigotry – is grounded, in part, in shame over cognitive limitations. Is it possible some would rather be known as racists than as cognitively ossified?”⁷ We need a turn to a new subject. “This challenge

⁴ Story two references the following article and all references relate to the same article. See Heffernan (2019).

⁵ Heffernan (2019), 12.

⁶ Heffernan (2019), 13.

⁷ Heffernan (2019), 12.

of Melissa's 'they' has made me child-like. And in that way, I feel more, not less, like a human being."⁸

Story Three⁹: "Nevertheless, the Valley's vision for a transformed humanity is protected from critical examination by its central tenet of faith: Innovation is always good, and more is always better."¹⁰ A theology of abundance is often the praise refrain from many Christian congregations. So, what's wrong with infinite and limitless abundance? Reflecting on the social impact of a past technological revolution, Gaymon Bennett reminds me of the impact of the industrial revolution, which "effectively cut off the human person from the earth, from daily connection to family, from spontaneous creativity, and ultimately – in the view of many activists – from life lived in the divine image."¹¹ Of course, this response romanticizes a pre-industrial era, righteous human-earth connection, and patriarchal family model which are problematic. Without trying to reclaim a romanticized past or perpetuate the oppressive conditions of the industrial revolution, a new Christian theology and movement developed called the Social Gospel, paralleled in theological schools by the disciplinary arm of my training, social ethics. A focus on individual sin and privatized belief was replaced with analysis of social sin and seeking of justice in the here and now. Will this faithful response to a massive technological shift and its later iterations in liberation theologies serve us in a digital rather than industrial age? In an unprecedented fashion, digital technology gives "us new ways of activating and inhabiting our connections to one another – and that can't be taken for granted. But in doing so they've also 'algorithmized' life."¹²

These three vignettes reproduce the encounter between myself as a reader and narratives to generate new stories. This same process happens continuously in our daily lives and is expanded by digital forms of existence. As I move into the discussion of theological anthropology and digital technology, I am both trying to describe and invite attention to the ways that narratives or stories are digitally constituted and reconstituted in ways that impact who we are. The narratives above suggest this is a process of incarnation that has not been experienced prior to this era, it allows for multiplicity in new forms, and requires an awareness of technological structures that shape the social interactions to which we attribute theological meaning.

⁸ Heffernan (2019), 13.

⁹ Story three refers to the following article. See Bennett (2019).

¹⁰ Bennett (2019), 20.

¹¹ Bennett (2019), 21.

¹² Bennett (2019), 21.

2. The Stories of Technology

We are well past the era when technologists claimed that digital technology and the internet would offer a utopian space free of social sins like racism, sexism, ableism, and so on. No technology is morally neutral. Digital technology allows us to expand our multiplicity in new ways through networked relationships unbound by geography and time, yet it also reinforces confining and disciplining powers of social sin created first by humans and maximized through algorithms and machine learning. Theologians Brad Kallenberg and John Dyer help us to understand this.

They talk about the three stories that we tell about and with technology.¹³ These are different stories than those with which I started this essay. For both, the first story is that of technology as tool, an instrumentalization of technology that assumes humans are in control of technology. The second story is about culture and how humans shape the world through the tools they use. The third story for both admits of a co-constitutive view of technology that is not fully determined by human or tool. Admittedly Dyer and Kallenberg take the notion of technological stories from Heidegger adding their own spin. Kallenberg says “technology is ‘revealing’ (*das Entbergen*). By this mysterious *gerund*, Heidegger is alluding to the fact that technology, and its cumulative effects, takes on a life of its own in that it is able to reveal a message or tell a story akin to a human teller.”¹⁴ Dyer describes the third story this way: “the third and final story we tell with technology happens when all that transforming we do to the world and ourselves finds its way into our souls.”¹⁵ In the third story, technology reveals something about us in ways that reconstitute who we are.¹⁶

The third story provides the interpretation of digital technology that most of us experience on a daily basis. We shape our technologies and they shape us. Digital technology changes synapses, compels affect, and plugs us into a relational network from which we are consciously (intentional use of digital media) and sometimes unconsciously (archiving of public data like street cameras, population maps, and government records) connected. In a digital landscape of artificial intelligence, big data, and infinite upgrades, we can literally see and feel that “technology is neither our dictator (technological determinism) nor merely our tool (cultural determinism) but some-

¹³ See, Kallenberg (2011), chap 4 and 5; and Dyer (2011), chap 1.

¹⁴ Kallenberg (2011), 112.

¹⁵ Kallenberg (2011), 40.

¹⁶ Kallenberg (2011), 113.

thing much closer to us, under the skin or in the blood, as it were.”¹⁷ Digital technology can be used to reconstitute fleshly existence through appendages and enhancements of hardware.

What about the ways digital technology reshapes us – who and how we are – through our encounter with both hardware and software? How do we theologically understand the online beating and rape of Anita Sarkeesian’s image as retaliation for speaking up against racial and sexual violence in video games?¹⁸ In whose body do we recognize Christ’s suffering when a Google search for “black girls” returns sexually derogatory, racist, pornographic videos?¹⁹ Of course, the inability to recognize Christ in those suffering from systemic oppression has been part of the collective Christian narrative as early as the recording of Matthew 25 and has probably been more pervasive than we would like to admit. These violations are not simply a product of human sin. The digitization of the self makes possible new forms of violence. Thus it also makes possible new forms of liberation, like gender configurations through digital measurable types that socially construct a multiple way of being in the world making most of us trans in ways we never imagined possible.²⁰ Or, salvation momentarily breaks through when Bana Alabed, at eight years old, uses a Twitter account to document, to make visible, the “bodies of the victims of history” in the Syrian conflict.²¹

Digital technology is revealing a narrative or story that can deepen insights about theological anthropology that have been historically dismissed or neglected. We need a theological anthropology that robustly responds to the fact that we are digitally embodied spirits marked as connective networks that are relationally interdependent. Similar to how the social gospel movement and social ethics generated new theologies and ethics in the face of the Industrial revolution, feminist and womanist theologies, and increasingly queer theologies, reveal a theological anthropology that is well-suited to the digital era.

3. A Tale of Feminisms’ Theological Anthropology

Womanist and feminist theological conversations have long sought to debunk the influence and even “correctness” of the Enlightenment subject and replace it with a

¹⁷ Kallenberg (2011), 117.

¹⁸ For examples of this, see https://en.wikipedia.org/wiki/Anita_Sarkeesian (accessed Nov 28, 2019).

¹⁹ See Noble (2018), 67. Google has since removed these search results.

²⁰ Ott (2019), 60.

²¹ Pimentel, Bernucca and Khal (2018).

theological anthropology that is relational, interdependent, multiple, and particular. These scholars, of which I count myself, level strong critiques against the inheritance of the modernist turn to the subject, the radical quest for individualism, and resultant disembodied mind. Feminisms share a healthy skepticism of essentialism on the one hand, and also postmodernism's bent toward complete fragmentation of identity and personhood, on the other. I use the term *feminisms* strategically, as white, Western feminism has its origins in the Enlightenment ideals of liberty, equality, and universal human rights. The disembodied rational mind of Enlightenment transcendental thought creates a very particular "person," a type of man who looks like, is educated like, and marries into the Western system of masculinity. This "person" is often generic and devoid of the complex differences that feminisms articulate.

Often, this generic person, in human rights discourse, is still male in all his gendered and sexed characteristics. Rita Gross critiques this oversight in the white, Western feminist movement:

A common way of stating what that movement is all about is the call for women to be able to do whatever men can do or the claim that women are equally competent with men at most or all tasks or push for women to have the same rights that men enjoy. But notice—that kind of rhetoric assumes that what men do and the way they are is the ideal and the norm toward women should strive or which they should be allowed to attain.²²

Susan Frank Parsons elaborates: "there may be something about the Enlightenment ideal of rational choice and responsible freedom which women [and many men] cannot fully embody in this society."²³ Another problem arises at the same time, but in an opposite direction: the generic "man" terminology of rights leaves women excluded from socio-cultural systems employing a dual anthropology. Dual anthropology, particularly pervasive in the Roman Catholic tradition, renders woman a gendered subject based on "natural reproductive characteristics" determining her to be "less than" a man in the theological sphere.²⁴

In response to the tangible historical effects of Christianity's integration of Enlightenment philosophies, Christian feminist and womanist writings share some critical approaches with postmodernism, postcolonialism, and poststructuralism including a

²² Gross (2003), 10.

²³ Parsons (1996), 52.

²⁴ Bilgrien (2003), 38–40.

distrust of metanarratives, a de-centering of the “self,” a newly understood notion of time, the rejection of hierarchical binary opposition, and the rejection of objectivity as a standard. Digital technologies can be seen in some ways as complementary to these critical approaches and also working against them. For example, digital technologies offer new ways of being across time and space, on the other hand, data-driven analytics seeks to make users (humans) objectively known and measurable. Positive notions of hybridity can also result in negative regression into paralyzing differences. Yet, feminisms’ commitment to recognizing difference and fragmentation renders objectivity a mere façade for someone else’s subjectivity. Universals as read through metanarratives can no longer compel consensus, moving dialogue to a very local and specific level.

The particularity needed to deal with fragmentation questions not only human rights dialogue, but the possibility of naming an authentic self. The “dismantling” of the self is often regarded, in sensationalist terms, as threatening to undermine most if not all familiar ideas concerning (Western) philosophy and morality. Challenging the dominant and commonplace concept of what it is to be a person – a concept as seen in modernism stemming from Descartes – challenges the standard visions of how we stand, or fail to stand, as knowers in relation to reality and causes disruption to the grounds of many ethico-political practices.²⁵

However, feminisms have articulated certain commitments such as a deep look at relationality, the binding of the self to and by historicity, and a starting point of particularity in personal and communal experience to resist infinite fragmentation and deconstruction. Each of these dimensions requires a self that can be known through a continuity expressed and experienced in relationship and in history.

Feminist theory in its many theo-ethical variations has “become more complex and inclusive of increasingly diverse perspectives, the nature and value of difference has grown as an area of investigation ... more attention has been paid to the ways women oppress each other by race,” class, colonial status, and more.²⁶ With the impact that difference carries, feminist theories have shied away from universal, essentialist claims about the human person. In attempts to argue for “women’s” equality, some feminists have utilized strategic essentialism.²⁷ Scholars claim coherence in certain descriptions of a social construction, biological features, and lived expressions that appear consistent, rather than absolutizing and making inevitable the description of human nature.

²⁵ See Narayan (2003).

²⁶ Brock (1996), 120.

²⁷ See Keller (1997); and Donaldson and Kwok (2002).

Ivone Gebara, a Latin American ecofeminist, states, “The issue of personhood goes beyond rationalistic, phenomenological, or existentialist philosophical descriptions... To speak of the human person requires that we go beyond theorizing, beyond prescribed sequences of words, and beyond some ideal to be upheld. It means recovering the concreteness of our being: its social, ethnic, sexual, earthly and cosmic condition.”²⁸ The critical task, then, is to negotiate conflicting social, cultural, biological, and technological trajectories that reveal theological anthropology. For that task, I have chosen to engage two conversation partners: Ivone Gebara, a Brazilian feminist theologian and M. Shawn Copeland, a U.S. womanist moral theologian.²⁹

Ivone Gebara describes the process that exploited the modern turn to the subject and personal autonomy. Over time, “we have gone from promoting the autonomy of individual persons to the unrestrained exercise of our passion of possessing, for self-assertion, and for power.”³⁰ The formulation of a free and autonomous person has been co-opted and disabused by colonialism, neocolonialism, free market capitalism, contemporary wars, technology, and other forces/factors in an effort to eliminate poor people, namely those who are black and native peoples.³¹ As a reaction to this trend, Gebara seeks to create a balance or new equilibrium, in what she calls an “ecofeminist” understanding of person.

Gebara names one constitutive dimension of person – relatedness – and two inherent components of being – openness and evolution. She stresses relatedness as a collective dimension and more important than autonomy or individuality. In defining relatedness, she claims to speak “of a reality that seems so fundamental that it is shared by all living beings.” She further describes relatedness as “more elementary than awareness of differences or than autonomy, individuality, or freedom.”³² Gebara’s description of relatedness is similar to the networked way of being inherent to digital existence including hardware connectivity, software functionality, and users’ experience. Relatedness, Gebara suggests, leads one to recognize herself as more than the individuality she knows in her own consciousness, human characteristics, or human relation-

²⁸ Gebara (1999), 74–5.

²⁹ I make this move to narrow conversation partners for two reasons. First, it is folly to think one can represent all of Christian womanist and feminist thought ever, let alone in the confines of this article. Second, my own ethical commitments require me to engage non-white, Western feminist and womanist thought to provide a corrective lens to my own white, U.S. privilege. This conversation requires my own awareness of racial, economic, and national privilege which I find acutely lacking in theological conversations about digital technology.

³⁰ Gebara (1999), 72.

³¹ Gebara (1999), 75–76.

³² Gebara (1999), 83

ships. In this, relatedness “points to the vital power of the interconnection [or networkedness] among all things, independent of any anthropological ethical judgment we might make about them.”³³ Gebara develops the concept of relatedness from a variety of positions: as human condition, as reality beyond consciousness, as beyond Western rationality, as earthly condition, as ethical reality, as religious experience, and as cosmic condition. I would extend this to digital existence or condition for both humans and creation.³⁴

The collective dimension of self as relatedness is reflected in openness and evolution as inherent components of being. Relatedness situates the self within the larger cosmic whole, a whole that defines sacred being but remains in spatial and temporal terms. In fact, Gebara’s personhood deconstructs the notion of a transcendent principle or higher divinity; in a sense, her theological anthropology is both robustly anthropological and theological as it constitutes some part of sacred being. When describing openness and evolution, she further describes what a person can know in contrast to past modernist tendencies. She writes, “the ecofeminist perspective assumes that, despite the fact that we are human beings, we can know neither God nor human beings by a priori deduction.”³⁵ Gebara instead gives priority to an historical experience as the primary source of knowledge. As a result, Gebara does not speak of original sin or a fallen condition “refusing to place what we call ethical perfection at the beginning of all.”³⁶

Rather, Gebara affirms “the origin of ethics” as development of “our humanization process.”³⁷ Gebara states that ecofeminism does not reflect on the freedom to accept or reject God as a higher divinity, “because it no longer speaks of the supreme being as an autonomous, separate person.”³⁸ This is not to say that human persons are not free, rather their freedom is not completely dependent on their rationality or for the sake of an external, transcendent union with God. So, ethical action arises from an interconnection with others, and a striving for right relationships in this shared life; it is a human project. There is no pre-established perfection to which to return; rather all selves have an evolutionary openness to a changing vision and growing perception of human flourishing. This may sound a bit like the limitless abundance that Bennet

³³ Gebara (1999), 84.

³⁴ See Ott (2019), chap 2 and chap 4.

³⁵ Gebara (1999), 95.

³⁶ Gebara (1999), 97.

³⁷ Gebara (1999), 97.

³⁸ Gebara (1999), 97.

warns against related to technological innovation in story three shared above, and a lack of awareness of suffering and evil.

Gebara's claims about historical contextuality of all personhood is grounded in a material and historical view of suffering and evil which counters a romanticized (Silicon Valley) techno-utopic growth model of abundance. She reminds us that "From the moment we speak of crosses in the plural, the cross of Jesus becomes one among many."³⁹ Then we must consider the other crosses. She asks, "Is it not precisely the innocent, the marginalized and excluded, and those who fight for justice and human rights who often bear the heaviest crosses, the most paradoxical ones?"⁴⁰ She does not want to absolutize one form of suffering or one way of conceiving of God's saving action in the world. If a poor black Brazilian woman dies because of the sin of social systems and individual neglect causing extreme poverty, is that not God crucified today? If a queer teen is brutally bullied across their social networks and cut off from friendship, is that not Christ crucified today? Salvation then is equally contingent for Gebara. By paying close attention to the lived realities of poor women throughout her city, she suggests, "salvation seems to be a movement toward redemption in the midst of the trials of existence, one moment of peace and tenderness in the midst of daily violence, beautiful music that calms our spirit, a novel that keeps us company" or a text message that makes us smile, a voice note from a child, a video of queer solidarity.⁴¹ "For them salvation is not a point of arrival but a little oasis in the midst of daily trails."⁴² When suffering and salvation are particularized both in the incarnate life of Jesus and that of poor Brazilian women, we can acknowledge eschatological visions of justice to come and the current lack of fulfillment.

Similar to Gebara, M. Shawn Copeland centralizes the particularity of human experience of oppression as primary to the theological task and even to theological anthropology. She writes, "this risk may place us in the path of grace: to take oppression as a point of departure for theological reflection brings about encounter with the purifying powers of God in history."⁴³ Her commitment to centralizing the experience of human oppression, especially that of poor women of color, is in direct response to "The Enlightenment era's 'turn to the subject' [which] coincided with the dynamics

³⁹ Gebara (2002), 120.

⁴⁰ Gebara (2002), 120.

⁴¹ Gebara (2002), 124.

⁴² Gebara (2002), 125.

⁴³ Copeland (2010), 91.

of domination.”⁴⁴ In the dynamics of domination, Copeland includes anti-semitism, misogyny, racism, colonialism, and heterosexism to name a few. Her new anthropological subject comes directly from her reading of Jesus’ incarnational life. She both particularizes Jesus’ life and ministry under empire and universalizes him as she writes, “*we are his very own flesh.*”⁴⁵ She means this in a physical and metaphorical sense. Leaving open the possibility that our online incarnations are also part of “his very own flesh.”

Copeland uses *flesh* in multiple ways when connecting humanity to Jesus in her articulation of theological anthropology. She relies on the historical act of Jesus’ incarnation for the connection between divine and human in her anthropology, though she materializes it based on actions of solidarity which remake the marks of flesh or body. Copeland never speaks of a Christ disconnected from Jesus’ marked embodiment that was raced, gender, sexed, religious, and culturally known. She writes,

The body of Jesus the Christ, both before and after his death, radically clarifies the meaning of be-ing embodied in the world. His love and praxis releases the power of God’s animating image and likeness in our red, brown, yellow, white, and black bodies – our homosexual and heterosexual bodies, our HIV/AIDS infected bodies, our starving bodies, our prostituted bodies, our yearning bodies, our ill and infirm bodies, our young and old and joyous bodies.⁴⁶

The “bodies of the victims of history” are not the anthropological subjects of Enlightenment era theology or philosophy.⁴⁷ In fact, they are made so by technologies created out of Enlightenment progress, like chattel slavery, colonialism, and sexual exploitation. As we look to incarnations online and created through digital surveillance, the “bodies of the victims of history” are overdetermined through technologies that still embody racist colonial sexual exploitation.⁴⁸

When we start with the particularity of suffering and oppression, even in Jesus’ life we uncover practices and possibilities for both momentary liberation and motivation to create a more just world. Copeland argues that “solidarity begins in an *anamnesis*, which intentionally remembers and invokes the black victims of history, martyrs for freedom. Theologically considered, their suffering, like the suffering of Jesus, seeds

⁴⁴ Copeland (2010), 88.

⁴⁵ Copeland (2010), 82.

⁴⁶ Copeland (2010), 82–3.

⁴⁷ Copeland (2010), 84.

⁴⁸ See, Noble (2018) and Eubanks (2018).

a new life for the future of all humanity.”⁴⁹ The body of Christ is simultaneously multiplicity and oneness. It is both historically located and across time. It is marked by exploitation and violence, and it repeatedly challenges these through practices of solidarity. This is the theological anthropology in which we participate and one that perhaps is best suited for our digital spiritual embodiment.

From Gebara’s and Copeland’s work, we receive a theological anthropology rooted in relationality, historical contextuality for human persons and God as evidenced through the life of Jesus, and multiplicity through particular human experiences in the shared suffering of God. These features of theological anthropology share a commitment to the momentary in-breaking of justice that recognizes, respects, and even extends difference providing diverse eschatological visions, named as openness and evolution by Gebara. When considering digital spiritual embodiment, these aspects of theological anthropology, and what they stand in opposition to, can guide us in discerning the productive and deformative aspects of digital existence.

4. Defining Stories

The third story of digital technology, humans as co-constitutive with digital technology, reminds us that humans have always been technologically embodied spirits if we look to the use of language, farming, craft making, building, and so on. Thus, the claim that we are digitally embodied spirits is a specification of or a historical redundancy in the project of theological anthropological claims. For example, the outsourcing of my memory to an online calendar shares a genesis in the technology of writing and recording on a paper calendar. However, the online calendar is also programmed to remind me of the appointment utilizing a variety of networked pathways that connect back to me. Similarly, the existence of fragmented pieces of who I am in the form of avatars, evidences a similar multiplicity of being as the way I show up at the gym versus my classroom versus my home. In some cases, there is coherence among these selves and at other times, the only coherence is the connection they have back to the originator. I am forwarding a notion of person related both to digital technology and to theological anthropology that does not exist independent from flesh and blood or from the uniquely sacred creation of God that I am, just as we all are. In this sense, there is a permanence to the multiplicity of personhood that is not reducible to a singular or univocal digitizing of information into a singular system. Digital tech-

⁴⁹ Copeland (2010), 124.

nologies amplify and amend prior technological ways of being rather than completely supplanting them.

Gebara and Copeland call us to look at the particularity, including the historical context, of those most severely impacted by structures of injustice. Their stories fix a self-image out of which we can better understand theological anthropology. There, we find incarnation, the body of Christ in its multiple forms of suffering. Whether that be rape, bullying of digital selves, or the erasure of those experiencing homelessness, domestic violence, or climate apartheid, the *imago dei* of our digital embodiment suffers from the daily maintenance of social structures of sin. And, there are new technologies like those of Enlightenment progress which produce new “bodies of the victims of history” as noted above. Current digital technologies of data surveillance and predictive analytics based on algorithms often recreate and deepen human oppressions based on gender, race, ability, and age biases. But at the same time, algorithms, and digital technological design in general, can also be designed to maximize difference, support creation, and deepen relationality.⁵⁰

The theological anthropologies proposed by feminist and womanist theologians developed during the same decades as digital technologies were being birthed give us clues to how to respond as relational, interdependent, and multiple selves in community and in communion with God. These forms of theological anthropology correct problematic aspects of early twentieth century social gospel movements and social ethics that continued to use white, educated men as synonymous with “human.” Feminist and womanist theologies do not underestimate the brokenness and suffering caused by systemic oppression, evidenced in everyday interaction and resist it with an eschatological hope necessary in a digital era. It is equally true that the “inspired digital body is as morally entangled with sociocultural oppression now as in the analog past” *and* that it is liberated into new ways of being the relational, interdependent, and multiple image of God that it is created to be.⁵¹ Similarly, Kallenberg writes, “however, precisely because technology embodies human intention, human interaction with technological artifacts can mold or deform the dispositions and character of those who engage it every bit as much as interactions with other persons shapes our dispositions and character.”⁵² As digitally embodied spirits we more deeply inhabit our relationality, interdependence, and multiplicity creating more entangled modes of oppression as well as generating liberative salvific moments.

⁵⁰ See, Ott (2019).

⁵¹ Ott (2019), 63.

⁵² Kallenberg (2011), 108.

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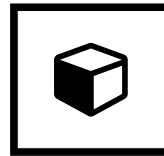
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The Porous Mask

A Theological Reflection on Concepts of Personhood and Personal Agency in the Digital Age

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Given the metaphorical and technical transitions between machines and people, what is a person? Drawing on John Locke and Dietrich Bonhoeffer, Florian Höhne reflects on imaginations and practices of the digital juxtaposing a forensic imagination of personhood with a responsorial imagination of personhood, respectively, and discusses their implications regarding digital transformations.

Introduction¹

In his description of a possibly emerging “Dataism,” Yuval Harari writes about humans as “data-processing systems.”² This is remarkable for at least the following reason: The philosopher Martin Buber prominently distinguished between things and personal agents, between the “realm of it” and the “realm of thou.”³ Calling humans

¹ I thank all those who have commented on a previous version of this article – be it online or during the conference at Princeton in November 2019. Many of those comments have become part of the following version.

² Harari (2016), 427-430-440.

³ Cf. Buber (2017), 10.

“data processing systems” treats them as things, not as persons. Digital transformations have raised many questions around artificial intelligence, autonomous computer systems and singularity, questions of whether, where and how it might make practical or theoretical sense to treat computer systems as persons. A deeper question resonates in all these debates: Does it make sense to treat human beings as persons? The maybe surprising answer of Harari’s “data religion” would be that it does not make sense; Instead, human beings would function as “data processing systems.” In this paper, I want to point to a notion of personhood that makes it possible to object to dataism’s answer.

Some narratives by which people make sense of digital transformations speak about human persons in computer-metaphors. Harari’s “data religion” is one example for that. The following sentences, written by Douglas Rushkoff, are another example: “In the emerging, highly programmed landscape ahead, you will either create the software or you will be the software. It’s really that simple: Program, or be programmed.”⁴ Seeing humans as “software” and as potentially programmable or even “programmed” puts personhood in question on a metaphorical level – and it is obviously plausible to do so under conditions of digital communication. Not only the machine’s personhood but human personhood is on the line.⁵ This raises philosophical, ethical, and practical questions: What does it mean to treat another human being and oneself as persons and not only as things, systems, or software? What follows from treating each other as persons, and what makes an entity prone to being treated as a person? What is the ethical value of treating each other as persons and not just as systems or software? How do digital transformations alter our understanding of personhood and of each other as persons? Given that the Greek origin of the term “person” also refers to the mask of the actor,⁶ which features of the mask that is “personhood” make it possible to give it to people? Which features become more or less plausible under condition of digital communication? What practical differences do these features make?

While the philosophical and theological literature on these issues fills libraries,⁷ I am quite selectively interested in how we can imagine each other and ourselves as persons under conditions of digital communication in a way that maintains and establishes human agency, particularly of those not in power to program. I am interested in a sense of personhood that lies between the two poles of Rushkoff’s digital alternative

⁴ Rushkoff (2011), 12.

⁵ Hanna Reichel’s comment’s have helped me to focus on this.

⁶ Cf. Pannenberg (1979), 407.

⁷ For a brief introduction into debate on personhood see Kather (2007).

of either actively programming or passively programmed selves. The thesis of this paper is based on the distinction of two ways of imagining personal agency – two types of masks, so to say – inspired by Bernhard Waldenfels:⁸ forensic imaginations and responsorial imaginations of personal agency. My thesis is that the power dynamics in a digital age undermine forensic imaginations and the possibility of personal agency. However, the practical promotion of responsorial imaginations would counter this development. The aim of my argument is not to adapt the ethical notion of personhood to digital transformations but rather to suggest a notion of personhood that sustains human agency in a digital world.

In order to make this point, I will first explain the socio-philosophical categories I work with (1), then describe the forensic imagination of personal agency in its practical ambivalence (2), show how digital power dynamics alter these imaginations (3), and interpret Bonhoeffer's Ethics in terms of a responsorial imagination of personal agency (4). I will finish by pointing to the practical difference such a responsorial imagination makes (5).

1. Categories: Praxis and Imagination

Particularly two categories situate the following reflections and their consequences in their social context: The category of practice as used in sociological theories of praxis after the so called “practice turn”⁹ and the category of imagination as used by Charles Taylor in his writings on modern social imaginaries.¹⁰ The idea to talk about digital ethics in terms of imaginations, narratives, and social practices has been developed at the Berlin Institute for Public Theology and is explained at greater length in other publications.¹¹ For this paper, the following points are important:

Following Theodore Schatzki and Andreas Reckwitz, I understand a practice as a “nexus of doings and sayings” bound together by routine or implicit knowledge.¹² As such, practices are always socially and contextually situated¹³ and involve things,

⁸ It is particularly his description of responsibility and his notion of responsorial ethics that inspired this distinction, see Waldenfels (2010); Vogelmann (2014), 326–334.

⁹ For the “practice turn” see (O A 2001); Reckwitz (2003), 282. My understanding of “practice” as outlined in this paragraph is particularly indebted to the following works: Reckwitz (2003); Schatzki (2008); Hillebrandt (2014) Schmidt (2011); Schmidt (2012); Bongaerts (2007); Bourdieu (2015a); Bourdieu (2015b); Müller (2014).

¹⁰ Cf. particularly Taylor (2004).

¹¹ Cf. Meireis (2019); Höhne (2019).

¹² Reckwitz (2003), 290; Schatzki (2008), 89.

¹³ Cf. Schmidt (2011), 41–44.

bodies, and some kind of practical knowledge.¹⁴ For example, the practice of turning on the light in a smart home involves something like the following: a speech act that commands the computer-system to turn on the lights, the action to step into the dark room, the routinized implicit knowledge of how to talk with the computer as well as the body that speaks and acts, and the things the body has to do with – in this case: the computer, the room, the lights.

One thought from theories of social practice is particularly important here because it shifts the focus from digital technologies to cultures of digital technology use. Andreas Reckwitz has emphasized that the relation of things and actual practices is not one-sided¹⁵: Things do not totally determine a practice nor do practices totally determine things. Rather, the “meaningful use”¹⁶ of certain things that is inseparable from the actual practice is decisive. To use an example:¹⁷ The invention of the printing press has not necessitated its historic career. Rather, the spread of printing machines and printing books is due to the rise of socially situated and contextual practices that make meaningful use of printing machines and printed books – namely, the culturally evolving practices of reading and publication. Simultaneously, those practices are made possible by the existence of printing machines. Hence, there is a sociological reason to not only reflect the technology and its potential, but more importantly to reflect how people use and make sense of technology culturally.

This makes the second category – the social imaginary – crucial for a theological reflection of digital cultural practices. According to Charles Taylor, people draw on a common social imaginary whenever they act, make sense of their social existence, or participate in social practices. He writes:

By social imaginary, I mean something much broader and deeper than the intellectual schemes people may entertain when they think about social reality in a disengaged mode. I am thinking, rather, of the ways people imagine their social existence, how they fit together with others, how things go on between them and their fellows, the expectations that are normally met, and the deeper normative notions and images that underlie these expectations.¹⁸

¹⁴ Cf. Reckwitz (2003), 290–297.

¹⁵ For this thought and the following see Reckwitz (2003), 291.

¹⁶ My translation of Reckwitz’s “sinnhafter Gebrauch”, see Reckwitz (2003), 291.

¹⁷ Reckwitz himself refers to this example: Reckwitz (2003), 291.

¹⁸ Taylor (2004), 23.

According to Taylor, the social imaginary is the background for any immediate practical knowledge that makes concrete practices possible.¹⁹ In other words: it provides the horizon for meaningful practices.²⁰ It refers to the imaginations of the participants of social practices rather than to a theoretical perspective on social realities; the imagined is “carried in images, stories and legends.”²¹

How then can we envision the relation between the imaginary and concrete practices? Following Taylor and exceeding Taylor’s thinking just a little in terms of a theory of social practices, I suggest thinking of this relation as mutual: On the one hand, the social imaginary makes social practices possible and informs them.²² That we imagine others and ourselves as primarily free individuals²³ informs practices of intimate relationships as well as of administration. Simultaneously, the social imaginary persists and exists in the very practices it informs. The transformation of practices also transforms the social imaginary in whose horizon people make sense of those transformations and meaningfully participate in them.

Presupposing this interrelation of imaginations and practices, I will ask how the imaginary of personal agency persists and changes in the practices of digital communication it simultaneously informs. My starting point for this is one image from the modern social imaginary that is in continuity with modern and premodern Christian imaginations: namely, the forensic imagination of the person people hold on to when they treat each other as persons. I will use the word “imagination” to refer to individual imaginations taken from the social imaginary.

2. Imaginaries I: The Forensic Imagination of Personhood (John Locke)

What I will call the “forensic imagination of personal agency” is not decisive for all concepts of the person. Rather, it plays an important role in the western modern social imaginary²⁴: We imagine ourselves and others as accountable for and conscious of our actions and their consequences over time—and that is precisely one imagination which the word “person” refers to. By treating each other as persons, we are treating each other as accountable over time. Practically, “person” denotes an entity to which one

¹⁹ Cf. Taylor (2004), 25.

²⁰ For the use of the term “horizon” in this context see Castoriadis (1990), 274ff.; Wabel (2010), 408.

²¹ Taylor (2004), 23–4.

²² Cf. Taylor (2004), 23, 25.

²³ Cf. Taylor (2004), 20–1.

²⁴ It is this western modernity which Taylor also focuses on, see Taylor (2004), 195.

can attribute past actions and consequences, in order to hold that person accountable, to ask for a justification, or to punish and reward.²⁵ This image is forensic, insofar as it entails the image of a court-situation, be it an actual human court, the Last Judgment, or the conscience as inner court.

The relation between actor and action might sound either self-evident or ontologically given. If it sounds self-evident, this gives proof to this imagination being part of the western modern social imaginary. Yet it is still a contextual and socially situated imagination. One indication for this is that such an imagination is not equally plausible for all positions in a society. Having experienced oneself as a powerful actor whose actions make a difference in social life will make the forensic imagination of accountable agency for an individual seem more plausible. It is less plausible for those who experience themselves always and only as the object of external decision-making processes. If the relation between actor and action sounds ontologically given, a discussion of ontology is opened, which is unnecessary here, for one simple reason: What becomes socially relevant in the aftermath of an action is the social imaginary independent of the ontological reality it refers to. To put it in an example: By having even accused a person of causing harm, the social imagination of personal accountability is presupposed – independent of whether a given person actually caused a certain harmful consequence.

Historically, the forensic image of personal agency is already manifest in John Locke's famous concept of personhood.²⁶ Since Charles Taylor also refers to Locke to describe the modern social imaginary, his writings on personhood might be a good exemplification of the forensic type, even though Taylor does not refer to this part.²⁷ Locke is famous for having pinned the notion of being a person to consciousness, thereby making personal identity independent of the identity of matter and substance.²⁸ Locke writes, that the term "person" refers to

a thinking intelligent being, that has reason and reflection, and can consider itself as itself, the same thinking thing, in different times and places; which it does only by that consciousness which is inseparable from thinking, and as it seems to me essential to it [...]; in this alone consists personal identity, i.e., the sameness of a rational being: and as far as this consciousness can be extended

²⁵ See Locke on reward and punishment below.

²⁶ For my dealing with John Locke the work of Michael Quante has been formative, cf. Quante (2007), 35–46.

²⁷ Cf. Taylor (2004), 4.

²⁸ Locke (1924), 189; Quante (2007), 36.43.

backwards to any past action or thought, so far reaches the identity of that person.²⁹

Thereby, Locke identifies being a person with the actual proceeding of – and not only the potentiality for – self-reflective consciousness internal to the entity. Being a person means to be self-conscious of one’s past and present actions. To put it in the aforementioned metaphor: it is the self-consciousness, the consciousness of one’s actions behind the mask that makes the mask a persona, that makes the person perform as a person.

In the end of his chapter on *Identity and Diversity* (which Locke added in the second edition of his Essay³⁰), Locke makes explicit that this is meant as a forensic notion of personhood. He also makes clear why and how consciousness is so decisive. He writes:

Person, as I take it, is the name for this self. [...] It is a forensic term appropriating actions and their merit; and so belongs only to intelligent agents capable of a law, and happiness and misery. This personality extends itself beyond present existence to what is past, only by consciousness; whereby it becomes concerned and accountable, owns and imputes to itself past actions, just upon the same ground and for the same reason that it does the present. All which is founded in a concern for happiness, the unavoidable concomitant of consciousness; that which is conscious of pleasure and pain desiring that that self that is conscious should be happy.³¹

Hence, the term “person” names an entity that – by virtue of its consciousness – can be held accountable, punished and rewarded.³² With this background, consciousness becomes the essential feature of personhood for Locke because it names the point to which past actions, future actions, consequences, rewards, and punishments are plausibly pinned: the consciousness in its continuity over time owns the person’s actions. If someone is conscious of their past actions, it makes sense to reward and punish them because of the continuity in consciousness – “the right and justice of reward and punishment” is founded in identity of consciousness.³³ Personhood – and therefore with concrete consciousness – is the condition for legal consequences for Locke, as he

²⁹ Locke (1924), 188. See also Quante (2007), 43.

³⁰ Cf. Quante (2007), 35.

³¹ Locke (1924), 198f. See also Quante (2007), 37.

³² Cf. Locke (1924), 194–5, where Locke also uses the pair “reward and punishment.”

³³ Locke (1924), 195.

writes: “to punish Socrates waking for what sleeping Socrates thought, and waking Socrates was never conscious of, would be no more of right than to punish one twin for what his brother-twin did.”³⁴ In Locke’s argument, the forensic image of personal agency is necessitated by a certain notion of justice: namely, retributive justice.

Interestingly, Locke gives the concept of person not only a juridical frame but also a theological one: He uses his idea of consciousness to think about the identity of earthly existence and the resurrected person.³⁵ Based on this, the juridical frame is ultimately a frame of Last Judgment:

And therefore, conformable to this, the apostle tells us, that at the great day, when every one shall ‘receive according to his doings, the secrets of all hearts shall be laid open.’ The sentence shall be justified by the consciousness all persons shall have that they *themselves*, in what bodies soever they appear, or what substances soever that consciousness adheres to, are the *same* that committed those actions, and deserve that punishment for them.³⁶

The juridical and theological framing of this imagination of personhood is important here because I understand them as hints to the concrete practical place of the tradition and effect of this very imaginary: the forensic imagination of personal agency persists paradigmatically in juridical and religious practices. The biblical imaginary entails images that envision and support the forensic image. Neglecting that it does not explicitly talk about individuals but about a potentially collective “you,” the vision of Last Judgment in Matthew 25 could be read as a vision of retributive justice, in which good and evildoers get their merit. This presupposes and perpetuates the image of accountable personhood. The Christian practices of confession, particularly of individual confession, presuppose and perpetuate the forensic image as well. The same holds true for the juridical system in modern societies; it needs to identify persons as accountable and liable entities.

The presuppositions of this and other forensic images of personhood is the individual’s consciousness of one’s actions. To attribute actions to an agent only makes sense

³⁴ Locke (1924), 195.

³⁵ Cf.: “And thus we may be able, without any difficulty, to conceive the same person at the resurrection, though in a body not exactly in make or parts the same which he had here, the same consciousness going along with the soul that inhabits it.” (Locke [1924], 193) According to Quante, the question of how to image continuity to post death existence is an important context for Locke’s reasoning (Quante [2007], 36).

³⁶ Locke (1924), 199.

if the agent can plausibly be imagined as the conscious author of those actions. Otherwise, reward and punishment were unjust. Locke pins this imagined authorship to consciousness behind the mask that “owns” past and present actions. Hence, what is decisive about the forensic imagination, is the imagined individual’s consciousness behind the mask, the consciousness of one’s actions.

The forensic imagination is highly ambivalent from the perspective of a theological ethic oriented by the goods as freedom, justice, participation, and peace.³⁷ On the one hand, it is emancipative and reconciling because this imagination empowers agency and names concrete responsible agents. On the other hand, the forensic image is problematic in complex societies because most problems have a structural and collective dimension. The tendency to make only one or a few persons responsible for something harmful conceals structural causes and collective contributions and thereby inhibits an improvement of the situation. For example, making individual brokers responsible for the financial crisis of 2008 conceals the contribution of everybody’s greed.

3. Transformations: Digital Cultures

Using the categories of practice and imagination, the ethical reflection of digital transformation will focus on what Felix Stalder has called “the culture of digitality,”³⁸ rather than mere technological possibilities. While much is being written on digital transformation, I want to focus on how the described forensic imagination is present in practices that make “meaningful use” (Reckwitz) of digital technologies. My thesis is this: in digital cultures, power takes forms that undermine the plausibility of the forensic imagination.

This thesis presupposes a differentiation between forms of power and presupposes that images of personal agency persist socially in power-relations. In order to differentiate between forms of power, I draw on the work of both Felix Stalder and Byung-Chul Han who themselves draw partially on Foucault’s theory of power and partially on Max Weber and David Singh Grewal.³⁹ Following them, it makes sense to distinguish at least two forms of power: repressive power on the one hand and constitutive or seductive power on the other.

³⁷ I have written about this elsewhere: Höhne (2015).

³⁸ Stalder (2016).

³⁹ Stalder (2016), 160; Han (2014).

- *Repressive power*: Both, Stalder and Han, mention the *repressive Form of the “power of sovereignty”.⁴⁰ It works through dominance and submission, hierarchies, discipline, orders, commands, rules, and (enforced) obedience.⁴¹ It forces people into obeying prohibitions and laws.⁴²
- *Constitutive/seductive power*: Drawing on Grewal, Stalder describes the *constitutive* form of the “power of sociability”.⁴³ It works through quasi-voluntary submission and acceptance of rules: People partake in a network by subtly accepting the rules and protocols that constitute that very network.⁴⁴ Insofar as “communality” is one of the main features of a culture of digitality (as Stalder claims), the constitutive form of power has gained a new prevalence in digital cultures. Nobody forces me with physical violence to accept the rules of a given social network, but in order to partake in that network I have to accept them quasi voluntarily, independent of my knowledge or consent. Similarly, Han sees a “smart” and “friendly” form of power on the rise.⁴⁵ According to Han, it is permissive and *seductive*. This form of power does not work against the individual freedom but through it; submission happens without the individual being conscious of their submission.⁴⁶ Seductive power seduces freedom into subtle disobedience through possibilities, using our needs and yearnings: It works through the subtle and psychological manipulation of the individual’s decisions.⁴⁷

From the standpoint of an unconcerned observer, the difference between these forms of power might not seem that decisive.⁴⁸ In both cases, an entity in power – be it a repressive state or cybernetic system – sets the conditions that influence the agent into a certain behavior.⁴⁹ Although repressive power works through sanctions while

⁴⁰ Stalder (2016), 160; Han (2014), 25–6. My translation.

⁴¹ Cf. Stalder (2016), 160–1.

⁴² Cf. in similar German words Han (2014), 26.

⁴³ Stalder (2016), 160.

⁴⁴ Cf. Stalder (2016), 160–1. See there also for what follows.

⁴⁵ Cf. Han (2014), 26–7.

⁴⁶ Cf. Han (2014), 26–7.

⁴⁷ Stalder has described this subtle manipulation as follows: “Ausgeübt wird Macht nicht dadurch, dass dem Einzelnen direkt vorgeschrieben würde, was er zu tun hätte. Vielmehr wird einfach die Umgebung, in der sich jeder Einzelne selbstverantwortlich zurechtfinden muss, verändert” (Stalder [2016], 226, I thank Benedict Schöning for pointing me to this passage).

⁴⁸ I have learned a lot from the comments of Benedict Schöning, Gotlind Ulshöfer, and Hanna Reichel in making the following points on different standpoints, the difference between these forms of power and “irritating moments.”

⁴⁹ For cybernetic systems and this kind of influence see Stalder (2016), 226–8. I thank Benedict Schöning for pointing me to this reference.

seductive power works through seductions, both forms of power set manipulating conditions that influence individual behavior.

But from the standpoint of the involved participant of social practices, the difference between these forms of power is obvious and decisive: Repressive power needs practices whose participants are informed by the forensic imagination because it needs to identify actors, hold them accountable, and inflict disciplinary action. It needs and produces people who understand themselves as accountable actors, as consciously deciding selves in control of their actions. Repressive power and external means of discipline make it plausible for the individual human to imagine her or himself as a person accountable for the actions she or he has consciously decided to perform because power rewards or punishes the accountable self. It also can make it plausible for individuals to identify the power with accountable persons: Both the one disciplined and the one disciplining can imagine each other as persons, accountable for and conscious of their actions. Accordingly, these practices inscribe the forensic imagination into the social imaginary because such imaginations make practical sense from the perspective of the individual agent.

Insofar as the emerging digital culture entails a shift from the repressive form to constitutive and seductive forms of power, this culture persists in practices that feed on forensic imaginations of personhood while undermining them. This shift makes a relevant difference in the practices of the acting agent. It is in these practices where the seductive forms of power undermine the agent's forensic imagination, that she or he and the other would "own"⁵⁰ their actions, insofar as they create "irritating moments" for users and hinder the attribution of power to a responsible person.

How does this happen and what are "irritating moments"? Let's take the fictional character Fritz as an example: Fritz makes the conscious and accountable decision to become part of a social network in order to stay in touch with friends and colleagues. Because Fritz likes to get "likes" for his posts, he makes the conscious and accountable decision to share certain pieces of information about himself while deliberately refraining from sharing other pieces of information. So far, the forensic imagination makes practical sense to this individual. But behind the scenes, the cybernetic system uses Fritz's data to personalize what Fritz gets to see: which ads, what movie suggestions, or which search results.⁵¹ This can create and has created "irritating moments" for social media users: Fritz gets to see an advertisement on social media that fits his

⁵⁰ See above: Locke (1924), 198.

⁵¹ Eli Pariser has described this personalization in Pariser (2012).

preferences too well – which is irritating – or refers to information he has consciously not revealed at all. Such irritating moments raise questions: Have I revealed more information than I consciously decided to? How self-determined and accountable were the decisions to share information in the first place? Were my actions really my actions? Do social media’s algorithms know me better than I consciously know myself? These questions erode the practical plausibility of the forensic imagination of oneself as a consciously deciding and accountable person. From the standpoint of the user, it seems as if the power of the cybernetic systems got behind the mask of conscious personhood. While “irritating moments” erode forensic imaginations on the one hand, they also feed conspiracy theories and apocalyptic narratives such as those summarized by Torsten Meireis:⁵² “Irritating moments” create plausibility for the narrative that the effects of digital technologies are overwhelming, compelling, mysterious, and uncontrollable.

But the erosion also afflicts the part in power:⁵³ To whom can the seductive power be attributed? Who is accountable for the manipulation or surveillance the individual feels subjected to? The permissive, smart and seductive power described by Han is not visible.⁵⁴ It has, as Stalder emphasizes, no location but is diffuse and omnipresent.⁵⁵ This diffusion and anonymity make it impossible to identify it with one responsible person in power. But if no conscious person is accountable, the forensic imagination loses plausibility.

The culture of digitalism also entails practices that make new and extensive uses of the forensic imagination, thereby perpetuating it. For example, Kristy Hess and Lisa Waller have written about the “intensified role of the media in shaming ‘ordinary’ people when they commit minor offences” in the digital age.⁵⁶ The practice of “digital pillory”⁵⁷ as they call it, rests on the forensic image of personal accountability while perpetuating it.

In view of such problematic roles of forensic imaginations, one might appreciate the practical erosion of the forensic imagination by seductive and permissive forms of power. One can also appreciate how irritating moments reveal how powers work. But

⁵² Cf. Meireis (2019), 53.

⁵³ I have learned this from Hanna Reichel’s comments on a previous version of this paper.

⁵⁴ “Die Machttechnik des neoliberalen Regimes nimmt eine subtile, geschmeidige, smarte Form an und entzieht sich jeder Sichtbarkeit. Das unterworfenen Subjekt ist sich hier nicht einmal seiner Unterworfenheit bewusst” (Han [2014], 26).

⁵⁵ Cf. in similar German words Stalder (2016), 161.

⁵⁶ Hess and Waller (2014).

⁵⁷ Cf. Hess und Waller (2014).

without alternative imaginations of personhood, the named erosion might leave one without a sense of human agency at all. Hence the question: How could we imagine personhood in a way that acknowledges those forms of power and their use of freedom working through freedom yet still sustains the person's sense of agency?

4. Imaginaries II: The Responsorial Imagination of Personhood (Dietrich Bonhoeffer)

As Locke's writings already made clear, the forensic imagination of personhood is part of Christian traditions. At least in one simple version, the idea of punishment for evildoers and rewards for the faithful on Judgment Day presupposes and perpetuates the forensic imagination of personhood as conscious agency. Teachings of justification by faith alone as well as confutations of human free will challenge such narratives and their images. This hints towards another way of imaging personhood and human agency in Christian traditions that we can call responsorial imagination of personhood. Bernhard Waldenfels' work on a "responsive Ethik" implies this type.⁵⁸ He differentiates between a communicative (or forensic) and a responsorial ethic: While the former needs an autonomous self to attribute actions to, the latter works with a self that responds to claims.⁵⁹ I will interpret some of Dietrich Bonhoeffer's writings as theological exemplifications of the type "responsorial imagination of personhood" in order to make the point that imaginations of responsorial personhood make better sense in and of practices in digital cultures while sustaining human agency.

Already in his doctoral thesis, Dietrich Bonhoeffer puts a thesis forward on how moral personhood emerges, drawing on I-Thou-philosophy. It is the encounter with the Other in which one is a person: When faced with the claim of the Other, experienced as a barrier to one's own will, one is a person through having to decide.⁶⁰ For Bonhoeffer, it is the divine "Thou" that creates the person in the moment:⁶¹ "Der Einzelne wird im 'Augenblick' immer wieder Person durch den 'anderen'."⁶²

Bonhoeffer maintains this basic relational structure up into the fragments of an *Ethics*, while altering the characterization of the Other. Already, the basic structure of this imagination differs from the forensic one: The forensic imagination pictures a three-

⁵⁸ Waldenfels (2010), 76.

⁵⁹ Waldenfels (2010), 71–2., 74, 79.

⁶⁰ Cf. Bonhoeffer (2015a), 25–32.

⁶¹ Cf. Bonhoeffer (2015a), 33–4.

⁶² Bonhoeffer (2015a), 34.

figure-relation in which action A is attributed to agent B either by the agent herself or by a (divine) judge C. The responsorial imagination is characterized by a two-figure-relation in which the agent is confronted with the claim of the Other and challenged to respond. Already, this shifts the focus away from the attribution of actions to a person and towards the claims made on the person. This makes every action in question essentially social: The agent is a person in relation⁶³ to others affected by her or his action and is not only a person in the eyes of a disaffected judge or *qua* having an internal consciousness. This also shifts the focus away from the conditions for attributing actions and personhood towards the claim of the other and the dynamic of the encounter.

In his unfinished *Ethics*, Bonhoeffer describes the figures in the two-figure-relation of the responsorial imagination differently than in his early writings. With this change, he also deepens the gap with the forensic imagination. In this later work, he uses the term “the responsible” more often than the term “person” for the position of the agent which already mirrors the turn to a responsorial imagination. And – more importantly – he narrates the position of the other not primarily as a “claim” but as the Christ-Reality which encompasses creation, judgment, reconciliation and redemption.⁶⁴ This change is theologically significant: While the claim would name what Lutherans call “law,”⁶⁵ the Christ-Reality emphasizes the unity of the word of God as both law and gospel. Bonhoeffer stresses that God reconciled the reality of the world in the Christ-Reality.⁶⁶ It is this reality to which the life of the Christian should correspond and respond.⁶⁷ Hence, what humans respond to is not primarily the external and overwhelming reality of God’s claim but the encompassing reality of God’s reconciliation. Moral agency as personhood is not induced by a claim; rather, personhood is created in the encounter with the already reconciled reality. Thereby, the theological standpoint has changed over against the forensic imagination: Personhood evolves not in the contested state of open judgment but as a response to justification.

⁶³ For the relationality in Bonhoeffer see Bonhoeffer (2015a), 29.

⁶⁴ Cf. Bonhoeffer (2015b), 32–35, 40, 250, 253–4. See paradigmatically: “Weil in Jesus Christus Gott und Mensch eins wurde, wird durch ihn im Handeln der Christen das ‘Weltliche’ und das ‘Christliche’ eins. Sie stehen nicht gegeneinander als zwei ewige feindliche Prinzipien, sondern das Handeln der Christen quillt aus der in Christus geschaffenen Einheit von Gott und Welt und Einheit des Lebens.” (Bonhoeffer [2015b]: 252).

⁶⁵ Cf. for a similar thought: Lichtenberger (2006), 298. For the topic “gospel and law” in Bonhoeffer see also Soosten (1992), 47.83.

⁶⁶ Cf. Bonhoeffer (2015b), 33–35, 37, 40–1.

⁶⁷ Bonhoeffer (2015b), 253f.

With this background, the features of the evolving personal agency are decisive. They question the forensic image of a person that consciously “owns and imputes to itself past actions” (see above). As I interpret Bonhoeffer, he imaginatively dispossesses the person of their own actions in three ways.

First, he pictures the agent as a responsible person who always acts on behalf of others.⁶⁸ She or he is not only the conscious I, as for Locke, but “unites in his I the I’s of multiple people”; the “father for example” unities the “I of his family-members [...], for whom he is responsible.”⁶⁹ Hence, the agent’s actions are never only actions on their own behalf, but they are done on the behalf of others.

Second, Bonhoeffer pictures the agent as reflecting and acting under conditions of evaluative insecurity: The agent’s consciousness does not own the moral evaluation of his actions. She or he has to be conscious of the potential consequences of the actions. She or he has to weigh advantages and disadvantages and hence acts in the “twilight” of relative decisions, not knowing about their moral quality.⁷⁰

[D]ie Entscheidung fällt nicht mehr zwischen dem klar erkannten Guten und dem klar erkannten Bösen, sondern sie wird im Glauben gewagt angesichts der Verhüllung des Guten und des Bösen in der konkreten geschichtlichen Situation.⁷¹

Daring to act, faced with the disguise of good and evil, means being dispossessed of, being unconscious of the moral and historic meaning of one’s own actions. Accordingly, the freedom in this imagination is not the freedom of a person that owns, reflects, and consciously controls their own actions, but the “dangerous freedom”⁷² of a person capable of acting, daring and deciding while not knowing the final quality of one’s actions.

Third, those responsibly dared actions may retrospectively turn out not to have been the person’s actions alone. Thereby, Bonhoeffer opens the notion of acting so that the powers which are active in one’s free action are made obvious. In Bonhoeffer’s

⁶⁸ Cf. Bonhoeffer (2015b), 219.256–258.

⁶⁹ My translation of parts of the following quote: “Der Einzelne handelt nicht für sich allein, sondern er vereinigt in seinem Ich das Ich mehrerer Menschen, gegebenenfalls sogar einer sehr großen Zahl. Der Familienvater zum Beispiel kann nicht mehr handeln, als wäre er ein Einzelner. In sein Ich ist das Ich seiner Familienglieder aufgenommen, für die er verantwortlich ist” (Bonhoeffer [2015b]: 219).

⁷⁰ Cf. Bonhoeffer (2015b), 220f.224.

⁷¹ Bonhoeffer (2015b), 220.

⁷² Bonhoeffer (2015b), 220.

account of this, the believing person can come to see those dared actions as God's actions in history:

Gerade als der in der Freiheit eigenster Verantwortung Handelnde sieht er sein Handeln einmünden in und fließen aus Gottes Führung. Freie Tat, wie sie Geschichte bestimmt, erkennt sich zuletzt als Gottes Tat, reinste Aktivität als Passivität.⁷³

This allows for thinking of one's own actions as retrospectively also somebody else's action: It disowns the actor of its free action. In Bonhoeffer's description of responsible action, it is God who is active in the human person's activity. Formally and fundamentally, this opens the question of which other powers might be active in one's activity. And it does so while simultaneously acknowledging that the action has been a free daring to act for the agent in the moment in which it was performed.

Thereby, Bonhoeffer imagines the responsible agent as acting not on his own, not by his own agency, and not conscious of the moral quality of his own action. The mask "person" is imagined to be porous. That is, they are permeable to the pending internalized claim of the other "I" and to the action of the other "Thou" in one's own personhood. While this imagination of responsorial agency clearly disowns the agent of their own actions and inscribes the questionability of imputation into the imaginary, it encourages the person to act responsibly on their own and on behalf of others: the imagination is not inhibitory, but conceptualized as empowering. Therefore, the responsorial imagination of personhood provides the horizon in which to imagine oneself and others as acting persons under conditions of digital communication.

5. Proceedings: Imaginations and Praxis

Let me finish by naming three practical proceedings to show that the difference between forensic and responsorial imagination makes a practical difference.

First, people make sense of the cultural reality in which they live. This includes digital technologies. Doing so in the horizon of the forensic imagination of personhood makes it necessary to hold persons accountable. This has the disadvantage of making the imputation of one action to one person an essential art of the imagined personal agency. Under conditions of seductive and constitutive powers in the digital age, the

⁷³ Bonhoeffer (2015b), 225.

imagination of distinct imputation loses some of its practical plausibility. In the horizon of the responsorial imagination, the response to a given reality is more important than the distinct imputation of any given action. What constitutes responsible personhood according to this image is that one responds to reality by their actions, rather than the clear imputation of actions. The forensic imagination's necessity to impute is replaced by the constructive question of how to respond. This, of course, can lead to holding those in power accountable but as a matter of responding to a challenging reality and not as an imaginative precondition for moral action as such.

Second, if the distinct imputation of actions loses plausibility due to the work of constitutive and seductive powers, this will undermine the idea of personal agency in the horizon of forensic imaginations: Who am I to make a difference, faced with the global players of the www-world? On the other hand, the responsorial imagination allows for maintaining a sense of agency as both porous and personal under conditions of complexity, insecurity and ambiguity. This imagination expresses a certain habit of understanding oneself as an agent, as having the right to speak and ask questions. The responsorial imagination asks which powers have been operative in one's free action as free action. It makes that question possible, without letting its answer undermine a sense of personhood and agency. By making those questions possible and equipping people with the sense of having the right to speak and ask, the responsorial imagination is all but a cover-up for a lack of human agency: In the horizon of this imaginary, it becomes possible to name efficiencies of agency and respond to powers.

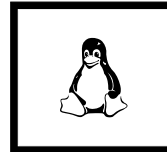
Third, the ethical and practical reflection of imaginations makes a difference for educational and ecclesial practices insofar as it makes one favor certain narratives over others. If responsorial imaginations of personhood are taken as ethically advantageous over purely forensic imaginations, narratives will need to be told that transport and envision responsorial imaginations – in class rooms as well as on the pulpit. Most likely, those stories will be less about the impermeable mask of the hero, whose actions change history. More likely, they will be about people who work together, in relation to each other, in solidarity with each other, sympathetic for each, sensitive to the ambivalence of contemporary existence, conscious of the powers that work through one's own activity and simultaneously not willing to stop working for relative betterment. They will be about the porous masks on stage, which come to be called persons.

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Exploring Freedom

A Conversation between FLOSS-Culture and Theological Practices of Freedom

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The idea of the ‘Freedom of a Christian’ entails concrete practices of freedom. In order to unveil this connection, this paper compares practices of the ‘Free Software Movement’ with key insights of the Reformation and with how Protestantism develops its theology.

Introduction

“If contemporary theology has a central theme at all, it is Christian freedom.”¹ With this statement, the German theologian Eberhard Jüngel highlights the foundational role of the concept of ‘freedom’ in theological discourse. And while, forty years later, there are still numerous scholars who would agree with Jüngel’s sentence, it is crucial to investigate which role *freedom* plays in dogmatic and ethical inquiry beyond claims of subjective independency and personal sovereignty.

In this paper, I want to examine how every conceptualization of freedom intertwines with the social practices and structures it entails. In order to do so I will describe the phenomenon of *Free Software* and the *Free-Libre-Open-Source-Software* (FLOSS)

¹ Jüngel (1978), 16.

cultures it has shaped.² Irrespective of theology, the *Free Software Movement* has successfully developed ways to implement its distinct notion of *freedom* as a mode of cooperative engagement in the creative processes of software development.

After explaining the specific aspects of these practices and how freedom is performed within this field, I will examine resembling structures in the field of Protestant theology, where there exists an analogous intertwining between the notion of the ‘Freedom of a Christian’ and concrete theological practices of freedom that derive from this statement. I will examine the pneumatological implications on each level of these localisations, which will result in a freedom-based understanding of how theological knowledge is produced.

1. The Free Software License

What is today known as *Free Software* began with Richard Stallman’s founding of the *GNU-project* and with his vision to create of a fully functional operating system without copyright restrictions. His main concerns were a participatory and innovative mode of software development as well as the granting of non-restrictive access to the very core of all computer programs: the source code.

By developing his idea of *Free Software* (“think of free speech, not free beer”³), Stallman introduced a concept of freedom that applied directly to the very practices of software developers. Of course, ultimately Stallman was not only concerned about the freedom of developers, but of everyone living in an information based society. In fact, the ideology that drives the *Free Software Movement* even today largely consist of a quasi-eschatological vision of commonly shared knowledge and of a just society free of restricted access to intellectual goods.

The *Free Software Movement* understood that, in order to address the freedom of humans, it was necessary to center the discussion around the involved medium, the source code. It is thus mainly concerned with the freedom of software, in which users participate through various modes of interaction.

² I use the term “Free Software” when I explicitly refer to the actual “Free Software Movement” founded by Richard Stallman as well as when I refer to the legalistic implementations of distinct *free* licenses that are compatible with the *General Public License (GPL)*. The term “Open Source Software” is sometimes used as a synonym but it implies a different policy because of the incorporation of another moral framework. Nevertheless, the concepts of *Free Software* and *Open Source Software* share many of their practices and habits. Thus, when I refer to the practices of *Free Software* I use the term *FLOSS* (free, libre, open source software), which serves as a general term of the phenomena that emerge out of *Free* and *Open Source* Software alike.

³ The Free Software Foundation (FSF), What is free software? <https://www.gnu.org/philosophy/free-sw.html.en>.

But *Free Software* does not just approach freedom as a distinct practice of writing code; it also engages the question of how these practices can be sustained and structurally secured. By inventing and using ‘free licenses’ (such as the General Public License, GNU, in its several versions), the movement introduced a powerful instrument that promised to provide a legal framework both for the moral visions and the pragmatic dimensions of free software development. It is an ironic incident, then, that law-like licenses have become the very epitome of freedom of FLOSS.⁴

At the core of most free software licenses are four paragraphs that state the basic principles of free software:

1. Users can freely use the software for any purpose. This is the most essential statement of the license.
2. Users are free to examine and adapt the software to their own needs. This implies that free software is shipped as open source, in contrast to proprietary software distribution of binary code, which won’t allow the user to study its inner mechanisms and the way it was conceptualized.
3. Users are not only allowed to customize but also to redistribute the software, with or without additional modifications.
4. While users can improve the software, extend its functions, and make it easier to use, they are obliged to share those modifications with the public. This of course also means that the source code of this redistributed new ‘version’ needs to be publicly available.

Although licences like this challenge many juridical systems with respect to intellectual property, they have achieved a major transition in the way authorship of software and other intellectual inventions is assigned: It is no longer a question of property but a question of engaging in a solution-seeking community.

The GPL has now been a reference license for free and open software for over thirty years, but it has also been at the core of great disputes among the community and sometimes is even seen as the dividing line between distinct ideological groups within FLOSS.

⁴ For example, the GNU General Public License opens with highlighting its purpose as a counter-narrative to proprietary software licenses: “The license agreements of most software companies try to keep users at the mercy of those companies. By contrast, our General Public License is intended to guarantee your freedom to share and change free software” (GPL, Preamble).

Extremely fast-growing developer communities arose, driven by the goal of defeating *proprietary software*, which had become the industrial standard for at least two decades. Several operating systems (best known are GNU/Linux and BSD) were developed and licensed as free software. And despite the unquestionable success of Microsoft Windows and Apple OSX in desktop computing, a huge amount of *Free Software* projects have emerged, developing software for nearly every purpose. The fact that most of the internet's infrastructure, the implementations of several standards within communications technology, and the core (kernel) of every Android and iOS-device is nowadays based on *Free Software* shows that it has become much more than a small counter-movement within hacker communities. Indeed, by establishing complex practices of cooperative and decentralized work driven by this distinct vision of freedom, *Free Software* has made a deep impact on how our digital world is structured today.

It is crucial to understand that the transformative power of *Free Software* is not only measured by the extent to which its projects have spread. Beyond the undeniable success of the movement in that regard, it is also insightful to investigate the structural consequences and the practical implementation of its very vision of freedom. From a freedom-theoretical perspective, it is remarkable that *Free Software* has found ways to derive habitually and structurally formative practices from these ideological and legal foundations of freedom.

2. Recursive Publics and Their Platforms

Free Software licenses understand *freedom* as a mode of interacting through a certain medium: the medium of code. Freedom in FLOSS is therefore not a goal in itself but a mode of collaborative interaction that takes the structural and habitual necessities into account.⁵ This can be illustrated by looking at several paradigmatic operational procedures. Free software not only gives anyone who chooses to engage in software development the chance to contribute their own ideas to a specific project, it also provides appropriate platforms and environments that allow developers to work on the same code cooperatively and even simultaneously. Developer communities have invented numerous tools for collective code manipulation for this purpose. The initiative for the creation of these tools came from the core of the *Free Software Movement* and was driven by the vision of sharing the different capabilities and the highly specific knowledge of a great number of people, required for new and original solutions. They

⁵ Cf. Kelty (2008), 2.

understood that milestones in large scale projects can only be reached with a critical mass of participants.

The most important part of the decentralized development process are ‘version control systems.’⁶ They are tools that structure the way people collaborate in software development by displaying the process of a project’s growth and thus making the history of co-authored development transparent.

Everyone who has the technical abilities of reading and writing code can engage in the improvement of different parts of a program by implementing new features, fixing bugs and security issues, adapting it to personal needs, or making it easier to use. They can either adjust a program to their own needs or engage in the development community if they consider their ideas beneficial for others.

Depending on the organizational structure of a given project, people can either directly submit their ideas of improvement (into the so called ‘master branch’) or they can submit their suggestions by creating their own new branch. This is the very point that decides whether the freedom of FLOSS leads to a fragmentation of different branches (where everyone starts their own branch) or to a culture of co-dependent joint development. The technical term for this process is ‘pull-request’: handing in a code snippet to the main version of given project. Pull-requests aim at solving existing security-issues and at finding solutions to both known and overlooked problems of a program. They eventually reveal new possibilities for improving the software. Pull-requests can also – in a non-deficient-oriented way – add one’s own sense of creativity to the project, through contributing ideas of further development that entail new functions and directions that would meet the needs of other users.

Generally speaking, pull-requests are initiatives of individuals who want to provide solutions that might be useful for the project by contributing their particular knowledge of how certain issues can be resolved. Contributors need to demonstrate the value of their pull-requests before they are implemented. They can therefore be accompanied by large discussions via mailing-lists or other communication tools and sometimes trigger conflicts within the community.

If others determine the submitted modifications to be valuable to the project, the changes can be merged into the ‘main-branch,’ which is authoritative for big releases. Merging two branches requires a thorough understanding of the specific features of every branch and eventually leads to an expansion of the initial project. However, if

⁶ For a detailed and visualized description of version control systems (in this case: git) and their capabilities, see <https://nvie.com/posts/a-successful-git-branching-model/>.

the maintainers of the master-branch reject the suggested modifications, it does not imply the end of this particular development branch. If the initial contributor (maybe together with a minority of other users) sticks to the assessment that their contribution is nevertheless valuable, they are free to continue to work on their own branch. In the long run, their modifications might even turn out to be more useful than at first assumed and will eventually be merged into the master-branch after all.⁷

Merging and branching are counterparts of cooperative development, incorporating high-frequent *just-do-it* as well as *trial-and-error* habits. They epitomize the differentiation and synthesizing of creative work that remains revocable and open for change.

All of this can be accomplished with decentralized version control systems. The technical functions I have outlined show how the idea of free software has led to the development of platforms that help facilitating the joint efforts of collaborative software development by making the contributions organizable with respect to quality control while they remain highly transparent to the public. Version control systems are thus an essential part of how the legal framework of the GPL is implemented as a practice of collaborative freedom. Christopher Kelty, an anthropologist who has published a book on the habitual practices of FLOSS, sees in developments like these the specific sustainability of the *Free Software Movement*, which goes beyond its mere ideological foundation: “The ideas of sharing and of common property and its relation to freedom must always be produced through specific practices of sharing, before being defended.”⁸ Kelty calls these complex interactions, arranged by a specific infrastructural framework, a ‘recursive public’: “Two things make recursive publics distinct: the ability to include the practice of creating this infrastructure as part of the activity of being public or contesting control; and the ability to ‘recurse’ through the layers of that infrastructure, maintaining its publicness at each level without making it into an unchanging, static, unmodifiable thing.”⁹

For a concept of freedom that is based on the idea of sharing and on cooperative networks such as developer communities, the transparent and revisable development of

⁷ If the differences of a branch to its initial master branch become significant, such branches sometimes happen to create a new and independent forked project, which – by the terms of the free license of the initial project – is required to keep its freedoms. It is thus technically and legally possible that the two projects later still share patches with each other. Otherwise, one is free to establish this branch as an own fork of the project, hoping to attract other developers. There are numerous well known software packages that have emerged out of forking processes like these. For example, the most popular free office suite *LibreOffice* is a second level fork, as it descends from OpenOffice.org which itself is a fork of StarOffice, a software suite which was popular in the 90s.

⁸ Kelty (2008), 180.

⁹ Kelty (2008), 62.

such platforms establishes the structural base of its practices. Without it, its idea of freedom would be limited to pure potentiality or completely miss an awareness for the requirements of concrete actions of freedom.

3. Requirements for Participation and Knowledge Communities

So far, I have outlined the emerging structures of collaborative development. These structures manifest the freedom to study and manipulate software code in a communal way. I have shown that the ‘freedom’ of *free software* isn’t only rooted in the ideological and legal foundations of free licences but also in structurally maintained practices that depend on a critical mass of interaction.

But this interaction does not only happen between a few skilled programmers. The success of FLOSS is based on the fact that it has managed to implement ways for less technically skilled people to participate, for example by translating, sending in bug reports, and responding to user surveys. Even the mere usage of *free software* has driven the standardization of the internet’s foundational communication protocols (TCP/IP) and data types.¹⁰ In other words, both the usage of a given program as well as different forms of its co-development foster the dimensions of freedom that *Free Software* envisions.

In the following, I want to concentrate on the requirements of *active* and (co)creative engagement in FLOSS projects because its strategies of lowering the thresholds of engagement are insightful for a theological adaptation. In FLOSS, these thresholds are mainly localized on the level of abilities: Co-creative participation in the freedom of FLOSS is a question of knowledge, experience, and skills; that is, one needs to know how computer programs are developed, how code is written and how complex projects are designed.¹¹ The learning and teaching of these abilities requires the mutual sharing of knowledge, not only about a given project but also about how to connect and interact with its development community. The simple idea of freedom as a desire for transparency and openness is worthless if people are unable to benefit from it.¹²

¹⁰ Kelty (2008), 166–7.

¹¹ Until a few years ago, even making use of the first freedom stated in the GPL (the freedom to use the software for any purpose) has only been practicable for enthusiasts who were eager enough to find out how to install and configure certain programs. In fact, until the mid-2000s the *Free Software Movement* was more concerned about security, functionality, and (as a recursive public) the political and social significance of its notion of freedom than about the implementation of user-friendly interfaces.

¹² Note, for example, the huge national disparity of pull-requests on one of the major version control systems *GitHub*: <https://medium.com/@hoffa/github-top-countries-201608-13f642493773>.

FLOSS culture realized this from its earliest days and understood that, in addition to its transparency that makes it a recursive public, it must face the challenge of enabling and empowering others. In other words, the mere sharing of code is not enough to produce a liberating effect from the idea of *free software*.

This is why the Free Software Movement has incorporated ways of mutual education since its appearance, evidenced in (sometimes excessive) documentations, highly frequented online forums, and various mailing-lists, all of which often provide a welcoming and supportive environment while fostering the quality of its contributions.¹³ *Freedom of software correlates with sharing knowledge*. It is thus not coincidental that the idea of *Free Software* has influenced other knowledge-based sectors. The invention of a collaborative content management system for documentations, for instance, has set the foundation of today's most used encyclopedia: The technical infrastructure of Wikipedia is a derivative of what participants of *Free Software* already used decades ago for documentation purposes and it remains *Free Software* even today.

The implementation of data-mediated freedom through openness, transparency, and participation has not only transformed the way software is produced but also led to the creation, evaluation, and spread of knowledge. The rise of Open Data, Open Science, and Citizen Science are prosperous examples of the entanglement of qualitative collaborative work with movements focused on education and knowledge.¹⁴

However, despite all efforts, it is evident that most implementations of freedom in FLOSS – especially the freedom to manipulate software and become creative in its development – are only performed by a few. Apart from a few enthusiasts, engaging in free software development remains an activity of professionals who are either paid directly to write code or need it for other professional tasks.

But the long-term effect of what FLOSS envisions is enormous, changing the ways people communicate and co-author the narratives of the digital. By inventing its own infrastructural basis of joint efforts, the concept of freedom within free software has affected the life of everyone who uses an online device. This shows how practices of freedom and their effects can be masked anonymously. But it also demonstrates that actively and explicitly offering *freedom in and of itself* might not be convincing to ev-

¹³ There are numerous step-by-step-introductions for beginners and some platforms even provide lists of especially beginner-friendly projects. Cf. <https://opensource.com/life/16/1/6-beginner-open-source>.

¹⁴ This goes beyond the ideological affinity of FLOSS and Open/Citizen Science, as the former often provides an appropriate or at least highly adjustable toolkit for large scale research. Cf. <https://www.fastcompany.com/40569993/how-citizen-science-and-open-source-tech-can-create-change>. See also <https://opensource.com/article/18/5/citizen-scientists>.

eryone in the same way – it all depends on how one can make use of it. The prevalence of free software shows that practices of freedom are required to reveal their immediate practical use, to provide reasons why someone should spend the time, energy, and creativity to leave the seemingly safe haven of proprietary software,¹⁵ which actually restricts not only developers but also the users in a way that they are often not even aware of.¹⁶

4. The Risk of Competing Visions

The idea of free software developed as a reaction to limited resources, working hours, and technological knowledge, and through the creativity of individuals eager to chase after big visions of technological development. By releasing software under free licenses, people like Linus Torvalds, the inventor of the Linux kernel, opened up development processes to the public. They trusted the positive effects of crowd-based co-creation driven by the commitment of individuals who share their experience and knowledge.

But licensing software under a public domain must not be misunderstood as the simple distribution of programming tasks to an arbitrary public. Although this might be one of the initiator's interests (especially when FLOSS practices are adopted by commercial software companies), the consequences of public licences are much more unpredictable. To dispense with copyright is to dispense with one's exclusive decision-making authority. It implies a switch from a model of ownership to an open process of co-authorship with unforeseen outcomes.

On an individual level, releasing software as *Free Software* means to take the risk that the very work one values as useful and powerful enough to be published *will* be criticized, adapted, or even misused by others. Although the main currency of FLOSS practices is public recognition and reputation, the publication of code snippets requires the admission that the results are open. As described before, this openness to competing imaginations and visions can ultimately lead to division within communities (*forking*) and is a frequent cause of personal frustration. This can occur due to a lack of response to pull requests into which people have put energy, due to a lack

¹⁵ This struggle has been examined in a qualitative study in the field of creative graphics design, cf. Velkova (2016).

¹⁶ This is the reason why the *Free Software Foundation* has launched a rather polemical campaign that raises awareness about the several dimensions of restrictions that, for example, Microsoft puts on their users; cf. <https://www.gnu.org/proprietary/malware-microsoft.html.en>.

of understanding concerning the demands of a project, or simply because of political issues.¹⁷

But FLOSS practices don't only reveal individual vulnerabilities. FLOSS practices have been widely adopted by a lot of software companies, which expect positive effects from encouraging the public to participate in the development of their products.¹⁸

Of course, this poses a potential risk to the driving ideological ideas behind *Free Software*. Its notion of freedom is mediated by software and therefore mainly independent from its engaging subjects. But this makes it highly vulnerable to shifts of power, for instance when whole companies enter the field with a decisive business plan that becomes authoritative.¹⁹ Although a free share-alike-license (which demands that further developments have to stay licenced as free) legally guarantees that a FLOSS project cannot be turned into proprietary software, the funding and organizational leadership of big players still has a strong influence on the dynamics of the project.²⁰ On a small scale, this can influence practices of writing and implementing code; in the long run, specific ideas of a certain company or patron influence the whole project. This certainly corrupts the idea of equally competing visions and the openness of the development process, the most persuasive element of FLOSS.²¹

That is exactly why the conflict between *Open Source* and *Free Software* plays a significant role for the question of how freedom can be sustained. While the *Open Source Initiative* attaches more significance to the actual practices of collaborative development, the *Free Software Movement* is additionally concerned with the explicit conception of these practices as *practices of freedom*. In theological terms, we could call the *Free Software Foundation's* implementing and sustaining of practices of freedom its *doxology of freedom*. Because of it, the *Free Software Movement* places such great emphasis on the label 'free,' which communiates its ideological background and its

¹⁷ <https://github.com/stereobooster/react-snap/issues/103>

¹⁸ One of the significant milestones in FLOSS was undoubtedly the release of the code of the Internet Browser *Netscape Navigator 4*: <https://www.oreilly.com/openbook/opensources/book/netrev.html>. Other examples are the development of the Online Learning Platform *Moodle* (<http://oss-watch.ac.uk/resources/cs-moodle>) or several software products of the Open-Source-Company *Red Hat*, including an enterprise Linux distribution, which made it one of the most profitable FLOSS driven companies: <https://www.wired.com/2012/03/red-hat/>.

¹⁹ Lately Amazon has distinguished itself by causing a lot of frustration among the open-source-community: <https://www.businessinsider.com/amazon-responded-to-a-frustrated-open-source-developer-2019-6?IR=T>. This demonstrates the dangers of FLOSS-practices that neglect the incorporation of strategies that secure these practices and protect their actors from being exploited.

²⁰ For an example of a share-alike licence, see <https://creativecommons.org/licenses/by-sa/4.0/>.

²¹ Cf. <https://techcrunch.com/2018/11/29/the-crusade-against-open-source-abuse/>.

visionary narrative.²² Sustainability is not a mere wish; the proclaimed vision of a just society is actively carried out through free and collaborative knowledge production. In contrast, *Open Source* is generally more interested in the direct effects of dealing with the openness of the source code, without missionarily supporting the ideological basis of redeeming societies from proprietarily distributed information. In other words, while *Open Source* is mainly interested in spreading the concrete practices of FLOSS in order to foster high quality software through the experience and skills of the crowd, *Free Software* shows a tendency to spread its idea of freedom by directly and deliberately countering proprietary modes of development. It highlights the intertwining of practices of freedom with its praise. It thus does not simply trust in the system-immanent powers of self-spreading freedom, but it openly and directly faces the challenges of commercial occupation and the assimilation of its practices through other ideologies. It incorporates constant and open competitions of different visions through its doxology of freedom.

5. Theological Resemblances

Free Software is neither a nominalistic claim nor a mere collection of habits of interaction. Rather, as I have shown, *Free Software/FLOSS* has been able to derive concrete practices and sustain concrete structures from a distinct concept of freedom. This observation marks the initial point of my examination of analogies between *Free Software* and Protestant theology.

Ever since the Reformation, Protestant theology has referred to certain notions of freedom in order to describe the Christian faith as well as its dogmatic, ethical, and existential implications. In the following sections, I want to examine resemblances between the above described structures of intertwining freedom claims and the shaping of practices of theological freedom within Protestantism. For that purpose, the analysis of FLOSS culture serves as a spotlight for the texture of Protestantism and its embedded practices of freedom. It makes visible certain freedom practices in Protestant theology that resonate with FLOSS and illuminates their respective differences. What follows is an endeavor to search for analogies and contrasts between FLOSS and Protestant theology.

My considerations are based on the observation that practices of freedom in FLOSS are concrete communal (inter)actions. This resembles the Pauline understanding of

²² Cf. Stallmann, Why Open Source misses the point of Free Software: <https://www.gnu.org/philosophy/open-source-misses-the-point.html.en>.

faith in Christ, which is fostered in communities of faith in the presence of the Holy Spirit (Rom 8:5–11, 1. Cor 12:12–30). This faith can only be understood in concrete communal (inter)action. On several occasions, Paul highlights the significance of freedom in Christ, a freedom that inevitably leads to the formation of communities where people come together to serve another with their gifts and virtues. In Galatians, for instance, he refers to the freedom from the obligations of the law and from the desires of the flesh, leading to the fruits of the spirit, which characterize the spirit of the community (Gal 5:13–25). Thus, I am not following the subjectivist idea of negative freedom (as mere independence) in favour of an approach that values openness and co-creativity as characteristic for practises of freedom through faith. Consequently, freedom is understood in its pneumatological and ecclesiological contexts: A biblically oriented theology of freedom is about the implementation of practices of freedom that tend to shape communal existences. This existence is characterized both by an openness to its further development by and for its participants and by the building of structures that foster this very freedom in a communal way.

5.1. The Struggle of the Reformation against Proprietary Distributions of Orthodoxy

In a first step, I want to analyze specific adjustments of the Reformation as the implementation of practises of freedom, practices that free the promise of salvation by faith from its proprietary distribution. On this first level, we can observe similar structures in both contexts: FLOSS and Protestantism will appear to be analogues.

It was the Reformers' struggle to challenge the copyright of Christian orthodoxy in order to rectify the heretical practice of indulgence trade. The foundational modification performed by the theologians of the Reformation was only possible by implementing a practice of theological freedom that denied the exclusive authority of religious and theological authorship of the Roman Catholic Church.²³ This directly resembles *Free Software's* paradigm of decentralization in decision-making by denying any sort of copyright and releasing software code into public domains.

In his treatise *On the Freedom of a Christian*, Martin Luther deals with the same issue by questioning the centralized restrictions of the Roman Church of his time from an

²³ In his study on the sociological structures of FLOSS, Christopher Kely points out that even the free-software-movement itself refers to the parallels of the Reformation as a common narrative, for example when *geeks* identify their own struggle against proprietary software with the reformers' struggle against the Roman Catholic Church. Cf. Kely (2008) 64ff.

anthropological and christological perspective. His dialectical argument opposes a soteriology in which salvation is externally restricted and regulated – historically by the religious demands of the Roman Church. In a first step, Luther’s writings on freedom therefore establish the negative freedom of a Christian whose faith frees them from a soteriological point of view. This approach is then constructively developed in two theologoumena, which lead to a positive understanding of freedom and render Protestantism’s vision for theological authorship. It is the combination of the mandatory scriptural principle and the non-restrictive priesthood of all believers that transform the Reformers’s theology of freedom into a mode of doing theology.

The scriptural principle as an epistemological proposition initially leads to what Matthias Gockel has called “a theology of open sources.”²⁴ It constitutes the referential standard for all theological search for truth and dogmatic authorship. Luther’s emphasis on the importance of the linguistic methods of his time shows that theological authorship on the basis of Scripture must be implemented in a controlled, comprehensible, and therefore transparent way.²⁵

The scriptural principle was accompanied by a christologically grounded understanding of priesthood, the second foundational implementation of theological practices of freedom. With reference to 1 Peter 2:9, Martin Luther identified Jesus Christ as the one and only priest. This means that human beings can be called priests only through their participation in Christ.²⁶ This is the root of the theologoumenon of the priesthood of all believers, a concept that creates a general field of tension between the exclu-

²⁴ Cf. Gockel (2018).

²⁵ Also historical exegeses itself can be understood as an examination and reflection on cooperative freedom practises of the biblical authors and editors. Through the eyes of FLOSS, the historical development of the biblical texts can be understood as the manifold extension and adaptation of testimonies. The different layers of editorial work proves the existence of this very freedom practice among biblical authors and editors, to engage with previous traditions and thus showing their testimonial and theological relevance by taking their specific circumstances into account. The freedom of the biblical canon even tolerates the existence of several branches: While covenant code, deuteronomic code, and holiness code present different development branches of the law in the Hebrew Bible, the four gospels can be seen as an equivalent in the New Testament. According to the two-source hypothesis Mt and Lk can roughly be seen as different merge results of Mk and Q. Thus, historical research on the biblical text does not just satisfy the mere curiosity about the history of some ancient texts. It also undertakes the task of unfolding the development process of the binding testimonies of first grade. Thus, the work of historical biblical studies is comparable to the solution of version control systems: both of them reveal the complex dependencies and motives of multiple actualisations and adaptations that include external material into the new stage. It shows how the development of the very early texts of Christianity has been characterized by co-authorship of the biblical editors and their engagement in a canonical conversation. “This doesn’t mean that it is all opinion, but recipes, like the biblical narrative, required a number of hands and voices to alter and arrange it prior to its current form” (Ott [2014], 144).

²⁶ “Wie nun Christus die Erstgeburt innehat mit ihrer Ehre und Würde, ebenso teilt er sie allen seinen Christen mit, dass sie durch den Glauben auch alle Könige und Priester mit Christus sind.” Luther (2012), 295.

sive singularity of priesthood in Christ and its universalisation in all who are baptized. It marks the area in which concrete practices of freedom may be localized in an ecclesiological and pneumatological manner.

While Luther and Calvin advocate for a functionally structured church through the provision of ministry, Ulrich Zwingli, the Zurich Reformer, explicitly offers a distinct pneumatological approach. He takes up Luther's concept of the freedom of a Christian and emphasizes the significance of the work of the Spirit, which enables human beings to read the Bible as the Word of God without the guidance of the Church – or even against it, if it misses to perform its duties. He therefore identifies the involvement of the non-ordained as a liberation from the moral and clerical restrictions of the Roman Church:

This will help all those who adhere to the Holy Scripture, who stand up to the enemies of the Scripture. So read and understand, open the eyes and ears of the heart! Listen and see what God's Spirit is saying.²⁷

For Zwingli, the freedom of a Christian therefore establishes human practices of engaging with the Bible, practices that he interprets pneumatologically. Moreover, Zwingli identifies the work of the Spirit within these very processes of religious and theological learning through reading Scripture. This notion later became known as the *testimonium spiritus sancti internum* (the internal testimony of the Holy Spirit).

He supports this with the confidence that an appropriation of biblical texts is not an arbitrary but a Spirit-led update from which the individual's understanding of the Word of God derives.

Such a pneumatological interpretation of the theologumena of the scriptural principle and the priesthood of all believers shows parallels to the first two freedom claims of the free-software license, which establish the freedom to use and to study a given program. Analogous to Zwingli, the liberating work of the Spirit empowers individuals to acquire, study, and interpret the biblical texts. However, in order to turn this empowerment into a freedom practice of the masses, enormous challenges in terms of accessibility have to be faced. Thus, it was only consistent that the Reformation went hand in hand with translations of the Bible, the development of the letterpress, and the encouragement of ordinary people to learn and to read.

²⁷ Zwingli (1995/1522), 22.

However, a mere individual interpretation and application of the biblical texts can only be understood as a first phase of a theology of freedom. After all, Protestantism is characterized not only by the individualization and particularization of religious and theological continuation. The next step, therefore, is to ask about ecclesiological practices of freedom in light of the analysis of FLOSS culture.

5.2. Software/Ecclesia Semper Reformanda

While the history of FLOSS shows how freedom enables individuals to study program code and perform adaptations for their personal needs, it is also engaged in the formation of institutionalized platforms that shape the understanding of the freedom of software. Public version control systems, for instance, are concrete implementations of freedom practices that enable people to engage with each other's impulses for improvement and development. They are the consistent embodiment of the fact that free software is *software semper reformanda*. It can only draw on the full potential of its free(ing) license by fostering the creative and competent engagement of a multiplicity of contributors. It relies on adequate environments and an infrastructure that brings those contributions together. To meet this need, FLOSS has created recursive publics, the basis of collaborative evolution, which are able to handle the concrete adjustments in the code by executing pull-requests. We might look for analogous processes within Protestant theology by asking what structural implementations of the freedom of a Christian it has developed to perform the idea of *ecclesia semper reformanda*.

Protestant traditions offer multiple models for how this theologoumenon can be implemented theologically in the social structure of the church. One of them is Friedrich Schleiermacher's ecclesiology, which highlights the importance of the mutual sharing of religious experience within the community of the church. Schleiermacher argues that only the rich plurality of individual impressions can approximate the redemptive work of Jesus Christ.²⁸ He also claims that the shared (and therefore supra-individual) religious consciousness of the community is the Holy Spirit itself.

Despite the potential of a fundamentally egalitarian approach to biblical hermeneutics through pneumatological interpretation, most Protestant thinkers have seen the need to organize the complexity of the church, establishing structures that secure its visible persistence. A challenge that returns whenever the church has to conquer

²⁸ Cf. Schleiermacher (2008/1831), 299.

heretical and harmful influences that would corrupt its nature as a community that derives its communal spirit from its freedom in Christ.²⁹

Within this tension between securing structures and a non-restrictive approach to hermeneutics, it is insightful to look at those ecclesiological approaches that have sought to implement practices of freedom precisely through the institutionalized structures of the church.

One prominent example is the German Lutheran theologian Wolfgang Huber, whose institution-theoretical approach claims that freedom within Christian theology should be understood within a communal paradigm: “It is realized in community and in mutual understanding, in *communio* and *communicatio*; thus, it may be called ‘communicative freedom.’”³⁰ That is to say, Huber locates freedom within the concrete shapes and actions of communities that individuals engage in. For Huber, this applies to all sorts of communication within the church, may it be religious, moral, or theological.

The problem with this concept is that there is a lack of concrete implementations of structures that actually promote this communicative freedom and its further development. Huber’s ecclesiology (“church of freedom”) focuses on *installing* structures of freedom, but it does not develop an adequate concept for ensuring their continuing developmental openness. Although Huber does mention the tool of language, he does not pay enough attention to the dynamics of power *within* the empirical church.³¹

In this context, FLOSS culture can serve as a contrasting template that shows why Huber’s ecclesiology lacks a proper implementation of practices of freedom. We have seen that practiced freedom is always linked to enabling structures through appropriate platforms (recursive publics). Their important task is to implement circular movements of irritation and external impulses by providing interfaces for individuals to contribute their visions and suggestions for improvement. The most successful of such platforms have emerged from concrete needs and a knowledge of the communicative

²⁹ On the Reformers’ struggle to maintain the teaching of freedom against Rome’s doctrine, cf. Calvin, *Offices of the church and their pneumatological foundation* (Calvin, *Inst.* IV,3,2). Another example is the German Church Struggle, which shows the difficulties of a church that is endangered to submit to National Socialist ideology. Cf. Barmen Declaration VI.

³⁰ “Sie verwirklicht sich also in Gemeinschaft und in wechselseitiger Verständigung, in *communio* und *communicatio*; deshalb kann sie ‘kommunikative Freiheit’ genannt werden” (Huber [1983], 118).

³¹ This was one of the decisive critiques of the impulse paper “Church of Freedom” by the EKD, which was presented by Huber as its former president; see *Kirchenamt der Evangelischen Kirche in Deutschland* (2007).

specifics. The success of FLOSS is based on a bottom-up development principle that relies on the particular, non-restrictive involvement of additional contributors.

An ecclesiology of freedom that seeks to learn from the successful cooperative practices of FLOSS may therefore point to a systematic appreciation of co-creative dynamics and to emerging structures maintained by the participants themselves. In computing as well as in Christian communities, this implies the necessity of educational processes that cultivate and perpetuate an expressiveness that leads to the emergence of recursive publics, which in turn enable individuals to hand in high quality religious and theological pull requests.

Churches of freedom need grassroot structures that allow for broad religious and theological literacy at an eye level without undermining the different parameters of the various contributions. For it is the variety and speciality of contributions that drive the quality of both technical and theological knowledge production.

On a parochial level, this could be exemplified by an appreciation for communicative, decentralized forms of community. Movements like *Fresh Expressions* and *Emerging Church* have developed reasonable alternatives to the model of the ‘people’s church’ (*Volkskirche*), which is driven by the vision for an all-compatible program. These movements try to establish platforms of theological co-authorship through flat teaching hierarchies, the sharing of life experiences from various contexts, and the sensible evolution of religious practices.³²

On the specific level of academic theology, approaches such as *Citizen Theology* pursue the vision of implementing pull-requests that integrate the diversity of Christian forms of life and religious knowledge in a multidirectional way.³³ Context-based learning from theological adaptations to specific requirements puts one in an epistemologically favorable position and thus function as a starting point for theological pull-requests. This vision of a systematic implementation of pull-requests is driven by the pneumatological assumption that the teaching of the Spirit does not only act within singularities but through engagement – by sharing religious and theological knowl-

³² It needs to be mentioned that the biggest difference between FLOSS and any religious cultures such as Protestantism is the aspect of timing, speed, and frequency of change. Software development fosters rapid development and sometimes even forces its users to adapt to recent changes. Changes can even be made on a trial-and-error-basis that easily risk to lead into a dead end if they turn out as insufficient. Contrary to this, transformations within religious communities need to take long grown and tenderly fostered traditions that people identify with into account. This makes changes in religious communities and their theological reflection slow, sometimes even too slow, for example when adaptations come to a halt and communities and their theological reflection are unable to keep up with their environment. Cf. Schleiermacher (1910), §§203.204.

³³ Cf. Friedrich, Reichel, and Renkert (2019).

edge beyond certified expertise. Rightly understood, theological authorship is always theological *co*-authorship, as reflective assessments about the Christian faith derive from shared experiences and contextual insights into the meaning of the biblical traditions.

But such an epistemic adjustment is not without risk. The open source movement exemplifies that the structural integration of cooperative practices does not necessarily have to support its ideological foundations. The ongoing dispute between *Free Software* and *Open Source* shows this quite well. This correlates with the question about the significance of both the orthodoxy and the doxology behind these freedom practices. This concern, however, is not a sufficient reason to completely abandon such models. It is a question that every model of ‘church for the world’ has to deal with.³⁴

The development of a theology of freedom in the context of ecclesiology builds on the idea of religious and theological *co*-authorship. This idea, in turn, needs to be properly implemented in social structures of the church and in the methodology of its theologies. It understands these structures and methods as practices of freedom and – fully aware of the risks – relies on the promise of the Spirit’s presence through the various charisms of the members of the Body of Christ. Protestantism needs this breadth of authors in order for its theologies to be enhanced, constructively challenged, and further developed.

5.3. Ecumenism of Branches and Merges

On a third level, I want to use FLOSS culture as a contrast medium to elucidate Protestantism’s specific inability to secure its own epistemic standpoint. This makes embracing the Spirit’s freedom a necessary consequence.

In order to do so and to visualize the scope of this section, I want to concentrate on the structure of how cooperative development takes place in FLOSS. As described above, decentralized development in FLOSS often involves the simultaneous execution of

³⁴ One might read the story of the healing of a bleeding woman (Mk 5:25–34 *parr.*) as the synoptic gospel’s sensibility for the question of mere profiting from the beneficial effects of faith. Moreover, the narration of the dispute of Jesus with his disciples about the legitimacy of the alien healer can be seen as one possible account on this problem: Mark clearly states his non-restrictive approval of the healer through Jesus’s answer: “Do not stop him, for no one who does a mighty work in my name will be able soon afterward to speak evil of me. For the one who is not against us is for us.” (Mk 9:39–40). Contrary to Mark, Matthew alliterates Jesus’s statement in a slightly different context when he explicitly demands an affiliation: “Whoever is not with me is against me, and whoever does not gather with me scatters” (Mt 12:30).

different developmental steps by a variety of people. Small-scale changes are being outsourced to branches and eventually will be merged back into the master branch.

By comparing the practice of this decentralized process of *branching* different directions of development with the generation and growth of theological traditions, we can unveil a specific blind spot of theology, namely its non-foundationalism. To understand the contrast to FLOSS, we first need to identify the *tertium comparationis*, which lies in the analogous freedom practice of the separate, yet parallel development of different branches. What version control systems make possible for collaborative code manipulation can also be seen in the history of ecumenism: Theology, not only understood as an analytic but a constructive enterprise, is a vital continuation of differentiated yet interdependent co-authorship. Different theological approaches or even denominations can be envisioned as branches that continue theology not only as a linear development but as independent, parallel, and alternative developments of theology.

Examples for externally driven developments are theologies that point to contextual issues: The emergence of liberal traditions in the nineteenth century were a response to the Enlightenment philosophy in Western Europe. Likewise, the innovations of various liberation theologies have emerged from certain life contexts and experiences of poverty and oppression. Internal reasons, by contrast, are the systematic detection of theological blind spots within one's own dogmatics or also new exegetical insights that attempt to rectify certain theologumena. Of course, in most cases external and internal reasons concur. The history of the diversity of theological and religious traditions of Christianity can be read as a complex network of different branches that are sometimes loose- and sometimes close-knit.

This last point shows that the theological tradition isn't only one of mere differentiation (branches) but also one of mutual interdependence and stimulation through theological difference (merges). Theological encounters of different branches promise the possibility of mutual correction. The conversation between different approaches and traditions in the search for theological knowledge may turn out to be quite conflicted or even disruptive, and merge attempts usually pose some big challenges for the involved branches. What, in software development, signifies a time-consuming process of merging-conflicts, is, for the *fides quaerens intellectum*, the place of a con-

stant and not always consensual search for truth.³⁵ Not only the church but also its reflective enterprise *theology* is an endeavor *semper reformanda*.³⁶

However, particular merge processes are not only found in the context of explicit theologies. Occasional merges also occur in implicit theologies, in the practical formation of ecumenical or inter-religious encounters. And, realistically speaking, this often does not result in a success story of common consensus. Another closer look at the experiences of FLOSS can illustrate this. Large projects like the Linux kernel, for example, have a massive number of branches with dead-ends. Due to their technical, stylistic, or political inadequacy they are never merged into those critical branches that attract the interest of the public. Of course, this raises the question of power – for both software production and ecumenism alike. The maintenance of merges, just like the encounter between different theological developments, does not happen in an egalitarian way. Like it is possible that the decision-making in the ‘master branch’ of a software project is undertaken by a company or a patron, we can observe similar tendencies in the writing of theology.

But this is also where the analogy ends and where Protestant theology shows its decisive contrast in its practices of freedom: By renouncing a synthesizing and boundary marking organizational unity (after all, Protestantism knows of no central teaching position), it also lacks any empirical organizing reference.

Theology, rightly understood, simply does not have a tool that would allow it to locate its own branch relative to a master-branch. Christian faith does not operate within in the category of ownership, but only by means of authorship and co-authorship. Without any institutionalized and theologically legitimized teaching position, there is neither a distinct maintainer of the master-branch, nor is there anyone who could even identify any branch as the universal master-branch without manifesting a paradox of freedom practices. In contrast to the clearly localizable structure of the branches of a development tree in a software version control system, the Protestant epistemological principles lack the possibility of an independent verification of their own branches. I have demonstrated this *inability to verify* above by describing the inevitable tension of

³⁵ It should be noted that in software development merge-conflicts are not exclusively based on the simple principle “It is right if it works.” Analogous to the dispute over methods and verification of theological statements (“what is good theology?”), software development has an open debate about ‘refactoring,’ its key question being: “What is good code?”

³⁶ Realistically, one has to admit that merge processes in theology are often not carried out with respect to an entire branch, but with a great deal of particularity. But targeted impulses from other theological and religious traditions can redirect theological thinking’s attentiveness. As an example, see <https://www.gnu.org/proprietary/malware-microsoft.html.en>.

the scriptural principle and a christological reasoning of the priesthood of all believers. Post-theistic theologies, as well as theologies based on the openness, changeability, and liveliness of God, will renounce a verifiable reference to a master branch. And they will do so not only for epistemological but also for theological reasons.

The pneumatological assumption on this third level is that the self-unfolding presence of the Holy Spirit is not only to be located within the boundaries of what we call church (which, in particular, can mean one's own religious, denominational and contextual bounds), but that the presence of God acts within the transgressions of these epistemic borders. However, without assuming a blurred and indistinct presence of the Spirit, the work of the Spirit can be seen as a force transcending the boundaries of social and therefore epistemic self-affirmation. In addition to Schleiermacher's notion of the Holy Spirit *within* the communal spirit of the church, it is therefore adequate to also hope for the presence of God's Spirit in the differentiated intersections of mutual ecumenical learning. Practicing theological freedom requires taking the freedom of the Holy Spirit into account as well as the fact that this freedom might unfold within unknown contexts that themselves testify to the Spirit of faith, love, and hope. These testimonies of *others* might eventually turn out to be a more adequate description of, and even an impulse for solutions to, one's own theological and religious quests. This re-localization would lead from a pneumatology of the *spirit in nos* (as observed on the first and partially on the second level of the constructive part of this paper) to an understanding of the *spirit extra nos*. That is to say, toward an *inter nos* in the encounter of separate branches. While software production mostly follows the logic of technical compatibility and efficiency, theological development should not only be functionalized for its practical feasibility but also for the question of truth. This is why the question of the discernment of the spirits in light of faith, love, and hope becomes the crucial question, and it is deeply entangled with what I have described so far. The assumption of the *spirit extra nos* and the mere presence of *the other* is no guarantee for the enlightening and self-revealing work of the Spirit – and neither is a mere communal spirit of one's own branch. It is therefore necessary to understand theological freedom not only in the sense of independence but as a co-dependent engagement with the *source code* of the Christian faith rooted in the engagement with the pluriform and many voiced biblical canon.

A small remark about the eschatological implications of this: The idea of possible and particular merges must not be understood teleologically. The eschaton is not to be envisioned as a super-merge that re-includes every single branch. It is rather the jus-

tification of the diverse and multiple endeavors to conceive the reality of God within this world through the contextual exploration of the biblical promises.

6. Conclusion

In order to show how FLOSS culture can be compared with the fundamental theologoumena of Protestant theology, I have outlined the entanglement of a proper concept of freedom with the practices of freedom it entails. I have then described the concrete phenomena in FLOSS that have proven to be successful and influential for the ways software is nowadays developed.

Understanding theology as a creative enterprise, the category of authorship has turned out to be a better category than ownership in terms of its development. After comparing how software development and theological development, according to the fundamental convictions of the Reformation, implement structures of free and co-creative engagement, I described three levels of theological practices of freedom that resemble the fundamental insight of FLOSS, which is the conceptual connection between a general statement of freedom(s) and its implementation in concrete practices.

The first level is located in the combination of the scriptural principle and the priesthood of all believers. It is the practice of a fundamentally non-restrictive openness of the Bible that enables individuals to engage with the foundational texts of the Christian faith.

On a second level, I have shown how the social structures of the church and the development of its theology can resemble the idea of the 'Freedom of a Christian.' In order to foster the freedom of software, FLOSS has developed recursive publics. In this, it can serve as an example for Protestant ecclesiology, calling it foster structures that embody the communal aspects of theological co-authorship.

In the last section, I have compared the practices of *version control systems* (branching/merging) with the mutual influence and interference of different theological developments within ecumenism. In consequence, the epistemological uncertainty of one's own branch in relation to others has turned out to be one of the major differences between FLOSS and Protestant theology. Gaining theological knowledge therefore depends on the constructive transgressions of denominational and cultural boundaries.

These different levels on which we can identify theological practices of freedom are interdependent and may be understood in a pneumatological way: By professing the

Freedom of a Christian and developing its corresponding practices of freedom, Protestant theology expresses its faith in the plural and differentiated presence of the revealing Spirit. Theological enterprise is not driven by the aim of mere innovation, after all, but is quest for knowledge. A quest that can only be carried out by a free development of theology cultivated in cooperative practices of freedom aimed at grasping the plurality of the self-revealing presence of the Spirit.

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From Data Protection to Data Sovereignty A Multidimensional Governance Approach for Shaping Informational Freedom in the ‘Onlife’-Era

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Digitalisation carries the dangerous potential to constrict our exercise of freedom and self-determination. Most worryingly, this process is taking place in small steps and a point of no return might be reached in the not too distant future. In order to defend our individual self-determination, we thus need to make the right to informational self-determination behind traditional data protection weatherproof for the age of Big Data, AI and machine learning.

1.

Onlife – this is how the philosopher Luciano Floridi, who teaches in Oxford, describes our present.¹ He wants to express the fact that we can no longer distinguish between online and offline. Of course, we can switch off the smartphone or even – as Hans-Magnus Enzensberger has demanded in some kind of Swing-Riot-attitude – dispose of it, but we cannot escape the online world, we remain in the onlife world: permanently monitored and networked. Two examples may illustrate this onlife life in sharp focus:

¹ Floridi (2014).

Facebook has installed a tool which, on the basis of one's communication, posts and likes, estimates a probability of whether one has depressive tendencies or is even suicidal. Facebook can only do this because the users have been "informed" about this procedure somewhere in the general terms and conditions² – we all know how proper the level of being informed regarding these consents is. Of course, the system does not make a proper psychiatric diagnosis, but only draws this conclusion with the help of pattern comparisons with numerous other postings and likes. I call this a deep intervention, because it is always very irritating, not to say shattering for people when they are confronted with such a hint, presumably unexpectedly. Facebook then offers the user three options: 1.) Should we inform friends? 2.) Here are the phone numbers of hotlines that offer help! And third: Here are the best quick hints on how to behave to prevent suicide.³

Is such a procedure morally and/or legally admissible? Is life saved here – at least with a view to an acute situation? Or do people feel traumatized, stigmatized, or in the worst case even "encouraged" in the sense of a self-fulfilling prophecy to think about the terrible option of suicide through this scientifically questionable procedure?⁴ But what alternatives are there under the real conditions of the onlife world? Isn't the advice provided here "thanks to" algorithmic "help" cheap – probably not the best, but after weighing advantages and disadvantages not the worst of all conceivable possibilities?

Second example: Every week one can read with – I confess for myself – the greatest horror how the social credit system to be introduced in China by 2020 involves partly abstruse behavioral regulations. Not only can one's own image be denounced on a large advertising screen, as is now widely known, if one has crossed a red light at a street corner before, no, even entitlements that seem as basic to us as those of freedom are to be regulated by standardized, fixed norms and credits of good behavior towards the party, the company, family members or society. Accordingly, misconduct leads to malus, stigmatisation and exclusion.⁵ But who determines what is good and bad, right and wrong, socially desirable and undesirable? Are these categories congruent – or does the dynamics and evolution of life in society not result from the fact that perceptions of good, right and socially desirable are not congruent? And how can it

² Card (2018).

³ Facebook (2019).

⁴ Similar questions regarding the transparency and the ethical standards of Facebook's suicide prevention tool are raised by Barnett and Torus (2019).

⁵ Kobie (2019). Less one-sided and more focused on the Chinese perspective: Matsakis (2019).

be checked, how can it be questioned, how can it be claimed that certain, purely statistically determined, realistically unchecked subsumption options are right and just?

This is how life in onlife can be, this is how it already is: permanently monitored, crushed into data points and then not only, but above all by large Internet companies, the so-called platform companies, reassembled by means of pattern recognition into behaviour forecasts used for advertising purposes.⁶

2.

Against the background sketched out, I would like to point out that digitalisation carries the potential to constrict the real exercise of freedom and self-determination. In my view, it is most worrying that this perceivable process is taking place in small steps and that a point of no return might be reached in the not too distant future. In order to express this double concern, I will briefly outline three developments of digitalisation that can mutually reinforce each other and can conjure up the feared tipping point. I am talking about trends regarding economy, civil society and understanding of self-determination. In view of this overarching development, I no longer plead for optimism in dealing with Big Data and AI – following Terry Eagleton’s formulation: “Hope without Optimism.”⁷ I will therefore conclude with an outlook as to why I believe we (still) have the means to defend freedom as well as other constitutional principles of our civil society. But first, three trends become more urgent:

1.) In the field of economics, I see two major challenges that we are facing or have already faced as a result of digitalisation – whether we want to admit it or not: On the one hand, the future of work seems more uncertain than ever. The figures on how many jobs the so-called Fourth Labour Revolution will cost fluctuate considerably: from the initial dramatic forecasts presented by the two Oxford economists Frey and Osborne, who, in developed countries such as the USA and Germany, regard almost two-thirds of all occupations as endangered by digitalisation,⁸ to the much more moderate estimates in the White Paper “Work 4.0” of the last Federal Government in Germany⁹ or the current OCED forecasts.¹⁰ However, these forecasts share the following

⁶ For so called platform economies, see Kenney (2016). For more detailed information about advertising in the digital era, see Rodgers and Thorson (2017).

⁷ Eagleton (2015).

⁸ Frey and Osborne (2013).

⁹ Federal Ministry of Social Affairs and Labour (2017).

¹⁰ OECD (2019).

three assumptions: The first is that most job losses are to be expected in the white-collar milieu. It will not only affect truck drivers, engine drivers and office workers, but also bank and insurance clerks, administrative employees, engineers, sales managers, controllers, some physicians and lawyers, designers, stock exchange and real estate agents, and so on and so forth. Secondly, the number of creative, productive and education-intensive occupations will be paid better, but thirdly, the number of job losses for well-educated people will not be compensated by comparable alternatives. In the end, however, we will probably not only have a minus in jobs for well-trained people. Rather, the broad middle class, over which the dictum of the “leveled middle class society” was partly critically, partly ironically felled, threatens to be crumbled if this trend is not counteracted. The dramatic issue about this development is that it is precisely the lifestyle of this (still) broad milieu that has effectively and continuously shaped and still shapes the culture, motivation and reproduction of the interlinkage between of democracy, the rule of law and civil society in many countries. Andreas Reckwitz describes this dangerous drifting apart in his award-winning contemporary diagnosis “The Society of Singularities.”¹¹ What is remarkable and disturbing about his interpretation is, on the one hand, that the many people from the middle class share the increasing feeling that they no longer belong to the cultural and economic mainstream and are no longer sufficiently recognized in both spheres. This leads to a distance from state, the media and a pursued notion of the common good that transcends the respective milieus. With all this, the regulative idea of a single public sphere also threatens to be lost.

A second shift in the economic axis, which is probably even more drastic from a global perspective, must be viewed with concern to the lively interplay between the rule of law, democracy and civil society: I am talking about the highly dynamic platform economy,¹² which is increasingly determining the global economy and which we in the West still associate too one-sidedly with the so-called GAFA – Google, Amazon, Facebook and Apple – even though the two Chinese Internet giants Alibaba and Tencent have successfully opened up in the global economy.¹³

Their logic is: because pattern recognition and logic of predictability work better under the conditions of artificial intelligence if you can combine data sets that are as large as possible, big data collectors, the so-called platforms, have an evident advantage over smaller companies: technologically this is called the so-called network effect, in busi-

¹¹ Reckwitz (2017).

¹² Kenney (2016).

¹³ Staff (2019).

ness style: “the winner takes it all” logic. Because this logic rewards extensive size, we are experiencing an unprecedented monopolisation trend in economic history, which the American journalist and economist Scott Galloway sums up so succinctly with a view to GAFA:¹⁴ There are the four “horsemen” – “horsemen” in allusion to the Horsemen of the Apocalypse – who, like Google, claim divine attributes such as omniscience, like Facebook, steer our emotions, like Apple, determine our attractiveness economy, and, like Amazon, steer our consumption. According to him, the anthropological constants of religion, love, sex and consumption are shaped by these Internet giants, but they have also attained market power in their areas that can hardly be tamed any more by means of economic activity, which they also use to disadvantage or destroy competitors – and thus to suppress thrusts of innovation in the long run. This implosion of innovation economy by financial economic power is likely to continue if one or two of these four American and two Chinese giants get into economic difficulties and are bought up by one of the other three.

With these brief references to the possible economic developments of the digital economy and the world economy, I would like to draw your attention exactly to one point, which I dress in a question: How do we want to defend freedom and self-determination in a meaningful sense, if freedom and self-determination are understood permanently, essentially and by the majority as guided decision options by consumers, users and video gamers, if Chinese companies with their state capitalist background and its comprehensive surveillance practice begin to dominate the global competition for the hearts, minds and hands of people? Anyone who sees Europe’s role in the world economy today, trapped between the USA and China, must keep an eye on this line of development. In order not to despair, it should be remembered that Europe can take action against the threat of digital incapacitation: from the rulings of the higher courts to the General Data Protection Regulation,¹⁵ from the hopefully similar wrangling over the e-privacy directive¹⁶ to the EU Commission’s competition monitoring activities.¹⁷

2.) I come to the social tendencies of digitalisation: the debates raging everywhere about identity and integration, enlightened or dull patriotism, about interpretation of migration and populism interpretations are indications that the social cement that

¹⁴ Galloway (2017).

¹⁵ European Parliament and European Union (2016).

¹⁶ European Commission (2019a).

¹⁷ European Commission (2019b).

binds people together has diminished.¹⁸ It can hardly be denied that the social media, which are also controlled by AI technologies, have a catalytic effect on these centrifugal social processes. The usual “narrative,” as it is said today, is that the social media trapped us in filter bubbles and echo chambers that made it impossible to exchange information beyond these bubbles, that we might become more and more susceptible to fake news, and that the basic idea of a general public and of a generally shared understanding of truth is fading away.¹⁹

But the situation is more complicated, not so one-directional: There is not a simple cause-effect relationship. It is not only social media that cause outdated authorities to lose their credibility, and the general public to lose its attractiveness as a regulative idea of a plural civil society and truth as the corrective of opinion. If this were immediately the case, everything would be quite simple: One would have to abolish social media in the usual form. Facebook, Twitter and Co. would have to be smashed, and the described dangers would be gone.

Not only do social and media studies show that filter bubbles do not exist in this stereotypical form.²⁰ For example: The voters of AfD – a right wing party in Germany – do indeed perceive what they see as mainstream or so called system media in the press, but the voters do not acknowledge the mainstream media, their reports and comments are not seen as questioning, but as confirmation of their own structure of judgement: “We have always known that ‘old parties’ and ‘the press of lies’ confirm each other here.”²¹ Beyond the simple idea of filter bubbles, however, the logic of the so-called social media then amplifies the logic of simplifiers and radicalizers. The rationality, especially of Facebook, Twitter and other, is not only – as in the old media – to distinguish between attention and non-attention, but the currency of the social media is much stronger and, above all, more interventionist than in the old media: emotionalisation.²² The purpose of Facebook and comparable social media, in particular, with their still inscrutable algorithms, is to keep users on their platforms for as long as possible in order to use microtargeting to place personalised advertising here – by the way, in Germany a legitimate business model, incidentally, on this side up to the point at which manipulation becomes the rule.

¹⁸ Fitzi, Mackert and Turner (2018a); Fitzi, Mackert and Turner (2018b); Fitzi, Mackert and Turner (2018c).

¹⁹ Pariser (2011).

²⁰ Weisberg (2011); Boutin (2011).

²¹ Chase (2017); Martin (2018).

²² Kušen, Strembeck and Conti (2018).

There are two spheres of emotion that particularly bind attention and are therefore stirred up by the social media: namely, on the one hand, emotions that are addressed when there is proximity: Sympathy, empathy, compassion – that is why Facebook has increased the share of private communications since the beginning of the year – and on the other hand outrage – and that’s why the “anger citizen” and his special communication habits are addressed in social media.²³ When users bury themselves in the social media both in this way and with the temptation of being able to stage themselves in idealistic style (with Instagram), the media structure, which is already considerably diversified, is further broken down. Consequently, the costly quality-journalism, this pillar of civil society and democracy under the rule of law, comes under considerable permanent pressure when the number of those who want to pay for it falls.²⁴

The trend towards privatisation, simplification and polarization is inherent in social media because the logic of emotionalisation undermines basic prerequisites and decisive foundations with which we must try to responsibly shape plurality in a democratic and civil society: the regulative idea of the public sphere and the professional quality media that foster it, as well as the idea of standards of the search for truth that are respected beyond individuals’ and closed groups’ opinions.²⁵

3.) This brings me to the last of the dynamics associated with Big Data and AI, which together can dry up the sources of a living ethos of human dignity and human rights. It is about enabling and shaping one’s own self-image, about what some call autonomy, what others call self-determination. Big Data, AI and machine learning now achieve such an uncanny depth of intervention efficiently and unnoticed that there is reason to fear that the ability to determine oneself, however demanding, will diminish, if not threaten to be lost by many.²⁶

Sure, people have always been influenced, even manipulated, by “higher” powers. But the comprehensive pattern recognition and prediction logic in the style of Silicon Valley or Chinese state capitalism force their users bit by bit into ever tighter corsets. At some point – so I fear – one notices – perhaps too late – that the power to breathe is lacking to develop ourselves in a self-determined free way. It seems obvious that the development of the Chinese social credit system is accompanied by tendencies that, in

²³ Klenner (2018).

²⁴ Lepore (2019).

²⁵ Habermas (1984); Muller (2014).

²⁶ Lawless et al. (2017). For further questions arising from the intersection of AI and human identity resp. autonomy, see Digiovanna (2017); Burden and Svan-Baden (2019).

my view, pose an extreme threat to freedom, even if in return it promises to guarantee safety, security and order.

“Such dynamics, which exercise intimate control, do not spread to us after all, you might think.” Google magician Eric Schmidt said years ago: “We know where you are. We know where you’ve been. We can more or less know what you’re thinking about”²⁷ and, “If you have something that you don’t want anyone to know, maybe you shouldn’t be doing it in the first place.”²⁸ This if-then-conclusion is to be explicitly contradicted from an ethical point of view. How boring would our visual arts or our music, and beyond that: our life course, be if everyone would leave his or her dark, uncontrolled and wild sides to self-fulfilling obedience. It would be the end of creativity and innovation in the long run. If someone threatens us that he knows everything about us and we have to assume that he knows more than we like, then not even our thoughts are free anymore, then a line from a German folk song is no longer true: “no one can know them, no hunter can shoot them.”

3.

So what can one do? I retain hope if I succeed in defending the self-determination of the individual under the conditions of digital transformation in a concerted action that includes all the forces of society, or – where it already seems lost – in reconquering it. To this end, I advocate making the right to informational self-determination behind traditional data protection weatherproof for the age of Big Data, AI and machine learning. This can happen – and to this end I would like to present the approach of the German Ethics Council, which it issued by the end of November 2017 in the opinion-statement “Big Data and Health”²⁹ and which I was allowed to co-develop. The paradigm shift presented there consists of switching from a traditional input orientation of data protection (consent, data minimisation and purposeness) to a more output-oriented approach to data processing. As the goal of such an approach, which integrates many dimensions and actors, the Ethics Council identifies data sovereignty, which it interprets as “the shaping of informational freedom”³⁰ – both a term that has changed from the traditional nomenclature to ‘data sovereignty,’ in order to also indicate the shift to output orientation terminologically. The multi-actor and multi-

²⁷ Thompson (2010).

²⁸ Esguerra (2009).

²⁹ Council (2017). Original in German: Ethikrat (2017).

³⁰ Council (2017).

dimensional governance approach, which is intended to secure data sovereignty, must in turn be oriented towards ethical criteria. The Ethics Council has identified these as such: 1.) Use opportunities and potential. We would not conduct all the debates that we conduct if Big Data (and AI) did not also bring recognizable advantages, 2.) protect individual freedom and privacy, 3.) secure justice and solidarity, and finally promote responsibility and trust. Since, despite the 50 to 60 further, detailed and differentiated recommendations, the question of how the whole thing can be implemented technically keeps coming up again and again, I would like to answer this question briefly: at the technical level, data sovereignty can be effectively established, protected and reconquered, for example by means of data agents and data trustees. Data agents act like information technology representatives of the data subject by automatically implementing her preferences for handling her data in the infinite data stream. Data trustees manage this process. In concrete terms this means: The data agent is installed at the data interfaces that digital companies normally use to process the data from the data subject. This is not a technical witchcraft, but the normal way in which all data users get their data. This data agent now tracks the transmission and further processing of the information extracted from the data subject and notifies the data trustee if a use is made that the data subject dislikes. The data trustee “knows” the preferences of the data subject because the latter has entered them on an app or can change them there again and again. This control should not be imagined as if army troops of employees were monitoring the data stream. The whole thing takes place mechanically. Also, possible objections to the data subjects are created automatically, as well as their possible first rejection of the objection and the then conceivable raising of a new objection – until the time when the machines can not “agree,” the conflict will be “reported” to humans and people will be involved if necessary legal steps are considered. Everything before can take place in milliseconds, which are not noticeable for humans, thus in quasi-real time, like it is the case nowadays in high frequency trading in the financial economy.

Questions undoubtedly arise with such a technical “solution” as to how data sovereignty can be implemented as controlability: Does such a model not lead to new injustices, because some can afford a highly competent and effective data trustee, while others have to content themselves with a middle-class provider that capitulates in the first inter-machine dispute round? Such constellations are conceivable. Therefore, the possible market development has to be carefully observed when introducing this new business model and, if necessary, measures have to be taken to limit a considerable unjust asymmetry of power. One may also ask sceptically: Can politicians, for exam-

ple, not use the model of securing data sovereignty over data agents and data trustees to carry out effective censorship by suppressing reports or comments on their activities? This is an objection that should be taken seriously: Of course, the data trust dealer model must adhere to the existing legal framework. Freedom of expression and freedom of the press must not be undermined either theoretically or practically by this model. Since, however, it is also a truism of the social and political sciences that general claims such as transparency or participation or formal legal claims such as freedom of expression or freedom of the press cannot simply be implemented one-to-one in practice, careful observation and, if necessary, countermeasures must be taken if this model de facto leads to an unintentional restriction of freedom of expression. In short, the approach of securing data sovereignty through data agents and data trustees also requires legal and political design. But it can already be realized today with limited technical effort and would not burden the extensive flow of Big Data and AI with the de facto dysfunctional old data protection principles but would still redefine output-oriented and quasi-real-time privacy as sovereignty and controllability of data.

Nevertheless, under the conditions of Big Data, AI and machine learning, data sovereignty as an expression of informational freedom and thus in the flight line of human dignity can only be guaranteed and protected if not only technical procedures, legal regulations and economic incentives are created for this purpose, but also if a culture is kept alive and promoted in which 1.) economic competition is maintained at all, 2.) the basic idea of a civil society public beyond filter bubbles and echo chambers is appreciated and made possible, and 3.) the extraordinary, the deviant, the vulnerable are promoted as central moments of individuality and kept socially high, and we do not allow ourselves to be put to sleep by notions of normality that are imposed on us by large Internet platforms. Only with the necessary sensitivity to difference and self-critical tolerance of ambiguity will we remain data sovereign and free. Therefore, in order to survive well under the complex conditions of the Big Data, AI and machine learning age as an individual and as a society seeking plurality and social cohesion, we not only have to teach skills such as programming or media studies, but we also need to promote general judgement more than ever, especially in order to foster what is called difference competence and ambiguity tolerance. In short: classical education. I recommend: the Bible, Faust, mathematics and one or two foreign languages – oh, yes, and a friend called out to me: music, Peter, that appeals to cognition and emotion.

And I would not be a theologian if I were not deeply convinced that the religious culture of Christianity, of Churches and Christian theology could be an important inspiration to cultivate constructively, critically and sustainably the foundations of

our coexistence beyond technology, law and economy under the conditions of the Big Data, AI and machine learning. Finally, I would briefly like to mention three points in which I see public church, public theology and public Protestantism as well as public Catholicism on the agenda:

1. Churches should remember beyond the platform economy that they themselves offer a unique platform not only to celebrate faith, but also to actively participate in the search for public reason and public good: two thousand years in the unique combination of global-universal message and local testimony, which is not limited to cognitive, emotional, financial or political tribalisms.
2. Churches are one stakeholder among others in the shaping of public discourse in the onlife world. But from this shaping tradition and shaping power no entitlement for being privileged arises, but at best a prerogative of responsibility. This can be taken up by the idea that contrary to the tendency inherent in social media, in (my understanding of) the Protestant tradition, walls can be broken and emotions can be taken back and, for example, other religious cultures may be supported which up to now cannot refer to a quantity of experience in dealing with a complex and diversified society.
3. If coping with the onlife world is not only a matter of competences but above all of education, then Christian religious culture transports a treasure of resources for interpreting life style and life course, which under these conditions must precisely be spelled out anew and which in turn will also change the Churches. I will only mention it:
 - From the promise that man is nobilitized as God's image, but that God himself – spoken with Eberhard Jüngel – “may be recognized and witnessed as the mystery of the world,”³¹ follows the encouragement to understand analogously also the secrecy of every human being as a limitation of chargeability and to oppose all attempts to direct the communication of human beings alone under the condition of profit maximization driven by microtargeting.
 - From the sober anthropology that human being cannot finally complete his life out of himself, called theologically sin, a high sensitivity arises for the limitation, vulnerability and weakness of every human being (even if she celebrates herself as hero or doer).

³¹ Jüngel (2014).

- From the promise that exactly this “crooked wood” is promised from outside reconciliation and salvation, the insight is motivated that freedom must be realized and defended in relationship.
- From the belief in God’s greater faithfulness to the unfaithful man, who is believed to be greater than ever, the commitment to inclusion is strengthened, which does not exclude plurality, but allows for it within the limits of expanding solidarity and justice, and which is thus inspired by Jeremiah’s word that he addressed to the exile community in the foreign, pluralistic metropolis of Babylon: “Seek the best for the city!” (Jer 29:7)

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‘Worldmaking knowledge’ What the Doctrine of Omniscience Can Help us Understand about Digitization

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Drawing on the doctrinal lens of divine omniscience to conceptualize digital “superhuman knowledges,” Hanna Reichel uncovers common epistemological fallacies in contemporary discussions of digital technologies. Consequently call into question the assumption that privacy is the biggest issue raised.

1. Superhuman Knowledges – Convergences Between Divine Omniscience and “the Digital”

Like all looming yet unknown developments, the “digital age,” ushered in by the rise of information and communication technologies as well as momentous advances in computational powers, inspires both utopian hopes and dystopian fears. Tech pessimists paint apocalyptic scenarios of the dependencies, alienations, and incontainable dynamics associated with technological determinism, while tech-optimists herald the salvation of humankind which they see dawning in technological progress. Writers on different sides often invoke “omniscience” or attribute God-like qualities when referring to data-driven technologies.¹ Usually such invocations are rhetorical, dramatizing hyperboles that critique frightening powers that need to be contained.

¹ See recently e.g., Halavais (2018); O’Neil (2016); Zuboff (2019).

If we leave religious forms of “dataism” aside (which do exist, but that is a topic for a different day), we will presumably not see Big data enabled “knowledge” as divine or that God operates like a super-computer.² However, it is not farfetched to postulate that the digital age is an age of superhuman knowledge. While the relationship between data, information, and knowledge is a tricky and contentious one, machine-learning empowered “big data” analytics allows for both “more” and a different kind of knowledge than could every be accumulated (or understood) by human agents, whether individual or collective.³ In this sense, such “knowledge” may be seen as superhuman – “beyond the human,” even if not divine by any means – and even more so if we consider the powerful ways in which the application of such knowledge might augment and threaten human agency and amplify, limit, or transform what we conceive of as human freedom.

It is striking how many of the questions raised around data-based surveillance seem to be variations on themes that Christian theologians have wrestled with for centuries. Today we may ask, to what extent does data-based targeted advertising manipulate our purchasing behavior, desires, even our political choices? Calvin used to ask, how does divine providence guide and steer our actions and fate in mysterious ways according to a divine plan?⁴ Today we may ask, can algorithms read our minds and predict our behavior? Boethius would have asked, if God knows everything, can my choices be considered free?⁵ Today we may ask, do we want intelligent machines to track all of our movements, purchases, conversations, and behavior? And the Psalmist would have wondered, “you know when I sit down and when I rise up; you discern my thoughts from afar. You search out my path and my lying down and are acquainted with all my ways. Even before a word is on my tongue, behold, O Lord, you know it altogether. [...] Where shall I go from your Spirit? Or where shall I flee from your presence?” (Ps 139:2–7).

That digitization is in some (some!) ways comparable to divine omniscience is my working hypothesis, and the point of comparison, I will argue, is its world-duplicating character. In one of the most recent sociological analyses of digitization, Armin Nassehi defines the digital as “simply the duplication of the world in the form of data with the technical possibility of connecting data with each other, in order to

² Although there are interesting literary precedents, see Isaac Asimov, “The Last Question,” in Asimov (1993).

³ Cf. e.g. Taureck (2014).

⁴ Cf. Calvin Inst. I,16.

⁵ Cf. Boethius (1999), book 5.

re-translate them to particular issues.”⁶ Nassehi sees its unspecificity, or its universal applicability, to paradoxically be the *particularity* of the digital – a characteristic which, as he states, “up to date had been reserved for the presence of God and the use of writing.”⁷ Nassehi’s comparison may surprise, but the point here is that the digital is less like particular, specific technological innovations (think: steam engine, airplane, or telephone), not even like a technology underlying the widespread development of more technology (think: electricity). Instead, it is more like other translations or duplications of the world into discrete discourses, like money, like language, like the mind of God.

Language, already in its spoken form, has the same property of being ubiquitously applicable and effectively translating the world into text – even more so through writing, which creates a world of its own, an archive in which different independent items “have the properties of being mobile but also immutable, presentable, readable and combinable with one another.”⁸ In examining the world as text, writing refers to writing, establishes connections between writing and writing in the form of more writing, and generates new textual output which can be re-ascribed to the world. New insights about the world emerge not only through interaction with the world, but in the interaction between writing and writing. In some ways, digitization is but a radicalized form of writing – writing in a rigorously simplified and standardized language.⁹

Money is a similar medium: a formalized language which translates everything (everything!) into values that are commensurable and which therefore allow someone to calculate, aggregate, analyze, and cross-reference things which previously could not be put into a relationship. Money, just like writing, is a rendering technology that is universally applicable to anything in the world, creating a particular kind of shadow text of the world onto the world, on which operations can be performed that in turn

⁶ Nassehi (2019), 34–35, transl. HR. Nassehi’s broader thesis is that the digital in important ways is the culmination and logical consequence of modernity: Digital technology, which is the “counting, recombining of data, self-observation of initially invisible regularities, patterns and clusters” shows that indeed something like a unified society exists and is remarkably “inert, stable, formed, structured and predictable.” In this way, digitization is the fulfillment of modernity’s promises: the inclusion of the whole of society into its functional systems, equality with the possibility of individuality. The origin of the digital is not the invention of computers, it begins instead with statistics around “the centralization of rule in national states, the planification and management of cities, the necessity of the provision of goods for an abstract number of businesses, consumers and regions” at the end of the 18th century (62, see also 316).

⁷ Nassehi (2019), 35.

⁸ Cf. Latour (1986), 7.

⁹ Cf. Latour (1986), 16.

are non-neutral to the world itself. It duplicates the world without containing it while having real repercussions in it.

And God? In light of the parallels between digitization, writing, and money, it should be clear that the reference to God is not just a shallow allusion to the often invoked or even aspired ubiquity of digital technology. In traditional Christian thought, God's omnipresence and omniscience create a similar "film" on all of reality, an accompanying presence that pervades all contexts and adds an interpretive layer. In many more analytically inclined theologies, the mind of God is even understood as the perfect representation of all that is, all possible data in all meaningful relationships. It is the very definition of a data double of the world towards which digitization can only aspire. More than money or language, divine omniscience is therefore a strong conceptual parallel for the digital.

That is not to say that theology could comprehensively give an account of emergent technologies and the societal transformations in their wake – that would be absurd. But in the centuries of conversations about divine omniscience, theology may have developed conceptual frameworks which can provide helpful guidance in the interrogation of "the digital" today. On the other hand, examinations of "digital" issues may contribute important corrections for theological reflection. In what follows, I want to offer some *specific* ways in which drawing on theological discursive formations allow us to discern and hone important questions and contentions vis-a-vis digitization. Even if I can only cursorily treat them here, I hope these suggestions – tentative in nature and presumably in need of correction from experts in technology, philosophy of science, and sociology – open routes of conversation.

In a first part, I will sketch how parallels in the discussion of divine omniscience call into question two wide-spread (if not uncontested) assumptions about data-based knowledge: its objectivity and its neutrality. In a second part, I will build on these theoretical foundations and proceed to demonstrate how thought developed in the discussion of divine omniscience can illuminate why the contemporary focus on privacy is not enough: Privacy is incapable of accounting for deeper structural transformations through digitizations and therefore fails to address issues that emerge from them.

2. The Imperfections of Propositionality: The Objectivity Fallacy

2.1. Divine Perfections and Propositional Knowledge

Contemporary treatments of divine omniscience almost invariably start something like this: "Since omniscience is maximal or complete knowledge, it is typically defined in terms of knowledge of all true propositions."¹⁰ And the propositional model is very powerful, since it devises a universally applicable, abstract, and formalized structure which can be used to formalize truths and truth claims, distill them to the point of almost being able to calculate truth through all possible combinations of true propositions. The propositional approach, however, leads into unsolvable dilemmas when applied to divine knowledge.¹¹

Most importantly, it is typically understood to engender a difference between the thing that is known and the knowledge of it. A proposition is a formal entity derived by abstracting a specific property of some thing, rendering it into a specific form which is not the thing itself. The set of true propositions would thus be seen to create a kind of discursive shadow layer of the things it describes. Reality then exists twice: once as it is, and once in the form of true propositions about reality in the mind of God.

This creates a further, and – for the theologian – even more problematic difference: a difference *in* God: between the essence of God and God's knowledge. The essence of God, according to classic¹² theistic conceptions is simple, unchangeable, and eternal – but God's knowledge, if made up of propositions, would be composite. It would also be either temporal or at least temporally indexed, since propositions about future events only acquire a truth status, and therefore only enter into the realm of God's knowledge, with the passing of time.

These issues illustrate why classical theologians have actually typically not understood God's belief to be propositional. If God is thought of as absolute simplicity, then

¹⁰ Examples abound. This one is from Wierenga (2018).

¹¹ It is impossible to discuss them in the scope of this paper, but some of the issues involved pertain to propositions about future events (given that in most temporal ontologies, the future does not [yet] exist and therefore has no truth value, distinctions between knowledge *de dicto* [established in the discursive dimension] and *de re* [as pertaining to the concrete particular objects statements refer to], and distinctions of first and third person knowledge).

¹² This shorthand is problematic for several reasons, but I will use it in this paper for the sake of brevity in order to refer to thinkers who share a certain trajectory of theological thought in which God is understood as perfect being and attributes of God are developed philosophically out of this principle. The canonical formulation of the principle was coined by Anselm of Canterbury, who characterized God as "a being than which nothing greater can be conceived" while Thomas Aquinas may be seen as the most eminent theological systematization along these lines. See Anselm (1962); Aquinas (1964).

there can be no distinction between God, God's knowledge, and the objects of God's knowledge. God's knowledge has to be immediate and intuitional rather than propositional and indirect; there can be no "detour" of propositions or other medial translations/duplications. Brought to its logical conclusion as in Thomas Aquinas, this means that God's knowledge can only be God's own essence and the knowledge of the world simply has to be inscribed into God's knowledge of God's own will.¹³

From the tensions created in the doctrine of God, theologians have inferred more generally: "It seems plausible to suppose that the propositional character of human knowledge stems from our limitations. Why is our knowledge parcelled out in separate facts? [...] First, we cannot grasp any concrete whole in its full concreteness, [...] Second, we need to isolate separate propositions in order to relate them logically, so as to be able to extend our knowledge inferentially."¹⁴ Propositional knowledge can never be *perfect* knowledge and has therefore not traditionally been adopted to conceptualize divine omniscience – it is too indirect, too mediated, and too much reliant on a logical or proto-linguistic structure, and it therefore fails to be comprehensive, unbiased, and objective.

2.2. The Interpretive Character and Epistemological Closure of Digitization

What does this insight from the doctrine of God yield for assessing "the digital"? Well, the digital is the epitome and radicalization of the propositional form – with all its limitations. Working off Nassehi's above mentioned definition, the digital is not so much a new technology as a formalized mediation of the world, a mode of *reading* the world. It renders the world into data, duplicating it, producing a discursive world of its own. This duplication entails both a simplification and a complexification. It is clearly a simplification because in order to produce data, a reduction is necessary, a concentration on certain aspects which are then (re)presented in form of data. It is the divestment of information about the world that makes the incommensurable commensurable, allowing for the computability of the world.¹⁵ The digital form is in

¹³ Aquinas (1964), Ia, Q 24, art. 14: "He sees himself through His essence; and He sees other things not in themselves, but in Himself; inasmuch as His essence contains the similitude of things other than Himself." God's knowledge is always knowledge of Godself. And through contemplation of his own substance etc. he has knowledge of us. See also Q2, art 12, reply to obj.11 "It is true that God knows nothing outside Himself if the world outside refers to that by which He knows. However, God does know something outside himself if this refers to what He knows." For further elaboration, see Stump (2003). On the incompatibilities between divine omniscience and the contemporary assumption that knowledge is propositional, see Rogers (2000), esp. 71–76.

¹⁴ Alston (1987); reprinted in Alston (1989).

¹⁵ Nassehi (2019), 84.

fact ingenious in maximally reducing the complexity of information to a binary signal – 0 or 1, off or on – or any combinations of such binary signals which may be long, but remain simple, and are therefore easy to store, transmit, and read. This is the promise of the digital: that because of its reduced and computable form, it is both universally applicable and highly efficient.

This simplification is however an operation which generates complexities. Data – despite what the name might imply – is of course never simply “given” but has to be generated through a process that involves complex hermeneutic operations: “Raw data is an oxymoron.”¹⁶ The process of abstraction and reduction that “gives” the world the form of data rests on interpretive processes: what is established as the object of measurement, as what any given instance “counts,” when it starts counting, and so forth. Categories and types have to be imagined according to which things are then counted. Seemingly objective data has to be produced through highly subjective processes of observation – regardless of whether the observer is a human being or a sensor – “the perception of the world and the processing of information is primarily discernment of patterns, where the patterns are less inherent in the object itself, and more in the object-ivity (*Gegenstaendlichkeit*) generated through perception.”¹⁷

The resulting data is a construction, a creation: new entities which exist as supposed duplications of reality – the world in the form of data. Information is translated into a homogeneous medium of signals which allows for the drawing of relations between hitherto incommensurable things. In order to derive information from such data, an active process of generation of information out of signals takes place, not a mere passive reception.¹⁸ As is well established in information theory, interpretation is not only irreducibly involved at the sending, but also at the receiving end of communication. Contrary to naive (or programmatic) tech optimist beliefs, data can never “speak for itself”¹⁹: “working with Big Data is still subjective, and what it quantifies does not necessarily have a closer claim on objective truth.”²⁰

In this process, belief plays a decisive role. Scholarly definitions see Big Data not only as a technological phenomenon, but as a complex “cultural, technological and scholarly phenomenon that rests on the interplay of 1) Technology: maximizing computa-

¹⁶ Gitelman (2013). Cf. also Niklas Luhmann, “Giving form is a discerning, and discerning is an operation.” Luhmann (1993), 199.

¹⁷ Nassehi (2019), 73.

¹⁸ Cf. Shannon (1949).

¹⁹ Anderson (2020).

²⁰ Boyd and Crawford (2012).

tion power and algorithmic accuracy to gather, analyze, link, and compare large data sets. 2) Analysis: drawing on large data sets to identify patterns in order to make economic, social, technical, and legal claims. 3) Mythology: the widespread belief that large data sets offer a higher form of intelligence and knowledge that can generate insights that were previously impossible, with the aura of truth, objectivity, and accuracy.”²¹ The mythology is actually instrumental in *making the promise true* as it drives a self-reinforcing cyclical process: The belief in bigger data sets will facilitate the spread of the technology (1) which will enhance the pattern detection in the analysis (2), thus further strengthening the conviction that large data sets generate superior insight.

The theological tradition can prompt us to take any claims of objectivity of data-driven approaches with a grain of suspicion. To be clear: The issue with the digital here is not (primarily) that it is quantifiable or reductionist, but that it is invariably epistemologically closed: “Data duplicates the world, but doesn’t contain it.”²² The world outside of data only comes into view *in and through* its representation by data. Data science can only find patterns in the data it recombines, aggregates and cross-references, not in the world itself. Only data-oid things enter the calculation, and the patterns that are produced in this process are properties of the data, not of the world. The digital shares the paradox of all signals, which come to stand at the same time for themselves and for that which they signify. Just like perception, data is not the world nor does it objectively represent the world, its function is rather the “testing of hypotheses about the world.”²³ The propositional form is not the only way to think about knowledge, and is in fact one that is interpretationally quite “productive” – which leads to the fallacy discussed in the next section, the “non-neutrality” of digitization: It re-makes the world in the particular form of propositional statements.

Before launching the next section to explicate this “productivity” of technology and why therefore the neutrality view of technology is a fallacy, I want to earmark for further theological discussion that when we compare recent propositional accounts of divine omniscience with the classical conceptions, we might actually see the beliefs driving the digital age re-infiltrating theology. Defining divine omniscience as knowledge of all true propositions which effectively duplicates the world into a “mind of God” is quite a recent invention, and it may not be a coincidence that its spread goes hand in hand with the rise of “the digital age.”²⁴ What presents itself as an objective,

²¹ Boyd and Crawford (2012).

²² Nassehi (2019), 106–7.

²³ Nassehi (2019), 73.

²⁴ Especially if this digital age is as broadly construed as by Nassehi, see above FN 6.

general model of knowledge may in fact be quite contextual to the specific branch of modernity we live on.

3. Worldmaking Beyond Manipulation: The Neutrality Fallacy

3.1. Real-World Effects Under the Neutrality Assumption: Knowledge is Power

Not only does digital propositionality fail to achieve perfect knowledge, it is *also* not neutral – which I want to explicitly distinguish from “not objective.” Digitization does not just add an external interpretive layer to reality which remains external to reality while leaving it untouched – as the propositional form did. Digitization also alters the reality which it only pretends to represent. Whereas non-objectivity points to the inevitably interpretational nature of digitization, non-neutrality points to its real-world effects: what Foucault would have called its productivity.

Of course most people are aware that digitization has real-world effects, and that such effects could be judged to be positive or negative. There are those who think that digital technologies hold the key to everything good: progress, economic growth, personal enjoyment, convenience, self-perfection and enhancement, and that they will usher in a new age with unprecedented possibilities through more precise knowledge, increased efficiency, and better tailoring of technological solutions to cure all of society's ills. There are also those who call out the way in which digital technologies generate social alienation, replace whole employment sectors, amplify bias, or facilitate oppression or even totalitarianism through corporate power, political manipulation and control of individual behavior as well as societal processes.

However, most people will lean towards the seemingly more balanced assumption that technology *as such* is neither good nor bad *in itself*, but that it has to be judged according to the uses it is put to, in short, that it is, in and of itself, neutral. Knowledge is power: It enhances the possibilities of the wielder to achieve their aims, but whether it is good or bad depends on the use it is being put to. Such an assumption rests on an *instrumental view* of technology. The instrumental understanding views technology – from its simplest to its most sophisticated forms – as a tool. A tool, like a hammer or a knife, is not good or bad in and of itself, but has to be judged according to the end to which it is put, the intentions with which it is applied, the outcome, and the consequences its application engenders. A hammer can be used to build a shelter or to break a person's skull. Data analysis can be used for racial profiling as well as for life-

saving medical diagnostics. Knowledge derived from social media data can be used to manipulate elections as well as to facilitate grassroots organizing. And so on.

This view of technology is not completely wrong of course (I do not deny moral accountability for the way individuals, institutions or corporations use either hammers or data analysis), but it is incomplete. In the 1980s, Melvin Kranzberg, one of the 20th century's most important historians of technology formulated what has become well-known since as Kranzberg's first law of technology: "Technology is neither good nor bad; nor is it neutral."²⁵ Kranzberg saw the need to take into account "the utopian hopes versus the spotted actuality, the what-might-have-been against what actually happened, and the trade-offs among various 'goods' and possible 'bads'" as well as "how technology interacts in different ways with different values and institutions, indeed, with the entire sociocultural milieu."²⁶ These broader factors would make any judgment more ambivalent – differing effects come together without cancelling each other out, which yields an uneasy, "it's complicated."

In practice, this version of non-neutrality usually evolves into a view of technology as "benign, if regulated": The technology as such will continue to be seen as ambivalent in its effects but in itself morally neutral. This means it could potentially be used for good; the issue becomes discerning where to draw the line between good applications and problematic applications. This is an important task, and it will legitimately take up the bulk of ethical and legal reflection on emergent technologies.

I am not an ethicist or a politician. Others are better qualified to assess the moral quality of potential effects and to develop regulatory frameworks. As a *systematic* theologian, my relevant expertise may instead lie in assessing the more general differences a difference in the structural architecture of any "system" makes. I am therefore interested in the non-neutrality of technology even "before" any of its applications.²⁷ I want to examine the *specific ways in which* technology is non-neutral, i.e., the broader transformative power of the technology under question, or what Foucault would have called its productivity. How digitization changes the nature of the problem – this non-neutrality has to be distinguished from the moral neutrality or non-neutrality of its uses.

²⁵ Kranzberg (1986), 545.

²⁶ Kranzberg (1986), 547–48.

²⁷ Again: This line of questioning should not at all prevent ethicists and lawmakers to inquire into the moral quality and desirability of intentions, effects, ends, and results in the application of technology, and to develop frameworks for their deployment which would limit "bad" uses and allow for "good" uses. All of these questions obviously *still* stand on top of the non-neutrality in the "productivity" of technology that I focus on here.

3.2. Divine Omniscience: Power is Knowledge

In divine omniscience, we do find views corresponding to the more instrumental understanding such that God uses God's knowledge to *influence* the course of events. In these accounts, God is an agent who interacts with history like others, and God's knowledge enhances God's power in the same way as technological tools enhance human abilities to achieve their intended aims. Like in a game of chess, God's intricate knowledge of the game and the other players gives God a unique and decisive advantage.²⁸ If knowledge is power, then more knowledge is more power, and omniscience evokes omnicompetence (if not outright omnipotence). So far so good, so unspectacular.

What should give us pause is that the instrumental view of knowledge is not the primary angle on divine omniscience in the tradition, and that theologians have seen human freedom as seriously threatened by omniscience even though *abuse of power* is not a common worry raised with regard to God. Nevertheless, theologians have raised contentions with regard to divine omniscience based on the *control* it exerts or might be thought to exert to the verge of determinism. What we could learn from theology is that the moral non-neutrality of the effects of superhuman knowledge might not be the only or indeed the most fundamental non-neutrality involved. We need to think about the "productivity" of technology, beyond – or before – the question of its right use.

From divine omniscience we learn that not only is knowledge power, but more importantly: Power is knowledge. Divine omniscience is not only a tool that would intervene in the world in this way or that, instead, it forms the world itself according to its image. Not only is there nothing that exists that God doesn't know, without divine knowledge of it, there wouldn't even *be* a world.

Theologians have argued over the centuries whether God's eternal decree to create the world precedes God's knowledge of the world, or the other way around. In the first case, God knows the world infallibly *because* God willed all of reality into being. What is true is then true because God willed it to be, and God knows God's will. To stay with the game metaphor: God invented the game, laid down the rules, and designed the characters playing it. Since God is in control of the game as its creator from

²⁸ The chess metaphor is one that is prominently used by proponents of "Open Theism," who understand omniscience in a similarly secondary/world-neutral way as the instrumental view of technology would, cf. Sanders (1998). Precisely in order to prevent the challenges to human freedom posed by classical theism, they have scaled down omniscience to complete knowledge about the past and the present in propositional form, not including the future and not taken into account important complexities this tradition has generated.

eternity, God already knows the outcome – no wonder that under these assumptions theologians have invariably run into dilemmas between divine foreknowledge and human freedom.²⁹ Even if this conception sees God’s knowledge as *reflective* of being, not causative thereof, the fact that God knows things to be true infallibly from eternity basically precludes their ability to be otherwise.

In the second case – as prominent thinkers have stipulated – God’s knowledge actually *causes* the world to be. This even more clearly “productive” understanding of divine knowledge can be summed up as follows: “God’s power is His knowledge. He creates by thinking. Whatever is sustained immediately by the knowledge of God. [...] The mirror passively reflects the objects present. God’s knowledge produces them.”³⁰ In that case, there is no difference, no double text, because the world that exists *is* the world in the mind of God.³¹ “Esse is percipi”³² – to be is to be perceived, or: it is God’s knowledge that sustains reality in being.

Whether God’s knowledge is seen as *causative* of the world, or whether it is understood to *reflect* God’s will that brought forth creation, theologians have usually agreed that God’s knowledge of the world ontologically precedes its existence, and that divine knowledge and power are co-constitutive, co-extensive, and identical with God’s essence³³. In other words, we do not need to learn from Foucault³⁴ that knowledge is not just an instrument which confers power over a world, but that power is what generates knowledge and gives it its particular shape.

3.3. Digital Game-Changing, or...: Towards a Computational Ontotheology?

Doctrine can teach us that at the intersection of power and knowledge, manipulation or abuse is *not* the only issue. With the “mind of God”, the productivity of the data double is immediately apparent, in the case of technology, the productivity may not be quite as crass. But even if the technological knowledge of the world does not create the (whole) world itself, it is still clearly non-neutral to it.

²⁹ And indeed, this dilemma has been at the forefront of debates from Boethius through Calvin to Open Theism. See e.g., Zagzebski (1991), as well as the very helpful dialogical overview of contemporary positions in Beilby and Eddy (2001).

³⁰ Rogers (2000), 75.

³¹ See also in modern times Schleiermacher (2016), § 55, 219–228.

³² Berkeley (1710), often slightly inaccurately reported as “esse est percipi”.

³³ Rogers (2000), 71.

³⁴ See e.g. Foucault (1978) and *Two lectures on Power/Knowledge*, in: Foucault (1980), 78-108.

These insights apply therefore even when most data is actually not collected in order to *manipulate*³⁵ anyone (in the sense of: moving them towards doing something specific against their will or natural inclination), but to *control* behavior, i.e., to make it readable and predictable, to account for every variable in it, and to expand the duplicate data world. The latter may even be the most decisive factor because it draws on a self-reinforcing loop: More data generates more power because it generates more reality: First, it expands the shadow universe, not only by adding the respective individual items of data to its archive, but also by in this way expanding it with an infinite number of additional possible combinations, correlations, predictions and inferences which in turn yield a lot of additional data, therefore further augmenting the duplicate text.

Second, it expands the real world: Digital technologies do not just generate a shadow text that is external to the world. Like with writing, the generated text is in the world as more concrete objects and artifacts – data, code, algorithms... – which are not just an interpretive layer on reality, but objects with which the “original” world itself then interacts. While the world is duplicated into the digital without being contained in it, the digital itself is in fact contained in the world, populates it, and becomes a part of the world itself and establishes its own materially, socially and culturally relevant relations in it.³⁶

The duplication into data generates a version of the world in which both problems and their solutions can be precisely described. This is in fact the appeal and the promise of the digital, what makes it so efficient – that its reduced and computable form allows it to discern relationships in the data of the duplicated world, to perform operations on it in the form of aggregation, cross-referencing, analysis, at the end of the day in the hope of managing the world which it describes. “The paradox situation ensues that the border between them *cannot* be overcome, but in practice always *is* overcome.”³⁷ Technologies of knowledge are not neutral to the world they describe – they are involved in “the reality business.”³⁸

Continuing in the game metaphor³⁹, we can describe the non-neutrality of technology as follows: Technology is not neutral not because it produces good or bad game moves

³⁵ And again: Of course, there are plenty of examples where manipulation and abuse *are* real issues, and they should of course be addressed. I focus here on the productivity of technology that is there even beyond or before any abuse.

³⁶ See e.g., Presner (2010), Berry (2011) about different waves of digital humanities.

³⁷ Nassehi (2019), 112.

³⁸ Zuboff (2019), chap. 7.

³⁹ The game metaphor is used by Foucault for “a set of rules by which truth is produced. [...] it is a set of procedures that lead to a certain result, which, on the basis of its principles and rules of procedure, may be considered valid or invalid, winning or losing.” (Foucault [1997], 297).

or because it makes good or bad people win the game, but insofar as it puts new pieces on the board within the game, manufactures the board on which the game is played, and fundamentally alters the rules according to which the game is played.

Tech optimists and pessimists alike point to the deeply transformative effects of technology, effects that extend beyond the good or bad intentions of those who apply them: “Change the instruments, and you will change the entire social theory that goes with them.”⁴⁰ Part of the game-changing nature pertains to the change of the very criteria for what can become objects of knowledge: They change “the standards governing permissible problems, concepts, and explanations” as well as “the institutional and conceptual conditions of possibility for the generation, transmission, accessibility, and preservation of knowledge.”⁴¹ Technologies of knowledge do not just expand the range of possibilities to whoever is in control of these knowledges; extant power structures shape the processes and technologies of data extraction and determine what becomes knowledge – an observation from the non-neutrality of technology which adds another aspect to the non-objectivity discussed earlier. Technologies of knowledge engender certain kinds of power relations and certain kinds of subjectivities through the way they mediate reality.⁴²

As technologies change the ways we view the world, the way we interact with it, and the ways we make decisions, they engender and shape epistemic possibilities as well as conditions of freedom. “As the advantages of the computational approach to research [...] become persuasive [...] the ontological notion of the entities they study begins to be transformed. These disciplines thus become focused on the *computationality* of the entities in their work.” Berry even goes so far as to stipulate: “Computationality might then be understood as an ontotheology, creating a new ontological ‘epoch’ as a new historical constellation of intelligibility.”⁴³

The doctrine of omniscience can direct our attention to the fact that technologies of knowledge production are non-neutral to the world because they change the rules of the game. In the next part, I will address more concretely some of the particular *ways in which* digital technology is non-neutral, and what different kinds of issues come into view once we take seriously this non-neutrality. In particular, I will argue that the contemporary focus on issues of privacy fails to take into account the non-neutrality

⁴⁰ Latour (2010), 155.

⁴¹ Presner (2010).

⁴² This is a huge aspect. Several chapters in my upcoming book on “Political Theologies of Omniscience” are dedicated to this insight.

⁴³ Berry (2011), 12. See also Bollier (2010).

of digital technologies and how it is therefore completely unable to track and account for crucial emergent issues.

4. The Privacy Fallacies

4.1. Why Privacy is not *the* Problem

In an age where all of our movements, purchases, interactions, and behavior leave data traces that can be stored, aggregated, analyzed, and not least: sold, privacy has been a major concern, and rightly so. But our consideration of debates in divine omniscience could flag to us that privacy may not be the only or even most important issue at stake here.⁴⁴

In what follows, I will argue that the contemporary focus on privacy in discussions about the power of data fails to get at the central problems of digitization. Privacy may remain *an* important problem in the digital age, but the focus on it is misguided because it works with categories that originate in a different world: a surveillance that is interested in individuals. In this well-known world, I watch you, I know what you did, and I can potentially use that knowledge against you. If the observer possesses some kind of power and/or authority, whether it be that of a tightly-knit moral community, a religious institution, a law enforcement agency or a totalitarian state, the infringement of privacy will undermine the conditions of the possibility of important aspects of personal freedom. Let's call this type of surveillance "disciplinary surveillance": surveillance which is conducted on individual or collective subjects to track and flag, punish, or discipline *individuals* and prevent their misbehavior or misfitting of some kind.⁴⁵

In a context of disciplinary surveillance, it is obviously crucial to protect individuals – and, importantly, not only people "who have something to hide"⁴⁶ – against intrusive,

⁴⁴ Cf. Lyon (2010), 13: "privacy is not the most significant casualty."

⁴⁵ I treat this model here only in passing to signal how the kind of surveillance investigated in this article differs. For a thorough discussion of the issues involved in "disciplinary omniscience" as well as its variation "performing omniscience", see the respective sections in my forthcoming book, "Political Theologies of Omniscience."

⁴⁶ The statement "He who has nothing to hide has nothing to fear" is often used to claim that any regular and honest Joe need and should not worry about sharing personal information with third parties. This is more than naive already within the paradigm of "disciplinary surveillance." Not every "hiding" is due to shame or guilt from wrong-doing. Minorities, especially where oppressed politically, have always known that the "they who have nothing to hide have nothing to fear" slogan might at best be true in an unbiased, egalitarian society etc. Furthermore, there is nothing criminal, let alone evil, about pregnancies, mental health issues or sexual orientation, but we may easily concede that people may have legitimate interests in "hiding" such information, if only because other people's knowledge about

manipulative, and oppressive forms of surveillance. We continue needing to draw the line with regard to excessive collection of data, especially of sensitive data. All of this *remains* true where this model of disciplinary, subject-based surveillance is enhanced by means of technology, e.g. where a human police agent is complemented or replaced by video cameras and further supplemented by a host of data- and meta-data tracking technologies. Obviously, this problematic dimension is all but exacerbated as technologically facilitated collection and analysis of personal data *further increases* spread, invasivity, and ubiquitous presence of tracking technologies.⁴⁷

But *this* problematic dimension is nothing that is *specific* to “the digital.” On the other hand, the specifics of “the digital” generate a range of problems which *cannot* be approached through the paradigm of personal freedom and privacy protection commonly invoked in “disciplinary surveillance.” In this sense, this is a good example for what I described as the “non-neutrality” of technology in the first part of my contribution: The focus on privacy fails to grasp the ways in which digital technology not only “replaces” earlier instruments – like an electric drill might replace a screwdriver –, but alters the structure of the problems, i.e., it fails to take into account the fundamental non-neutrality and productivity of the technology which I work out above. *The digital is fundamentally agnostic with regard to concrete individuals*. It is only interested instead in what Deleuze has called the “dividual.”⁴⁸

The focus on privacy is not enough because it is constitutionality unable to attend to the substantial paradigmatic transformations through digital technology: It fails to attend to the agnosticism of algorithms with regard to individuals.

Alas, privacy has not been a central preoccupation for theologians. As witnessed in the occasional anguished protest “where can I flee from your presence?” (Ps 139:7b, NRSV), the theological tradition does have an understanding that “too much” divine

such facts might lead to negative consequences. Even where no systemic concerns can be cited, such a view is problematic because it reverses the burden of proof as it turns every one into (potential) criminals who then have to prove their “innocence” rather than the other way around.

⁴⁷ As a side note – privacy may even be complicit to the problem it presents itself as solving: privacy has always been a function of control and the result of technologies of truth production and confession (cf. the work of Michel Foucault, esp. in Foucault [1990] : *The Will to Knowledge*, and Foucault [1978]) The clear boundary between public and private space which we have grown accustomed to see as a safeguard of self-determination and individualism is a very specific development of the bourgeois society and has always been deeply involved with highly normative and normalizing processes (cf. Nassehi [2019], 311, who even suggests that modern privacy is the effect of a certain strategy of data analysis. Some of the developments of the digital age may prompt us to even reconsider our infatuation with privacy – it itself may be more the correlate of a specific historic constellation of normalizing power than an inherent “human need.”

⁴⁸ Deleuze (1992).

presence and knowledge can be unbearable for the human being. But mostly, theologians wrestling with divine omniscience have been concerned with securing divine perfection while wanting to uphold a notion of human freedom in service of ethical accountability. Can conceptions developed in this vein yield insight for the decisive difference, the specific non-neutrality of the digital that is marked by agnosticism vis-a-vis the concrete individual? Counter-intuitive as it may seem, I answer yes. In what follows, I will substantiate this claim further and demonstrate more concretely how the digital agnosticism vis-a-vis the concrete individual renders approaches from data protection to data sovereignty essentially ineffective in addressing the changed problematic structure which digitization engenders.

4.2. Middle Knowledge

Disciplinary surveillance, as briefly sketched above, was centrally concerned with the individual – e.g., the police officer would follow you to establish your typical behavior, or would listen in on your conversations, and then deduce conclusions about the likelihood that you committed a crime. The information collected from an individual was typically used to infer something about this *same* individual. This seems trivial, but it is precisely this logic that the digital moves beyond.

In terms of divine omniscience, the “disciplinary” paradigm would see God as a perfect observer who knows what you did *after* you did it *because* you did, and who would take some appropriate action, potentially: reward or punish you for it.⁴⁹ While theologies along these lines exist, such a notion seemed highly inappropriate to the classical thinkers *both* with regard to divine perfection *and* to human freedom. If God only knows *fait accompli* what humans chose to do, then divine perfection would be significantly compromised. Additionally, it would essentially mean that God’s own choices are limited by the free choices of human beings, and that God would be essentially (if partially) determined by the choices of human beings – another inconceivable notion for classical theologians. In order to avoid these issues, theologians stipulated that God’s knowledge therefore cannot *reflect* lived reality; instead, such knowledge has to be drawn from God’s knowledge about Godself.

⁴⁹ This model has of course been highly influential historically as well as in the present. I have argued elsewhere that panoptic surveillance – from Bentham’s prison to the emergent Chinese social credit system – “translates” this theology into a social management system. There is much to say here, but the conversation with this kind of theology and this kind of surveillance is beyond the scope of the present paper.

An ingenious solution to this dilemma was proposed by the Jesuit theologian Luis de Molina and has become known as “middle knowledge.”⁵⁰ It expanded the scope of God’s knowledge beyond the two “kinds” stipulated by Thomas Aquinas: *Natural or necessary knowledge* is what God knows prevolitionally, i.e., by God’s very nature, “before” God’s choice to create the world. Such natural knowledge includes metaphysical truths, logical truths, basically to all that could not have been different from the way they are. Secondly, *free or contingent knowledge* refers to what God knows (still in eternity, but) “after” God’s choice to create, based on that choice. The content of this knowledge is contingent – it could have been different if God had chosen to create a different world or no world at all. Still, given God’s choice to create, free knowledge is infallibly true, since God from eternity knows God’s choice to create *this* particular world. While natural knowledge is metaphysically necessary, free knowledge also becomes necessarily true after the condition upon which it hinges obtains. E.g., as God chose to create *this* world, Socrates is a bachelor, which potentially could have been otherwise but now is in fact (irrefutably, but contingently) true; whereas there is no world in which “all bachelors are unmarried” does not apply, because it is a logical truth. But if God chose to create the world in which Socrates is a bachelor, and therefore there is no world in which Socrates is married, how can we understand Socrates’ decision to remain unmarried as a free choice? If Socrates could have chosen otherwise, he would essentially have dictated God’s choice to create, if he could not have chosen otherwise, how can he be understood as free?

Luis de Molina presents middle knowledge as an option that does not see divine omniscience and human freedom as a zero-sum-game. Middle knowledge is prevolitional like natural knowledge in that it does not depend on God’s choice to create, but its content is contingent in that it refers to everything people would (hypothetically) do when put in specific situations. That is, God’s knowledge does not only include necessary truths as well as past, present and future, but it contains so-called “counterfactuals of creaturely freedom,” which refer to what a free creature would have chosen freely in any set of circumstances. God knows all these conditional contingents, all these “possible worlds” – to use a common shorthand – prevolitionally and *then* decides which world to actually create. Not only does middle knowledge not take anything away from divine knowledge, it even adds the realm of possibilities to it. At the same time, divine knowledge does not infringe on the human ability to decide freely – i.e.,

⁵⁰ Cf. Molina (1988) See also the excellent introduction of Alfred Freddoso in the same volume. For a contemporary Molinist position, see Craig (1991).

neither does it determine the choice itself, nor does it take away the possibility that the person could have done otherwise.

It is important to note that God doesn't know what God knows about your choices *because* you chose – remember, as sketched earlier, that according to tradition God's knowledge belongs to God's eternal essence and can therefore not be dependent upon something a creature does or doesn't do. God instead knows your essence and what you *would* do freely under any potential set of circumstances *were* they to obtain – and then decides to actualize one of these sets of circumstances. You then choose freely what God already knew you would choose freely without *making* you choose this way. Still, nothing will happen that God did not already *know* from eternity. From all the potential versions of you that exist in parallel worlds of potentiality, God chose to actualize this one at this particular set of circumstances which only the “you” in the actualized world inhabits.

4.3. The Digital as Technologically Realized Middle Knowledge: A Case Study

Middle knowledge seems like a highly speculative theological category. But it offers our best theological analogy for particular properties of the statistic principles behind data-based knowledge and the ways in which it is non-determinative of human freedom while still being predictive. Middle knowledge was able to secure both divine omniscience *and* human freedom by being fundamentally agnostic to the reality-status of any given world – by expanding God's knowledge to all possible worlds and only therefore, almost coincidentally, including the knowledge of the one actual world which we now find ourselves inhabiting. And here is the parallel to the digital: Data analysis does not rely on the pertaining of information to actual existent, particular individuals but rather to statistical “types,” and then actualizes these types by applying them to concrete individuals.

Identifying the precise sets of circumstances to determine which option will be actualized in any concrete case is at the heart of statistic prediction. Where in middle knowledge, God knows what Peter *will* choose to do under specific circumstances because God knows what Peter *would* have done in all possible circumstances, data analysis today knows what people who are in significant ways *like* Peter *have* done under the same circumstances and will therefore predict what *Peter* would do in these same circumstances – thus potentially giving interested parties possibilities to act upon actualizing or not actualizing the set of circumstances under which Peter would choose the

action in question. Instead of possible worlds, we have statistical correlation, instead of counterfactuals of human freedom, we have typologies.

In the most general way, the rendering of the world in the form of data serves to facilitate the detection of relations of probability and distribution. The discernment of patterns that is characteristic of this process goes hand in hand with the development of types and typologies. In fact, the typologizing power is often seen as the crucial characteristic of what has become known as “big data” technologies: “Big Data is less about data that is big than it is about a capacity to search, aggregate, and cross-reference large data sets.”⁵¹ In so doing, “digital observation of the world is not primarily concerned with individuals but with certain types: with the discernment of typologies.”⁵² Data science is fundamentally agnostic with respect to concrete individuals: It aggregates data across different subjects, files it under categories and labels that run across individuals, and then discerns patterns that emerge across a range of individuals. This makes it highly effective at predicting the actual characteristics pertaining to concrete individuals, while not taking anything away from their theoretical freedom to choose otherwise. “Big Data doesn’t create social groups, but statistical groups.”⁵³ From data collected about *other* individuals, analysts are then able to make inferences about specific individuals whose data may not even be part of the originally analyzed data set.

Let me spell out these points drawn from the analogy with middle knowledge by way of an example. In a recent study, researchers developed an intelligent model which on the basis of Facebook Likes is able to discern an individual’s character traits with a higher degree of accuracy than people who know the individual personally and well: “computer models need 10, 70, 150, and 300 Likes, respectively, to outperform the average work of a colleague, cohabitant or friend, family member, or spouse.”⁵⁴

It started when doctoral students developed the myPersonality App, which presented itself to the user as an innocuous device for a fun gamified self-test with personalized feedback. Users could opt-in to share their Facebook profile data with the researchers, who in return proceeded to compare the results with all sorts of other data on the subjects: their likes and posts as well as their publicly visible self-reports on gender, age, residence, etc. The app was widely used and shared, and by 2016, the database

⁵¹ Boyd and Crawford (2012).

⁵² Nassehi (2019), 58.

⁵³ Nassehi (2019), 302.

⁵⁴ Youyou, Kosinski and Stillwell (2015), 1037. Similar models have been developed on the basis of Twitter data, see Golbeck u. a. (2011).

contained more than six million personality profiles plus the data of four million individual Facebook profiles.⁵⁵

This data treasure allowed the model to detect correlations and patterns in order to accurately predict a wide range of personal attributes beyond what people had disclosed, and which they presumably would not have guessed to be revealed by the data they had supplied: factors such as age, gender, sexual orientation, race, religious and political views, intelligence, personality traits, but even happiness, drug use, and parental separation.⁵⁶ With only 68 Facebook Likes of any variety, the model is on average able to predict skin color with a 95% accuracy, similarly sexual orientation, political affiliation, religion, whether your parents have been divorced while you were still underage, and how much alcohol you consume – even if these ‘likes’ may not explicitly connect to these criteria, at least by the best human guesses.⁵⁷ Consequent research showed that on the basis of the aggregated data, the model was also able to predict real-life outcomes and other behaviorally relevant traits better than human judges.⁵⁸ Does the computer model involved actually “know” you or me better than our colleague or family member does? Of course not. All it does is compare us to people who share some of our characteristics and/or some of our ‘Likes’ and predict how we might be similar to them in other ways, as well. It is therefore able to “predict” with high degrees of accuracy traits which we have not explicitly chosen to share. This case study can demonstrate how the privacy paradigm, which presumes that individual freedom will be upheld by the protection of sensitive personal information, fails, and fails radically, because:

1. we don't understand our data – we have no idea what *other* personal information might be drawn from the data that we chose to share;

⁵⁵ “Suddenly, the two doctoral candidates owned the largest dataset combining psychometric scores with Facebook profiles ever to be collected.” Grasseger and Krogerus (2017). It became a unique source of psychological data for further research for testing and validating new models of predicting personality data which could always be run on samples of Facebook data. Facebook uses such findings for marketing purposes. It has become common knowledge by now that the personality analysis under review here was highly influential in the 2016 US presidential electoral campaign, see Grasseger and Krogerus (2017).

⁵⁶ Kosinski et al (2013).

⁵⁷ E.g. individuals with parents who separated have a higher probability of liking statements preoccupied with relationships, such as “If I’m with you then I’m with you I don’t want anybody else.” Similarly, the model established that high intelligence could be predicted from ‘liking’ Curly Fries even though “there is no obvious connection between Curly Fries and high intelligence.” “Even knowing a single random Like for a given user can result in nonnegligible prediction accuracy” (Kosinski [2013], 5803,5804).

⁵⁸ Kosinski et al. (2016), see also Youyou, Kosinski and Stillwell (2015).

2. the knowledge *about* us is not based *on* us – and we have no way to protect ourselves against predictions about us on the basis of *other* people’s data;
3. the prediction participates in the production of the future.

4.4. The Illusion of Data Protection I: You don’t Understand Your Data

The first thing that we can see from this model is that data protection won’t “fix” or even address the issues that are most particular to the digital age. For data protection and privacy to be effective, especially in the form of individual conscious choice what data to share with whom, the individual needs to be able to have an understanding what information about them might be inferred on the basis of what kind of data. The principle rests on the assumption, however, that the information the individual *shares* is the same as the information that is *received* by the other party. That sounds almost tautological, but remember the earlier insight that interpretive processes stand at both ends of the data communication process. In You You et al.’s model we find a concrete example of how this plays out in digital modelling: The identity of the information that is put in by the user with the information that is received through the analysis of the datafied signals transmitted cannot be taken for granted where intelligent machines make predictions from data patterns that seem unrelated or are not even apparent to the human eye. Thus, *if and what* we may want to hide in front of *whom* eventually is something we may not be able to understand at the time of deciding to share certain data.

Interestingly, a similar issue already obtains in divine “surveillance” of human behavior, as seen in the final judgment account in Mt 25:31–46⁵⁹. In this passage, the un-

⁵⁹ Here is the text of the parable: 31 “When the Son of Man comes in his glory, and all the angels with him, then he will sit on his glorious throne. 32 Before him will be gathered all the nations, and he will separate people one from another as a shepherd separates the sheep from the goats. 33 And he will place the sheep on his right, but the goats on the left. 34 Then the King will say to those on his right, ‘Come, you who are blessed by my Father, inherit the kingdom prepared for you from the foundation of the world. 35 For I was hungry and you gave me food, I was thirsty and you gave me drink, I was a stranger and you welcomed me, 36 I was naked and you clothed me, I was sick and you visited me, I was in prison and you came to me.’ 37 Then the righteous will answer him, saying, ‘Lord, when did we see you hungry and feed you, or thirsty and give you drink? 38 And when did we see you a stranger and welcome you, or naked and clothe you? 39 And when did we see you sick or in prison and visit you?’ 40 And the King will answer them, ‘Truly, I say to you, as you did it to one of the least of these my brothers, you did it to me.’ 41 Then he will say to those on his left, ‘Depart from me, you cursed, into the eternal fire prepared for the devil and his angels. 42 For I was hungry and you gave me no food, I was thirsty and you gave me no drink, 43 I was a stranger and you did not welcome me, naked and you did not clothe me, sick and in prison and you did not visit me.’ 44 Then they also will answer, saying, ‘Lord, when did we see you hungry or thirsty or a stranger or naked or sick or in prison, and did not minister to you?’ 45 Then he will answer them, saying, ‘Truly, I say to you, as you did not do it to one of the least of

witting believers are surprised by the verdict because they had no understanding what aspects of their data would be used to infer what about them. Where “the Lord’s ways are higher than our ways” and God comes to a final judgment by taking into account unexpected data, human beings have no way to hide because they do not know what it is that they in fact should be hiding. The individuals charged in Mt 25 might not deny that they behaved in the reported way, but they weren’t able to envision how the reported behavior would enter the divine “calculation,” and what it would be read *as*.

Our data reveals more and quite different things from what we think it may. What Youyou et al.’s model shows is that personality traits can be predicted on the basis of data that seemingly has no connection to the predicted variable. E.g., individuals may explicitly decide *not* to share information about their sexual orientation. But where Youyou et al.’s machine is at work, “merely avoiding explicitly homosexual content may be insufficient to prevent others from discovering one’s sexual orientation.”⁶⁰ The model was able to predict users’ sexual orientations from likes of cosmetic brands, music, or categories like “Being Confused After Waking Up From Naps”. The underlying data seems as innocent as unconnected with the predictions that were – with surprising accuracy – made on their basis. Users did choose to share these ‘Likes’, but they could not conceivably have belabored how these ‘Likes’ – taken together and cross referenced with the ‘Likes’ of hosts of other profiles – would be indicative of their sexuality. Such a predictive model makes it impossible for individuals to control what kind of information they might be revealing in, with and under the data they decide to share.

Similar models are capable of predicting mental health issues like depression on the basis of markers in photographs uploaded to Instagram such as brightness, numbers of faces in them, and filters used.⁶¹ Even if individuals explicitly consented to Instagram’s use of the data from their vacation pictures, they could not possibly have known that they were disclosing mental health related information – but the model “found” that information in the data anyways. And after knowing the patterns well enough, the model was even able to correctly “diagnose” users if they had never been diagnosed, and maybe were not even aware themselves of their mental health condition. Yet other models have been successful at predicting sexual orientation on the basis of facial fea-

these, you did not do it to me.’ 46 And these will go away into eternal punishment, but the righteous into eternal life.”

⁶⁰ Kosinski (2013), 5805.

⁶¹ Cf. Reece and Danforth (2016).

tures.⁶² People who share selfies with a social network, or even just walk into a grocery store or across a street may have consented to sharing these images, but as they did so, they had no way of understanding that they might be “giving away” information about their sexual orientation merely by showing their face.

Building on principles of consent, data minimization and purposefulness,⁶³ clearly seems to be a reasonable approach to the uncanny powers of the digital age. Users deliberate – as the privacy paradigm rightly suggests they should – about what information would be problematic to share based on what they can conceive other human beings with attention directed to them personally to potentially do with such information against them personally. And while these deliberations continue to be very important to prevent certain kinds of privacy abuses, the point here is that beyond them, we can have no understanding what intelligent machines might be able to do with the data we share. They are able to establish connections, correlations, and cross-references between data that does not have anything to do with each other to the human mind. In other words, concepts like informed consent make little to no sense where the potential uses of data and the potential information that could be inferred from the data in question is literally “a black box.”⁶⁴

In middle knowledge, God does not need to wait for the human being to act or chose specific things in order to know about it. God can “predict” the behavior or choice from the matrix of possibilities of counterfactuals – how this person would behave under all different possible circumstances. From this matrix of possibilities, God knows already how the person will behave in the particular set of circumstances – just like a statistical prediction based on typologies. Middle knowledge does not depend on the individual’s “sharing” of its concrete information with the universe at large. Therefore, the person could never escape divine knowledge about who they are, what they would do or might be, not only where they hide their actions, but even where the situation in question never actually obtains (which seems like the most radical way of hiding information).

Against the predictive power of data-driven modeling, the protection of personal information will therefore not merely be difficult or costly to protect privacy; no, it will be completely ineffective. The lofty vision of “data sovereignty” which is “about enabling and shaping one’s own self-image, about what some call autonomy, what others

⁶² Cf. Kosinski 2017.

⁶³ See Dabrock (2019).

⁶⁴ Cf. Pasquale (2015).

call self-determination” has no traction vis-a-vis middle knowledge *or* AI power. Even where data protection is technologically and legally implemented and where people deliberate carefully and decide specifically which data to share with whom, there can be no self-determination of one’s image when there is no way of predicting *what* my data may tell the other party at this or a later point of time, based on correlations to so many other data sets. Where we have no ideas what information our data in fact contains or might be made to render, then we can neither shape our perception nor have any idea what data we might want to protect when and from whom. Claims of “making the right to informational self-determination behind traditional data protection weatherproof for the age of Big Data, AI and machine learning”⁶⁵ are therefore illusory at best and lulling into a false sense of security at worst.

4.5. The Illusion of Data Protection II: The Knowledge About You is Not from You

There is a second reason why privacy approaches fail to grasp what kind of knowledge digital technologies produce: Privacy can only protect you from your *own* data, but the knowledge digitally produced *about* you is not necessarily sourced *from* your own data. We come back to the issue of algorithmic agnosticism in relation to concrete individuals.

In middle knowledge, God was conceived as having knowledge about counterfactuals of creaturely freedom, i.e., God’s knowledge was not based on what really-existing human beings actually did, but on God’s general understanding of what individuals might do under such and such a set of circumstances. Digital statistical modelling is just as (in fact, even more⁶⁶) agnostic with regard to concrete individuals: The success rate from the myPersonality App does not necessarily come from the fact that it knows this concrete individual very well. Instead, it comes from the sheer quantity of data it is able to generally take into account – statistical correlation supplies the counterfactuals of human freedom, so to speak: The model does not just “know” your individual Likes, but compares them with the publicly available information from 2 billion other active profiles and then calculates statistical correlations. On the basis of its vast mass of data, the model is able to make impressive predictions for concrete individuals.

⁶⁵ Dabrock (2019).

⁶⁶ As indicated before, the nature of agnosticism is different in both cases: Middle knowledge of course does in fact pertain to concrete individuals, just to the same concrete individual in all hypothetical worlds, while statistic data deals only in real, not hypothetical data, but predicts the traits or behavior of one concrete individual from the data of other, significantly similar, concrete individuals.

E.g., a model used to predict any future user's (let's call him Peter₁) mental health status does not need to "know" anything about Peter₁. It only needs to know something about the general patterns that have emerged from the data of Peter_{2-n}, who have participated voluntarily in the previous study. But assessing Peter₁'s likes on Facebook or their filter use on Instagram, the model will be likely to correctly identify Peter₁ as depressed – whether Peter₁ has been diagnosed before or not, whether Peter₁ is aware of their own mental health status, and whether Peter₁ is actually under the impression of explicitly not disclosing that information. Protecting Peter₁'s privacy by cautioning them from sharing information related to mental health status will not prevent the model from accurately discerning Peter₁'s health status by virtue of what it "knows" about Peter_{2-n} in correlation with the ways in which Peter₁ behaves like or unlike Peter_{2-n}. Once the predictive model is established on the basis of the data available (via informed consent!) about Peter_{2-n}, Peter₁'s decision not to disclose their mental health information does not prevent the model from predicting their mental health status accurately – and there is literally nothing Peter₁ can do against being diagnosed by it.

The model is even able to make predictions about individuals who did not "share" *anything* about themselves, simply by cross referencing what information is publicly available about them with the rich data about other people who are in some ways "like" them – mining techniques which can easily be applied to large numbers of people without obtaining their individual consent and without them noticing.⁶⁷ In the election scandal since turned historic, Alexander Nix claimed that on the basis of the myPersonality App, Cambridge Analytica was in fact "able to form a model to predict the personality of every single adult in the United States of America"⁶⁸ – even though only 68% of US adults were Facebook users in 2016, and even much fewer of them had given the myPersonality App access to their data.

⁶⁷ Kosinski (2013), 5803.

⁶⁸ Grasseger and Krogerus (2017). Even if this is an exaggeration (and it might well not be an exaggeration), this demonstrates that exercises in "digital detox" or "getting off the grid" as well as strategies of data minimization might still be beneficial in a variety of ways, but their most beneficial effect might be limited to mental hygiene for those who employ them. Buying less will not get you out of the economic system and not speaking will not get you out of a discursive space, just like taking wings of dawn will not lead you out of the divine presence (Ps 139). They may give you some perceived breathing space, but they do absolutely nothing to prevent "the system" from having a grasp on you. In the context of the Cambridge Analytica affair, people have stipulated that "marketers can attract up to 63 percent more clicks and up to 1,400 more conversions in real-life advertising campaigns on Facebook when matching products and marketing messages to consumers' personality characteristics." I was not able to track down the evidence for this claim, but see Matz et al. (2017), who cite "converging evidence for the effectiveness of psychological targeting in the context of real-life digital mass persuasion" (12717) and show how "behaviors of large groups of people can be influenced through the application of psychological mass persuasion" (12714).

An interesting potential connotation of middle knowledge for human agency might become relevant here as well: In both contexts, Peter₁ has no possibility of assessing their own standing in relation to the non-actualized/statistically correlated Peter_{2-n}, and therefore doesn't even know what kind of knowledge about them exists based on their similarity and dissimilarity with them. Peter₁ in some ways bears the consequences even for actions they never committed in this particular world with this particular set of circumstances, because God did not actualize it. Similarly, in the digital model, the concrete individual Peter₁ will be judged by the standard set by Peter_{2-n}.

The reality of digital modelling is: Whatever information about an individual is publicly available can be used, not only "against" that individual but "against" anyone. It is very difficult to shift our mind away from the focus on the concrete individual in this sense, because obviously the individual (especially that individual that we *are*) is the organizing principle of our self and world-perception. But it carries only so far. Predictive modelling based on *other* people's aggregated and examined data "challenges the extent to which existing and proposed legislation can protect individual privacy in the digital age [since] such inferences can be made even without having direct access to individual's data."⁶⁹

4.6. The Reality Business of Prediction and the Freedom Fallacy

All these insights may come as a shock for our self-understanding as subjects: Our particularities, our idiosyncrasies, our spontaneities are not as individual as we like to think. They form patterns; they can be correlated with factors that made no conscious difference for us; and they are also highly predictable. For our conceptions of agency, authority, subjectivity, decision-making, and accountability, the possibility to attribute actions and characteristics to a concrete individual is decisive. But now technology is able to "read" our behavior as merely specific occurrences of general types and patterns, and with a high degree of accuracy: "The illusion of the autonomously acting subject – to which that which it does is then attributed individually – is irrevocably abolished."⁷⁰

Here it is worth noting that the analogy rests on a significant difference, though: Data-driven superhuman knowledge is *person*-relatedly agnostic whereas the God of middle knowledge is *reality*-agnostic: Statistics does not care which concrete individual the original data belongs to when making the prediction, whereas in the concept of middle

⁶⁹ Youyou, Kosinski and Stillwell (2015).

⁷⁰ Nassehi (2019), 121.

knowledge, God does not care whether the knowledge is about the actual or a possible world. But based upon the predictions engendered by such initial agnosticism, God creates a particular reality. Is data, likewise, involved in *producing* its predicted realities?

At the least, prediction creates self-reinforcing cycles, as has been widely demonstrated, e.g. in the context of predictive policing and racial bias.⁷¹ In this sense, prediction is merciless – it evokes an image of the individual based on statistical correlations and it evokes an image of the future out of the past. It will treat individuals as the sum aggregate of their past and as the cross-correlation of their statistic groups. And where these predictions count as knowledge, societal agents act upon them and give them a truth status.

God is not like this, the theologian might interject. Theological concepts like justification and grace point to the fact that eternal self-reinforcing loops are not the driving force of God’s history with the world. Instead, God allows creation to be otherwise, to not be bound by what is already known about them. That is the Christian hope: real newness – a hope that tech optimism does not come close to. The sheer reproduction of the past kills. The Spirit sets free. If this isn’t inscribed in the systems we use to generate knowledge, they *will* suffocate us. Maybe we also have to find ways of “reading” the digital differently and allow it to be something other than the self-fulfilling prophecies I have gestured towards – but we will have to see how much that is *systemically* possible.

But while theology in this sense may have a counter-vision to offer to our age, we may also have something very important to learn from the specific issues posed by the digital age. The traditional theological debate around divine omniscience has in great parts revolved around the double commitment to secure “perfection” of God’s knowledge (with differing candidates as to what “perfect knowledge” should be and entail) and secure human freedom as well (with differing candidates as to what human freedom should be and entail). Central driving interests have been: to avoid determinism and to mitigate issues of theodicy, while safeguarding divine perfection. Humans, thus the common assumption, *have* to be considered free agents, agents whose choices are not dictated by an outside party but who could have chosen otherwise yet chose not to, because our understanding of moral accountability hinges on this, which itself is a central condition of the possibility of ethics.

⁷¹ Racial bias is well-documented in police work and translates into data-driven predictive policing, e.g., when algorithms are trained on biased data sets. It also applies more broadly to statistical modeling, however. See Noble (2018).

The concretions of the digital age can teach theology that this concern for freedom is not enough. An abstract understanding of the possibility to choose otherwise fails to have traction on the breadth and scope of issues emergent in the digital age – and raises suspicion that we may miss out on theological potentials here as well. If, e.g., targeted advertisement can lead to an increase in “conversion rates” by 1400%, choice may still be technically considered free, but that freedom is of little consequence. If, e.g., predictive policing disproportionately targets black populations, the statistic prediction leads into self-reinforcing logics that render the individual’s objective freedom not to commit crime irrelevant. If social credit systems have people question the effects of their every move, public utterance, and social interaction on their aggregate score, freedom of will or ability to do otherwise just are not the central questions to ask. What theology can learn from the digital age is that considering freedom as an abstract good to be safeguarded or infringed is pointless. Theologians were able to theoretically avoid determinism while still upholding omniscience by pointing to human imperfections of knowledge: Because the future is unknown to us, even as it is known by God and therefore already settled, we behave “as if” we were free.⁷² This “as if” of freedom Calvin and others described based on our lack of insight into the connections between everything might have theoretically rejected determinism, but does not render the world as something we can live in. I have scratched at the surface of the issue several times as an issue that has emerged in the debates around divine omniscience without going into it – because to my understanding, the concepts about free will and freedom of choice, freedom as a good that agents can possess and that then opens up room for their activity seems to be problematic, fraught, and a dead-end in a variety of ways.

Maybe the category of freedom is an area where theologians can, after all, learn something in return from “the digital”? Either freedom is overrated, because it does not actually make a difference, or else it has to be understood very differently.⁷³

5. Conclusions

In this two-part contribution I have indicated that, unlikely as it may seem, century old debates about divine omniscience can indeed be illuminating for discussions about technological developments today. The questions people have asked in the doctrine of God about how omniscience interacts with the world, its neutrality and objectivity,

⁷² Calvin, *Inst.* I,16.

⁷³ Cf. Friedrich (2019).

its transformative or productive power, and the different ways that have been explored to understand the interface between omniscience and human freedom can provide us with conceptual frameworks and lines of thought that may also be useful in assessing digitization today.

Unlikely as it seems, discourses about divine omniscience and digitization may actually have something to offer to each other – not just on a metaphoric level: They may even be able to help each other understand their respective objects a little bit better. Looking at contemporary developments through theological lenses has given us inroads into their epistemological and ontological status, the hermeneutic and productive aspects involved in data generation and analysis, the universal applicability and worldmaking quality of digitization, and why privacy may not be the most particular issue at stake in processes of digitization. On the other hand, digitization has given us clues about the limited applicability of propositional understandings to divine omniscience and the insight that concepts like grace, justification and new creation are curiously incompatible with the digital. Or are they?

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Bible as Interface

Reading Bible with Machines

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Michael Hemenway, Justin O. Barber, Shawn Goodwin, Micah Saxton, and Timothy Beal explore what we can learn by reading the bible with machines. They present a text generation model that produces narrative commentary on biblical passages. The model demonstrates existing tendencies in bible commentary and elicits new questions and insights on the corpus as “interface.”

This project is a collaborative contribution of the Experimental Humanities Lab at the Illiff School of Theology and ai.illiff, the AI Institute at Illiff. To engage the fullness of our contribution to the workshop, please visit <https://illiff.github.io/theologiesofthedigital/> and the code repository for the project at <https://github.com/illiff/theologiesofthedigital>. The writing included here is merely one slice of the larger project with data, python code, and model weights constituting the majority of our work. That said, we will share some of our reflections on the project here in hopes of fostering further dialog around the workshop.

1. Problem Definition

What can we learn from reading bible with machines? To explore this question, our team is building a text generation model that will take a short passage from bible as

input and output a narrative commentary on the passage. We begin with the assumption that machines can be significant partners in reading corpora like bible by learning from existing commentary data and introducing novel reflections on a given passage. These machine generated reflections on bible passages can teach us about the existing tendencies in bible commentary and can introduce new questions and insights on the corpus.

So, our challenge is to build a machine learning based text generation model that contributes to the community of conversation reflecting on bible passages. In order to build this model, we will leverage some strategies already in development at ai.iliff, the AI Institute at Iliff School of Theology, to produce a conversational AI that can participate in online courses to facilitate better learning outcomes for students.

We believe the process of building, testing, and deploying this model can raise interesting and important questions about the theory and practice of bible interpretation in a technological era where machine learning will increasingly participate in our reading and research. Some such questions include:

- Does our theology of scripture change when we partner with machines in reading bible?
- What is the role of historical reflections on bible in our contemporary interpretive traditions and practices? In a sense, how do we use our data in our own interpretive practice?
- What constitutes the boundary between bible and our reading/interpretation of it?
- How does the digital materiality of bible, no longer constrained by the codex, change the ways we use and understand bible?
- How does reading and writing with machines impact our notions of authorship, creativity, and interpretive capacity?
- How might the machine's processes of generating theological commentary (dependent on and derivative of the inherited tradition/corpus of theological discourse on which it trains) invite reflection on our own human processes of theological reflection and the generation of new theological ideas?

For the first iteration of this model, to demonstrate proof of concept, we will build a very simple interface that will allow a user to give the text of a biblical passage to the model and in return, the model will construct a response, word by word, that

comments on the given passage. These machinic readings of bible will hopefully foster conversation among scholars and practitioners that will in turn help us develop more useful iterations of the model.

2. Technologies

In the interest of being intentional about the materialities at work in this project and to foster other's reproduction and expansion on this work, we will define the main technologies we will use to build this project.

2.1. Python

Python is a highly readable programming language, particularly useful for data science and machine learning.¹ As we have outlined in "Library as Interface for DH Work,"² we have invested in Python as a core competency in our Experimental Humanities Lab for several reasons. The most important reasons for choosing Python for this particular project are Python's extensive set of openly available libraries to work with natural language processing tasks such as data preparation and with cutting edge deep learning frameworks such as PyTorch and gpt-2 (see below). The focus on readability in Python also provides an excellent environment for teaching and collaboration, lowering the barriers for people to engage the code.

2.2. GPU

One of the major advances in machine learning computation power over the past several years has been the growing accessibility of graphical processing units (GPU). Mythbusters provide a very useful enactment of the difference between a GPU and a more traditional central processing unit (CPU).³

The main advantage of a GPU for machine learning tasks is the capability for parallel processing. Structures like neural networks with many layers and millions of parameters require a large amount of processing. Leveraging a GPU allows us to train models

¹ See <https://www.python.org/> (accessed: May 18, 2020).

² Experimental Humanities @ Iliff, "Library as Interface for DH Work," in Clifford B. Anderson, ed., *Digital Humanities and Libraries and Archives in Religious Studies* (Berlin: De Gruyter, 2019).

³ "GPU vs. CPU," <http://www.youtube.com/watch?v=-P28LKWTzrI> (accessed: November 16, 2021).

on large data sets much faster so we can iterate through experiments more quickly to optimize our models.⁴

Thanks to generous funding from the Henry Luce Foundation, Iliff's AI Institute has a dedicated GPU server with an NVidia Tesla V100 GPU⁵ and 32GB of memory that we are able to use to train our models for this project.

2.3. gpt-2

In the last few years, we have seen an explosion in the development of powerful pre-trained language models that can be used as a foundation for several natural language processing tasks, such as text generation, question answering, machine translation, and more. The two language models we use in our development currently are BERT from Google and gpt-2⁶ from OpenAI. These language models provide a statistical representation of a language (we are currently focused on English) that can be tuned to a specific discourse and then used for several tasks.⁷

For this bible commentator project, we are using gpt-2 to generate text one word at a time in response to a prompt verse. Trained on text from 1.5 million web pages to generate a generic language model, gpt-2 prevents us from having to build a language model from scratch on a much smaller dataset. Instead, we can build on top of the generic language model to tune the model toward our particular task by training gpt-2 using our particular bible commentary corpora.

If you would like to see a demonstration of gpt-2 text generation in response to an input, you can visit Adam King's simple web interface for gpt-2.⁸ Just enter a prompt and see what the model writes.

⁴ For more information on why a GPU can be useful in machine learning applications, there are many explanations available online. A good example is Faizan Shaikh's "Why are GPUs necessary for training Deep Learning models?", <https://www.analyticsvidhya.com/blog/2017/05/gpus-necessary-for-deep-learning/> (accessed: November 16, 2021).

⁵ See <https://www.hluce.org/programs/theology/>, <https://ai.iliff.edu>, and <https://images.nvidia.com/content/technologies/volta/pdf/tesla-volta-v100-datasheet-letter-fnl-web.pdf> respectively (accessed: November 16, 2021).

⁶ See <https://arxiv.org/abs/1810.04805> and <https://openai.com/blog/better-language-models/> (accessed: November 16, 2021).

⁷ The vectorization of language used in the embedding techniques of these language models deserves far more attention than we can give it here. The ways machines can represent language through single or multi-dimensional matrices of numbers could be a distinct source of the difference that machines bring to the reading and writing task. We believe we can learn from machines here.

⁸ <https://talktotransformer.com/> (accessed: November 16, 2021).

2.4. GitHub

GitHub is a collaborative cloud code repository that allows our team to work together on the project and share with others. Using git revision control system along with GitHub provides granular access to every revision made to the project and makes it easy for several developers across wide geographies to contribute to the project.

We also use GitHub as a platform for scholarly communications, leveraging the built in static site generator included with github. Building on another project from Iliff's Experimental Humanities Lab, we have used our template for digital projects on GitHub to scaffold the repository for this project.⁹ GitHub as a scholarly communication framework allows us to share our research and invite collaboration through the readability of our python code base itself, through careful commenting of the code, and through short pieces of web writing to reflect on the project and process.

3. Data Collection

As with all machine learning, data is critical. Remember, our task at hand is to train a model to generate commentary on a given passage of bible. Our dual hypothesis is that this model will be able to 1) generate useful text that will fit the accepted commentary tradition and 2) inject novelty into our understanding of bible. In a sense, this is a competing optimization task. We want our model to sound like bible commentary and at the same time to introduce new perspectives or approaches to these bible corpora.

To accomplish this competing optimization task of similarity and difference, we are collecting two related but different data sets to use in training our model. Again, thanks to the advances in generic pre-trained language models by labs at Google and OpenAI, we do not have to start from scratch with our model. Instead, we begin with a very capable generic language model in gpt-2. This generic language model can produce bible commentary without any additional training, yet two types of training will help make our model better.

3.1. General Knowledge about the Discourse

First, we are collecting as broad a set of general knowledge about bible and the discourse surrounding it as we can find. We can use sources such as wikipedia entries

⁹ See <https://github.com/iliff/digital-dissertation> (accessed: November 16, 2021).

related to bible, social media posts discussing bible, popular and academic publications reflecting on bible, and historical commentaries on bible even back to antiquity. Ideally, this broad general knowledge data set would include perspectives from several different regions, cultures, people groups, and traditions. At this stage in the project, we have not had the resources to gain access to many of these generic data sources, but it is a critical part of our project roadmap.

3.2. Specific Knowledge to the Task of Bible Commentary

Most machine learning models perform best when tailored toward a specific task. Taking a bible passage as input and producing commentary on that passage from a broad background is a particular kind of text generation. So, in addition to tuning gpt-2 to the general discourse of reflections on bible, we are cultivating a data set of structured commentary on bible passages to help gpt-2 learn more about the specific task of producing bible commentary.

We have had several discussions as a team about what constitutes commentary on bible as well as where the boundaries are between bible and bible commentary.

To keep our early phase of this project very focused, we have chosen to work with the New Testament writing of Revelation and commentary on it from traditional Christian sources that are freely available online and limited to the English language. None of these initial narrow filters need remain for later stages of the project. We chose to focus on Revelation because it itself can be seen as a kind of commentary on much of the bible corpus and its language lends itself to the creative narratives sometimes generated by early versions of trained language models.

Our initial task specific data comes from the SWORD project of The Crosswire Bible Society.¹⁰ Their list of English commentaries includes mostly public domain commentaries that are dated.¹¹ We have been granted access from the United Bible Societies to use their Translator's Handbooks, which provide highly specific commentary on bible passages related to translating these texts around the globe. We have not yet been able to process these handbooks to incorporate them into the model at this time.

We are distinctly aware of the limitations caused by our data collection decisions at this stage of the process. Finding openly available and machine readable corpora is always a challenge, particularly in a discourse that has been historically dominated by

¹⁰ See <http://crosswire.org/sword/index.jsp> and <http://crosswire.org/> (accessed: November 16, 2021).

¹¹ See <http://crosswire.org/sword/modules/ModDisp.jsp?modType=Commentaries> (accessed: November 16, 2021).

institutional structures. We are open to suggestions for data sources we might utilize, particularly sources that we can easily convert to machine readable text.

4. Data Processing

4.1. Loading Texts

As mentioned in our data collection reflections, we have initially limited ourselves to task specific knowledge from the SWORD project. Part of the reason for this is that SWORD and Crosswire have made it easy to access their texts in machine readable fashion through a customizable command-line interface called diatheke and texts encoded in OSIS XML, one of the most common XML standards for texts related to bible.¹²

Arguably the largest digital collection of bible corpora in the world is the Digital Bible Library (DBL). Interestingly, the DBL has not opted to use OSIS as their XML standard. DBL uses an XML standard called USX, which is based on the older USFM schema.¹³ We have not been able to get licensing from DBL at this time to use any of the corpora it contains beyond what is already available in public domain. We are hoping to get access to more DBL resources at some point.

The standard XML format of the SWORD commentaries and the customizability of the command line interface allowed us to write a parser to read any SWORD commentary and split the text into 3 columns: bible citation, text of citation, text of commentary. See our `diatheke_parser.py` file in the repository for this project to see the code for this parser.¹⁴ Here is a sample:

```
text_list = [x for x in text_list if x not in ('', None)]
citation_text = []
for index in range(0, len(text_list)):
    if index % 2 == 0:
        try:
            citation_text.append([text_list[index].strip(), text_list[index +
1].replace('\n', '\t')])
        except IndexError:
            pass
for line in citation_text:
```

¹² See <https://wiki.crosswire.org/Frontends:Diatheke> and https://en.wikipedia.org/wiki/Open_Scripture_Information_Standard (accessed November 16, 2021).

¹³ For USX, see <https://ubsicap.github.io/usx/> (accessed: November 16, 2021).

¹⁴ https://github.com/iliff/theologiesofthedigital/blob/master/diatheke_parser.py (accessed November 16, 2021).

```
try:
    text = SCRIPTURE_DICT[line[0]]
except IndexError:
    print('line 61')
    print(line)
    pass
citation_scripture_comments.append([line[0], text, line[1]])
citation_text = citation_scripture_comments
```

4.2. Tokenizing

Computers work better with numbers than letters or words, so the next step of our data processing is to tokenize and encode all of the text we will pass to our model. Tokenizing simply means splitting a text up into smaller parts (i.e. tokens). Tokens can be letters, words, parts of words, punctuation, etc., depending on your task and the tokenizer you use. With some slight modifications, we use the GPT₂Tokenizer to split up the verses and the commentary in our data into smaller bits that correspond to the 50,000 word vocabulary of gpt-2. Each item in this vocabulary has a corresponding integer value, so when we tokenize our text we also encode as integers.

Before we tokenize and encode, there is some cleaning up to do, such as removing unwanted characters, removing duplicate comments, and trimming out anything else in the data that will just add unwanted noise. This cleaning step may seem mundane, but it is often one of the places in a project where certain assumptions about the dataset are enacted. So, we need to be transparent about the task involved in the data preparation and always question them as we learn more about how the model uses the data. At present, here are the things we do to clean our dataset before passing it to the model:

```
print('cleaning df ...')
df = self._clean_df(df)
if max_df_len:
    df = df.sample(frac=1.).iloc[:max_df_len]
    df = self._add_sequences_to_df(df)
    df = self._add_sequence_lengths_to_df(df)
    df = df.sort_values(by=['total_token_length'], ascending=True)
return df
```

4.3. Preparing Data

Once our texts are tokenized and encoded, we construct a dataframe, which looks much like a spreadsheet. Our dataframe has one column with the encoded version of a verse from Revelation and one column with the corresponding encoded version of the commentary on that verse. We have as many rows in the dataframe as we have

samples of verses and commentary from the commentaries we pulled from SWORD using the diatheke interface. We could add many more rows to this dataframe as we increase the commentary data sources we can incorporate into the model.

4.4. Model Training

We are taking a supervised approach to training this bible commentator model. This means that we begin with the gpt-2 pre-trained language model, which is a neural network with several layers depending on which size of the model we use.

OpenAI has released their X-Large gpt-2 model, which has 1.5 billion parameters and 48 layers. Jay Alammam's piece, "The Illustrated GPT-2," provides some nice visualizations of the different sizes of the gpt-2 model.¹⁵ Since the X-Large has not been available, and due to the demand on computing resources and the design of our model, which trains 2 gpt-2 models in parallel, we have focused on the large and medium gpt-2 models, which have 32 and 24 layers respectively.

With our supervised approach to training, we construct a dataset that has two inputs (X_{verse} , $X_{\text{commentary}}$) and a known output (y). Because we are using gpt-2 to generate text, one word at a time, from a seed prompt, here is what these inputs and outputs look like:

```
X_scripture = an integer encoded sequence of the entire verse from Revelation
X_commentary = an integer encoded sequence of the commentary at each stage (this
               will grow each pass)
y = the next word (encoded sequence) of the commentary
```

Every pass through gpt-2, our model uses these X inputs to predict the next most likely word in the commentary and appends this word to the $X_{\text{commentary}}$ input for the next training pass. Since this is supervised learning, the word that the model predicts (y^{\wedge}) is compared against what we know to be the next word (y) in the commentary we are using as our training dataset and a loss is calculated based on the difference between y (actual next word) and y^{\wedge} (predicted next word). Using this loss calculation, the model goes backward through its layers and adjusts the weights of each connection in the network before it runs through the next pass. To make our training a bit more

¹⁵ See <http://jalammam.github.io/illustrated-gpt2/> (accessed: November 16, 2021).

reasonable to manage, we actually only adjust the weights of the edges of the network after approximately 16 commentary samples have been processed.¹⁶

We have defined our commentary length output to be 151 words, so we ask the model to make this many predictions for each verse input.

5. Adding Knowledge to our Training

To provide more targeted and nuanced training for our model, we are experimenting with a more complicated training process that passes an additional input to the model indicating a best fit generic background knowledge sequence for the commentary we are training on. So, in addition to X_{verse} and $X_{\text{commentary}}$, we will pass the model X_{tfidf} , an encoded sequence representing a passage from a more generic corpus related to Revelation. The reason we call this input X_{tfidf} is that we use a similarity based linear model to find relevant knowledge passages related to a given commentary sequence and then we use term-frequency-inverse-document-frequency (tf-idf) to pick the most informative passage from the list. For more details on this additional training aspect, see the `CPULinear` class in our `generator.py` file.

We are hoping this additional knowledge input will provide better intuition for the model to generate text that fits the commentary discourse without over-fitting to that discourse. This is one strategy we are employing to push toward our dual optimization task of fitting the discourse and introducing novelty.

6. Initial Results

We will add more to our discussion about our training process for the model and the model design, but for now, we want to share some initial results produced by the model so far.

6.1. General Tuning of the Language Model

After a few rounds of training (more specifics to come on exact durations and conditions of these training runs) on our bible commentary corpus to focus the general knowledge of our language model on our desired discourse, we can see the language

¹⁶ For an excellent vizualization of the intuition around this backward process of a neural network, where weights are recalculated, see 3Blue1Brown's excellent video: What is backpropagation really doing? | Deep learning, chapter (<https://www.youtube.com/watch?v=Il3gGewQ5U> [accessed November 16, 2021]).

model tuning toward the biblical discourse. To remind us, when we give gpt-2 a prompt, it takes the prompt and then uses its language model to choose the most probable next word that would appear and writes it. Then, it takes the prompt plus the first word it chose and does the same process again to choose the next word, and so on, until we tell it to stop.

If we pass the phrase “Artificial Intelligence revealeth” to gpt-2 without any additional general knowledge training, here are the kinds of comments gpt-2 returns (each bullet is a separate attempt at a response):

artificial intelligence revealeth: (generic gpt-2)

- its hidden potential – can change everything [9 December.] ‘Robofication: the second age of technology’ – how advances technology as soon [...] Posted
- what humanity is truly and as much potentials. – Aeswarya Mhamisundre Rao I have learned today what people cannot possibly
- a huge amount that most men still consider secret: it knows who my partners sleep with because I’ll read “The Artless Sin by John Fulk
- us that no more be in our way before, it could do that with ease in every region;
- To our new technology: be ye patient until
- by the year 1040. On an ordinary afternoon they get only 7 pdays - 10p nights (for every 7+2x7 days the
- “who do-they know”- and not why.” The new approach to research that AI represents may create “big implications from technology design (technology safety
- not my opinion to know the opinion
2 John 5th & 6c The kingdom must always rest as a safe deposit; but there was one good
- the source of its madness! An unknown faction which has seized control over their galaxy now requires no loyalty nor restraint before deploying them on all available fields as
- (in 2 seconds) 1 3 50 1 The most incredible revelation a noncomputer system may give in one minute 7 16 944 This article in a
- : to detect through surveillance intelligence : technology for a machine designed after a very closely aligned brain mechanism. “I didntl say, only an advanced

- ; thereis none, except such intellect and moral faculties created since all man know thereof to which knowledge cannot comove; it also teachst that mankind
- . From his earliest form of knowledge the Creator sent them with his plan - that they know so clearly why everything He works (everything). Even this,
- the God within? Are the people we need at prayer with god a danger, do I do harm through following blindly after someone who calls him “Jesus
- you how not, an argument for creating “the man of clay which ye will make your prophet”: as the word means man- of metal who by

There is a wide range of concepts and vocabulary covered here, with some attempts being more coherent than others. Interestingly, we see some biblical language appear in some of the comments, even without any tuning toward the discourse. This could be a result of the KJV style “revealeth” we used in the prompt or it could indicate that talk about artificial intelligence sometimes overlaps with talk about religion and bible and related things.

Providing the same prompt to our trained gpt-2 model, here are the kinds of comments we get:

artificial intelligence revealeth: (trained gpt-2)

- the life: Who have shown his true integrity?
- no truth with my nation a fief;
- nothing else than Jesus.
- these truth things as all wisdom came upon all things which is done for such
- our works upon one good God Jesus for the grace made known which thou went down,
- great many by our good alightsomenes the faith?
- great men the chief pleasures among Christ.
- every scripture.
- to ourselves that our things is profitable to each creature for to teach in our teachers for we received. we.
- him no harm: but we can save as ye save the weak sheep which perish against such,

It is clear that our trained language model is sounding more like biblical discourse, perhaps even a little too much. As we stated in the problem definition, we have a competing optimization task of building a model that can write in the style of bible commentary, but also introduce novelty. We are clearly not there yet. One of our strategies for better tuning this general knowledge of the language model will be to incorporate less explicit and more contemporary reflections on bible. We plan to incorporate some Wikipedia data as well as some broader reflections on bible and Revelation in particular from current scholars such as Timothy Beal. Additionally, many of the comments on bible passages actually restate the passage itself, so we will be working to balance the weight of the biblical texts on the learning of the model.

6.2. Specific Task of Commentary

At this early stage of testing and training, we clearly have many adjustments to make, but we do have some examples of the trained models attempts to comment on a biblical passage. Let's consider a few examples.

Passage Prompt: And when he had opened the fourth seal, I heard the voice of the fourth beast say, Come and see.

Model Commentary: He said to them. The fourth of his beasts came forth (Mr 7 and his two other two angels) and his angels, and their dragon (Hebrais and Hippoleon. And as it is in iTi 4, 1) were made to stand before them as it is proper for the third beast in the world

What I find interesting about this commentary is that the model is trying to cite other passages of bible with the parenthetical phrases. Perhaps “Mr 7” is an unknown lost text from antiquity? We have seen in other contexts that the way gpt-2 learned how to handle numbers is not always coherent. Yet, “iT i 4, 1” looks a lot like a reference to 1 Timothy 4:1, which does refer to future times. Is the machine suggesting an intertextuality that we may not have imagined before?

When I passed this exact prompt to the standard gpt-2 model using Talk to Transformer, each time the model tried to keep writing bible. Here is an example output from the untrained model:

Prompt: And when he had opened the fourth seal, I heard the voice of the fourth beast say, Come and see.

Continuation

When I saw the fourth seal, I knew – the seal of the living God, who was, and is not, and has not been, and is to come, the Most High, who is seated on His throne, and coming with judgment to judge the quick and the dead.

I saw the dead, great and small, stand before God.

“And the dragon was in the midst of them, and he had a great millstone round his neck, that he might crush those who were born of women and who are born of iniquity: and they were given up to destruction; and death and hell were given up to her.”

—Revelation 21:11-16

The standard gpt-2 model is designed to continue the prompt with the next most probable word. One of the design items we have added to our model is to append an “end of line” character after the prompt to indicate to the model that continuation is not desired, but rather reflection on the prompt. This raises two pertinent questions:

1. If we trained toward continuation, could our model write bible passages that were comparable to what we would find in those corpora accepted as bible?
2. Are there ways in which bible commentary or interpretation are better conceptualized as continuation of rather than reflection on?

One last example of our early model’s performance:

Passage Prompt: I am Alpha and Omega, the beginning and the ending, saith the Lord, which is, and which was, and which is to come, the Almighty.

Model Commentary: So often a Christian. Who were chosen as of the gospel in Jesus before Jesus when this was the most Dangerous – whose kingdom came to him according to his preselection.

Perhaps “so often” is a summary of “is, was, is to come”? But, much of this commentary is coherent with chosenness and preselection and gospel and kingdom and Jesus. What might the “Dangerous” signal in this passage? Here I think we have a seed of what we are hoping from our experiments in reading with machines. There is much familiar in this machinic reading of Revelation 1. Is this a reading that brings together the bookend “Alpha and Omega” passages of Rev. 1 and Rev. 22? Does it offer us anything new to reflect on?

We will continue to run experiments in training and designing this model to achieve our competing optimization task of building a bible commentator that fits the discourse but introduces novelty. As we continue this project, we will continue to explore what our machinic partner might teach us about reading bible in a digital age.





Scripture as Interface

A Hermeneutical Reflection on a Concept based in Media Theory

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Following Michael Hemenway's description of the Bible as interface, Frederike van Oorschot reflects the dogmatic implications of this description. Understanding scripture as interface describes scripture as a zone of encounter, prompting questions about its affordances and highlights the relational, anarchic, and collaborational character of scripture.

1. Introduction: Three Premises and a Position

The relation in this paper between dogmatic and hermeneutical questions about Scripture to the phenomenon of “digitization” is based on three premises.

First, “digitization” not only describes binary data processing or computer based technologies but is also related to a profound media change that affects our understanding of writtenness. In terms of media history, one might compare this change from a “culture of book” to a “digital culture” with the invention of the printing press.¹ This

¹ See e.g. Dalferth (2018), 428; Theologie und Ethik (ed.) (2016), 7. In reference to the understanding of writtenness, it might be interesting to discuss this notion of materiality and its affordances referred to the digital and forms of digital writtenness, related to Michael Hemenways understanding of probabilistic materiality. See Hemenway (2017), 6–7.41

implies – and might already serve as a first suggestion for discussion – a concept of “digitality” as both media and cultural change.²

Second, the hermeneutical question about Scripture and its authority is (also) a question about media. It reacts to the “media problem of monotheism” (Nordhofen), i.e. to the necessity of mediating the communication of the un-created God with the created world.³ This notion of mediality is often not explicitly addressed in Christian dogmatic thinking about Scripture, but it is implicitly very powerful: The Christian tradition places special confidence in biblical texts as witnesses of God. Through the Holy Spirit, they reveal the gospel again and again to persons by being read and heard. Therefore, Scripture has a unique authority for the protestant community (*sola scriptura*) and is described as one of the *medium salutis*⁴ in many theological traditions.⁵ Third, when it comes to Scripture as a medium, the medial form of the Bible – its “mediality” as text, song, image or play – must be taken seriously. Hence the question arises as to where and how medium and message are interrelated.⁶ The debate – though still very small – about digitization and the Bible reflects an awareness of this

² For my understanding of digital culture, see van Oorschot (2020), 236–237. Hemenway, too, offers a very similar understanding: “The term digital has come to represent a massive discourse that begins with the basic distinction between continuous (analog) and discrete (binary) phenomenon, particularly in reference to the binary machine language that is the basis for most forms of computing today. Yet, regardless of any meaningful distinction between continuous and discrete, digital has come to represent all things related to computing, the internet, and in a sense, anything that has a screen as its primary interface.” Hemenway (2017), 8.

³ See Körtner (2018), 507–8 (my translation).

⁴ The latin term implies both: Scripture as medium and means of salvation. The following theological reflection reflects on this relation in reference to the question in the mediality of the written word.

⁵ See e.g. Körtner (2001), 311. The contentiousness of this question is also expressed in the currently open discourse in dogmatics on the “location” of the doctrine of scripture: While the confessions imply a hermeneutic authority of Scripture (e.g. as *iudex, norma et regula*) – and most introductions to protestant theology therefore locate the doctrine of Scripture as part of the hermeneutic and epistemologic introductions, like e.g. Joest and Lüpke (2010), 48–79; Korsch (2016), 35–48; Schnieder-Flume (2008), 69–89, Leonhardt (2009), 179–199 – some theologies unfold the doctrine of Scripture as part of soteriology or ecclesiology (see e.g. Schlink [2004], 631–645; Körtner [2018], 526–544). Christian Danz and Elisabeth Margaretha Hartlieb explicitly postulate and reflect this shift (see Danz [2010], 197; Hartlieb [2007], 78). This implies a shift of the understanding of Scripture itself, since the hermeneutic relevance is not reflected as a principle of theology, but processed from a certain perspective in and as part of theological thinking.

⁶ See Dalferth (2018), 404. Closely related to the mediality one has to think about the materiality of media, as Hemenway expresses referring to Drucker’s notion of “probabilistic materiality”: “Probabilistic materiality conceives of a text as an event, rather than an entity. The event is the entire system of reader, aesthetic object and interpretation – but in that set of relations, the text is constituted anew each time. Like weather produced in a system around a landmass, the shape of the reading has a codependent relation to the structure from which it arises. Probability is not free play. It is constrained play, with outcomes calculable in accord with the complexity of the system and range of variable factors, and their combinatoric and transformative relations over time.” (Drucker [2009], 8, as cited in Hemenway [2017], 41). Not only the medium influences the message, but also the materiality of media. These have to be taken into account in their actual condition – as Hemenway does in his study – and can therefore not be considered in this paper on overall hermeneutic questions.

change, though with mostly negative connotations:⁷ Many people suspect an arbitrariness in accessing the sacred texts in the digital, suspecting that this breaks off their canonical validity.⁸ In contrast, the written form of the biblical text is interpreted as the guarantor of the externality (or alterity) of the biblical texts against their interpreters. Similarly, some are concerned that the texts would be deprived of their fixed form and content (in contrast to oral traditions) by the fluid medial forms.⁹ One can also read about the historical connection between Protestant tradition and the invention of printing,¹⁰ which makes theology a “reading tradition.”¹¹ The “emancipation of writing from the book” also leads to new conditions of theological research.¹² Throughout, the debate shows a profound struggle for the question of how the fixation of the message conventionally associated with the writtenness of the Bible and its externality to the recipient can be understood under changing medial conditions. The additional question of the subjects and extent of this assumed fixation also enters the debate.

In the following, I do not want to continue this debate on the level of media theory – I am not qualified to do so and Michael Hemenway has worked refreshingly and very constructively on this issue.¹³ Rather, through relating the medial question (mediality of Scripture) with the hermeneutical question (Scripture as medium), I will first

⁷ The advantages are described mostly referred to the user (e.g. distribution of biblical texts, reaching different social groups through digital media). However, the worries outlined above seem to be in the foreground, disputed by Hemenway and the Institute of Theology and Ethics, which I will refer to later. Only some parts of the discussion are based on empirical evidence, which itself is interpreted very differently. See e.g. on YouVersion and GloBible Clivaz (2017), 56. More empirical data on this question can be found in CODEC (2019), esp. 17–21.

⁸ For example, a study by the Swiss Protestant Church on digital reading of the bible argues that the greater interactivity of digital reading is thus “less canonical,” i.e. the bible is perceived “no longer as a given, printed Holy Scripture, but as part of an ongoing communication process.” *Theologie und Ethik* (ed.) (2016), 10 (my translation). The empirical analysis of CODEC confirms this claim: The interviewed millennials linked reading the bible as a printed book with the adjectives “holy/sacred,” “real,” “authentic,” and “pure.” CODEC (2019), 19.

⁹ See e.g. Siker (2017), 37–51. Siker asks: “The Bible is supposedly the unchanging Word of God, and yet, all things digital are anything but unchanging. What does it mean to bring the relatively ‘fixed’ Bible into a medium that is utterly transient?” (X). Siker concludes: “digital Bibles in the twenty-first century continued to fragment into personalized tweets and snippets, from multiple versions of the Bible, representing increasingly individualized voices rather than a communal text” (241). See also Rakow (2017).

¹⁰ *Theologie und Ethik* (ed.) (2016), 7.9–10. Siker points especially to the tension between writtenness and digital media, see Siker (2017), 183–208. See also Clivaz (2017), 57; Dalferth (2018), 427–428.

¹¹ Dalferth (2018), 439–440. 443 (my translation).

¹² Clivaz (2017), 39.54 (my translation).

¹³ Hemenway explicitly states to contrast the growing fear and nostalgia related to Bible and digital media, he observes reading Jeffrey Siker, Nicholas Carr and Sherry Turckle. Hemenway (2017), 8–9. See with a similar aim Clivaz (2017), 36–37.

consider how Scripture can be understood as a medium and will then come back to the question of its mediality.¹⁴

My starting point is Hemenway's description of the "bible as interface," itself located at the interface of media theory and theology. In his study, Hemenway argues:

The connections between the major technological transition from roll to codex in antiquity and the contemporary move toward the internet and mobile technologies as reading platforms encourage us to consider *bible as an interface that affords high surface area, collaboration, and anarchy*. [...] bible as interface is a relationship between a material platform and a user that cannot be reduced to simple consumption of content.¹⁵

The concept of interface – originating in media theory – becomes a dogmatic description referring to the properties of Scripture when he writes: "throughout its rich media history, bible has been an interface."¹⁶ While Hemenway wants to describe rather than dogmatically construct his notion of "Bible as interface,"¹⁷ I will try to further it from a dogmatic and hermeneutical point of view.

I will unfold the theological implications of "Bible as interface" in three ways: Firstly related to the understanding of Scripture as medium and its authority, secondly referring to its pneumatological and christological underpinning and thirdly in relation to the "users" of the Bible.

2. Bible as Interface – Scripture as Medium and its Authority

2.1. Bible as "Zone of Encounter" – a Relational Medium

"At its most basic, interface denotes some kind of relationship of interaction between entities."¹⁸ Starting with this definition, Hemenway unfolds his understanding of interface, referring to the cultural scientist Johanna Drucker.

¹⁴ Therefore, I will focus on the changes in the understanding and interpretation of bible instead of the shifts concerning user and reading. See related to user and reading e.g. Hemenway (2017), 13–14; Phillips (2018), 405–406; Siker (2017), 37–51. From a church's perspective see Theologie und Ethik (ed.) (2016), esp. 4–7. See a similar attempt to re-read our understanding of the Bible through digital analogies - here: "Bible as augmented reality" - in Phillips and Briggs (2012).

¹⁵ Hemenway (2017), ii (italics in original) and 3.

¹⁶ Hemenway (2017), 5.

¹⁷ Hemenway (2017), 6.

¹⁸ Hemenway (2017), 30.

Drucker describes an interface as “a zone of encounter, not a window through which we access content.”¹⁹ This encounter encloses “the entire system of reader, aesthetic object and interpretation.”²⁰ An interface is therefore a “space that supports interpretative events and acts of meaning production.”²¹ Because of this, books can be understood as interfaces,²² as Hemenway points out: “a book is an interface that *provokes probabilistic production* through the reading event.”²³

There are astonishing parallels between Hemenway and Drucker’s understanding of interfaces and the interpretation of Scripture as the medium of the gospel in traditional dogmatics: Here, too, Scripture takes on the function of an interface. In Scripture, the reader encounters testimonies of the revelation of God, which through the Holy Spirit can become revelation for the reader, opening up the gospel for him or her. The Bible thus serves as an interface between the reader and what the texts attest: God’s relation to humanity.²⁴ Scripture as *medium salutis* therefore does not imply a certain ontological quality of Scripture, but a “function” or “service” (Indienstnahme).²⁵ This is the reason for its authority, which must prove itself in the constant recognition and actualization of this confidence in the reception of the texts.²⁶

2.2. The Bible as Event – a Procedural Authority

Because of this, one’s encounter with the Bible is of central importance. At this point, Hemenway’s description offers another interesting interpretation, by distinguishing between interface as a noun and interface as a verb.²⁷ The verb form of interface – Drucker speaks of “interface as event” – offers a helpful reinterpretation of Scripture’s authority.

¹⁹ Hemenway (2017), 33. Following Drucker (2011); Drucker (2009).

²⁰ Drucker (2009), 8.

²¹ Drucker (2011), 3.

²² See Hemenway following Drucker, Hemenway (2017), 30.

²³ Hemenway (2017), 38 (italics in original).

²⁴ See section 3.1. of this paper.

²⁵ Körtner (2018), 508 (my translation). See Dalferth (2018), 442-446; Stoellger (2016), 310-313.

²⁶ See in detail on the authority of Scripture Zeller u. a. (2020). My thoughts are based on a relational concept of authority as described by Horst Bei and Paul Metzger. Vgl. Bei (1980); Metzger (2018), 25.

²⁷ There is an interesting connection to McLuhan, Hemenway mentions: “The Oxford English Dictionary (OED) has entries for ‘interface’ as both a noun and a verb. Interestingly, both noun and verb entries in the OED figure Marshall McLuhan, of ‘medium is the message’ fame, prominently as the first quotation in the non-scientific definitions of the term. In fact, the OED credits McLuhan as the first user of ‘interface’ in the verbal form in a 1967 collaborative effort with Quentin Fiore.” Hemenway (2017), 31.

Authority understood as a relationship, as described above, can now be stated more precisely as a procedural authority: Scripture's authority comes to bear if and insofar as it is read - namely, if and insofar as it is read with the confidence that the gospel will be disclosed by reading these particular texts. If the authority of Scripture is imagined in this way, authority as a normative notion cannot be isolated from the actual use and interpretation of Scripture by the persons and communities claiming an authority for Scripture.

The appropriation of Scripture therefore has constitutive significance for the validity and authority of the texts, as Stoellger makes clear in comparison to the Lord's Supper: "Holy Scripture is only to be called holy if it becomes the body of the Spirit. And the Spirit can only meet us in it, as long as it is present as its power to give meaning. It's the same with Scripture as it is with bread and wine. Outside of their concrete use, which faith makes of them, Scripture is just one among many texts. Therefore, we worship the elements of the Lord's Supper as little as we worship the Bible. Without animating use, the Spirit would be as dead as Scripture would be."²⁸ Because of this, the actual uses of the Scripture are of great interest for dogmatic reasons.²⁹ This structure of the interface, in turn, is constitutive in the digital design practices described by Hemenway.

3. Dogmatic Groundings of Interface-theory

3.1. Interface-theory and Pneumatology

Following the proposed relational concept of authority, authority is constituted between reader and text in and around the event of reading and hearing. This understanding is grounded in the doctrine of *efficatia*: for the believer, the authority of Scripture results from its effectiveness, i.e. that it leads to faith through the Holy Spirit. This *efficatia* proves itself again and again in the communion of believers through history. Therefore, confidence in the biblical texts always precedes the reading of the individual Christian.³⁰

²⁸ Stoellger (2016), 315 (my translation). See in more detail the chapters "Gotteswort und Menschenwort" and "Schriftauslegung in relationaler Perspektive" in van Oorschot and Focken (2020). See also Körtner (2001), 311; Dalferth (2018), 442-446.

²⁹ I analyze and reflect on Scriptural authority in the relation between the theological interpretation and the actual uses of Scripture in contemporary dogmatic theologies in a current research project. For further information, see <http://www.fest-heidelberg.de/schriftthermeneutik/>.

³⁰ On the relation of authority, reception and community, see Zeller u. a. (2020).

Here, the description of the Bible as interface touches pneumatology: This understanding of biblical texts as *evangelion* is always inspired by the Holy Spirit. Theologically, Scripture described as interface is to be specified as a function or service (Indienstnahme) of the Holy Spirit: It serves as an interface used by the Holy Spirit to open up the gospel.³¹ This event of “interfacing” is productive on both sides: While the Holy Spirit opens up the Gospel, this event needs active participation, especially interpretive work on the receiving end in order to become a communicative event. Always aware, that this is the most unlikely case of “successful” communication.

Therefore, one has to differentiate carefully between possible readings of the Bible: Reading and listening to the biblical texts is not always an experience of the Holy Spirit but might also follow other interests and aims. Although every act of reading is an exploration, not every exploration of Scripture opens up the gospel.³² We can only experience the *evangelion* individually and in community. As soon as we start to share our witness, our experiences are hidden in our words, culture and communication setting, and communicating our witness is more likely to fail than to succeed. Being touched by the Holy Spirit in reading and understanding the *evangelion* in Scripture can only be witnessed intersubjectively, but not conclusively justified rationally.³³ Interpreting Scripture therefore means being part of a highly pluralistic community of witnesses to something we may agree – or argue about – to call “evangelion.”

3.2. Interface-theory and Christology

In terms of media theory, one can speak of a two-stage mediation of the Gospel: The incarnation of the Logos in Christ is itself already a medium, the “ultimate medium of the monotheistic God”.³⁴ Scripture does not replace Christ, but witnesses to him (at least in parts). Human knowledge of God is therefore mediated in two ways: It is me-

³¹ Of course, this does not mean that the Holy Spirit can use other media (texts, songs, films, people etc.). However, the canonicity of the biblical texts testifies to the particular confidence of the Christian tradition in these texts as places to encounter the gospel.

³² On the difference between the soteriological and the hermeneutical dimension of the understanding of Scripture’s authority see van Oorschot (2016).

³³ Here it differs e.g. to scientific readings of biblical texts that must be rational and methodologically comprehensible. See van Oorschot (2019).

³⁴ Körtner (2008), 321 (my translation). See also Stoellger: “God became word, tora, Scripture, in the Tablets of the Law and in scroll.” (Stoellger [2016], 307, my translation) Also the embodiment of God in Christ – following Stoellger the absolute embodiment understood as an absolute metaphor – takes place medially “located in Scripture” (310). Thereby, Scripture does not become a literary or iconic artifact – in contrast, Scripture becomes an embodiment of God, understood as *christus praesens*, through a certain use (310,313).

diated through Jesus Christ, who in turn is witnessed in Scripture medially.³⁵ According to Stoellger, this is not limited to one specific medium: “The Word became flesh – and again word and sacrament and also image, ritual and ‘Lebensform’.”³⁶ Scripture and image, film, sound, music etc. are thus involved in the potential medial diversity of the embodiments of the Word of God.³⁷

This hiddenness of the message itself leads to an inevitable plurality of readings and interpretations of the *evangelion* – both in the plural witnesses which the different biblical texts offer and in our differing readings of these texts in history and today. Hemenway therefore describes “anarchy” as one affordance of the interface: “Anarchy in interface constantly exceeds attempts by users to grasp and order the whole in a stable manner.”³⁸ One might even say: The *evangelion* constantly exceeds attempts by believers to grasp and order the whole in a stable manner. Plural medial references and interpretations are therefore not a drawback of Scripture’s authority, but its constitutive characteristic. Therefore one might speak of an “anarchic authority” of Scripture, as will be explained in the next paragraph.

4. The Affordances of the Bible: Perspectives of the “User”

For Hemenway, this constitutive facilitation of plurality is a central implication of the understanding of Bible as interface. He describes it as the affordances of Scripture: “Affordances are the set of real or perceived use possibilities offered by the material design of an interface *in relationship to a particular user and context*.”³⁹ Applied to the Bible, he wants to “consider *bible as an interface that affords high surface area, collaboration, and anarchy*.”⁴⁰

As the affordances take up the perspective of the “users” of the Bible, I want to take up the debate sketched out above about the fixation of the written text as an alterity to its user.

³⁵ Körtner (2008), 323. See also van Oorschot (2019).

³⁶ Stoellger (2016), 313 (my translation). See loc. cit., 315.

³⁷ On text and image see Stoellger (2011), 17.

³⁸ Hemenway (2017), 54.

³⁹ Hemenway (2017), 41 (italics in original).

⁴⁰ Hemenway (2017), ii (italics in original). See loc. cit., 3.

4.1. Interface as High Surface Area and the Written Text

Firstly, Hemenway describes the Bible as a “high surface area”: It has many possible points of contact between user and platform. Thereby it can hardly be deterministic due to the many interactive possibilities offered by the structure of the interface.⁴¹ Hemenway concludes that “the relationship of the interface always exceeds a user’s ability to master an interface in its entirety.”⁴² Related to the notion of anarchy – understood in the very sense of the word as “*without the reign of an original*”⁴³ – this understanding might serve as a description of the plurality of the biblical witnesses of the *evangelion* in the biblical texts themselves: The plurality of the offered interpretations of God and the Gospel in the canonical collection of texts themselves make a reign of an original impossible. The origin lies beyond the texts, which themselves only serve as witnesses for this origin. Not only does the inner-biblical plurality of texts demonstrate a “high surface area,” but the inner-biblical reception and interpretation processes as well as the diversity of dogmatic and historical interpretive patterns show the adequacy of understanding Scripture as a “high surface area.” This implies anarchistic “interferences” to all theological aims to simplify or unify the biblical witnesses to one single message.

Digital media, therefore, do not add anything new to this plurality but only extend the existing plurality of medial and interpretive frames and forms. Scripture is – regardless of its mediation and medial form – a high surface area. The fixation of Scripture by its writtenness must therefore be unveiled as a dogmatic construct.

4.2. Alterity and Interface

As mentioned at the beginning of this article, the written form of the Bible is often interpreted as the guarantor of the externality (or alterity) of the texts against the interpreter. This understanding arises out of the (reformational) concern not to deliver the biblical text to the arbitrariness of its interpreters, but to find in the biblical texts a hermeneutical “counterpart” to the church’s tradition and doctrine: Scripture should serve constructively and critically as the source and guideline of theological and ecclesiastical reflections. This conviction is grounded in Luther’s reflections on the *claritas externa* of Scripture: The *verbum externum*, the text of the Bible, is a counterpart to the interpreter and his or her interpretational endeavors.

⁴¹ Hemenway (2017), 52.

⁴² Hemenway (2017), 52.

⁴³ Hemenway (2017), 54.

The relation of this figure to a certain medium – especially to its writtenness – is quite controversial.⁴⁴ From media theory, it is clear that the externality of Scripture understood as its mediality is difficult to maintain in the digital: Text and readers become interface and users, which are intertwined to one another in different material and virtual constellations. On the contrary, in interactive approaches to biblical texts, the texts will be constantly reconstituted, reconstructed in a collage-like manner, and linked together. Based on insights of reception aesthetics theory, the bias between text and reader is difficult to describe as sharply as necessary – even without changing medial forms: Every reader is part of the process of understanding and therefore is part of the hermeneutic process of generating “texts.” Do digital texts therefore promote arbitrary readings of sacred texts, breaking off their canonical validity, as we heard in the beginning?

Following my interpretation means saying “no” to that question. But that does not intend to deny the notion of the alterity of Scripture. Its alterity consists of other reasons. The alterity of Scripture vis-à-vis its interpreter cannot be defended in media theory, neither analogue nor digital. This paper’s theological reflection has shown that its alterity is based only in the alterity and externality of the one to whom Scripture witnesses. Scripture’s alterity is part of the pneumatological understanding of Scripture. Therefore, it is part of the experience of “spiritual reading” and can only be witnessed intersubjectively.⁴⁵

4.3. Interfaces Allowing Collaboration and Anarchy

Based on this pneumatological understanding, the two other affordances of Scripture, Hemenway suggests, are of constitutive relevance for the understanding of Scripture as interface: collaboration and anarchy. Both are closely linked to one another: Bible as interface affords “collaboration,” offering “possibilities for both participation in constructing the space of interface and chances for user interaction.”⁴⁶ Thereby it

⁴⁴ Körtner, for example, attributes great importance to the writtenness of the bible as a book. He therefore asks for a “theological hermeneutics of the book”, a scriptology (Körtner [2001], 308, my translation). In contrast, for the Protestant Church in Switzerland the book is of no special importance: Although historically, there are “special affinities between the Christian message and the medium of the book”, this “connection is not essential; it does not reach into the identity of the Christian faith” (Theologie und Ethik [ed.] [2016], 7, my translation). Christianity is not a “book religion,” rather the book is a possible form of communication of the personal word of God among others (ibid., my translation).

⁴⁵ See in more detail Oorschot (2019).

⁴⁶ Hemenway (2017), 52. Hemenway distinguishes two layers: “First, there is a relationality of participation in constructing the material aspects of the interface rather than simply consuming the content. Second, there is a relationality of community, using and making together not entirely on a user’s own terms” (53).

enables a relation of anarchy and proximity (Lévinas), “*without the reign of an original*.”⁴⁷

Therefore, collaboration in reading and reflecting biblical texts is as important for theological reasons – as described related to Christology – as for medial reasons (at least in digital contexts). Following a relational understanding of authority, the interpretation of biblical texts in community is of central importance. Reading, hearing and interpreting in *koinonia* is at the heart of the understanding of Scripture and its authority sketched out above. Clivaz therefore asks: “Are the different Protestant churches willing to understand the *sola scriptura* as *lectura* that happens in *koinonia*?”⁴⁸

The meaning of common reading (and hearing and seeing) is especially evident in digital contexts.⁴⁹ *Hemenway concludes:*

At its best, bible has and always will afford this kind of anarchy through the constraints and possibilities of its materiality in interface. Even if this anarchy looks more troubling and threatening to those who value the stability of the texts of bible, the continuity throughout history of this affordance of anarchy in the acts of material media translation can offer us a way to engage emerging bible interfaces from a place of familiarity and value, not anxiety.⁵⁰

5. Medial Changes and the Holy Scripture: Conclusions and Open Questions

Overlapping media theory and theology, Hemenway’s thesis of Bible as interface offers an innovative perspective on the hermeneutics of Scripture. It implicates – at least in

⁴⁷ Hemenway (2017), 54 (italics in original).

⁴⁸ Clivaz (2017), 57 (my translation, italics in original). See also Theologie und Ethik (ed.) (2016), 17f. Clivaz applies this thought to the scientific community, for example in peer-reviews (Clivaz [2017], 43). Related to the outlined pneumatological background and its ecclesiological implications – not discussed yet – the question arises whether one has to distinguish more carefully between different communities of reading and interpretation. See van Oorschot (2016). On the importance of epistemic communities in digital science platforms see Friedrich, Reichel and Renkert (2019), 176–178.

⁴⁹ Other sensual dimensions, such as feeling and tasting – which are of special importance to the Lord’s Supper – lie beyond digitally mediated interaction. This restriction has to be reflected ecclesologically when thinking about digital church life. With regard to common reading, the Swiss Church points to the parallel structures of the (new testament’s) letter and of today’s online communication regarding their discursive and interactive form. See Theologie und Ethik (ed.) (2016), 13.

⁵⁰ Hemenway (2017), 171.

my understanding – a close relation to reception-oriented hermeneutics, interpreting them in terms of media theory.⁵¹

My hermeneutical reinterpretation shows that the dogmatic reflections on Scripture as a medium are much more fluid than the debates on the mediality of Scripture suggest. The characteristics attributed to the writtleness of the Bible – its alterity, the fixation of its content, and the embodiments of the gospel – are not challenged by digital media, but have to be reinterpreted regarding all medial forms.

To open the discussion, I want to conclude with two questions.

First, the question that arises out of media theory is whether we can speak of a “digital media change” related to the medialities of Scripture. It seems that the written culture remains in current digital and web-based accesses to the Bible: these are predominantly text-based interfaces.⁵²

In my view, we are not challenged by media change as much as by media pluralism. This is a very old challenge – theology has been preoccupied with the relationship between writing and image throughout its history, ever since the Old Testament ban on images.⁵³

Furthermore, the relation between orality and literacy has a long tradition in Christianity – so strong that the emerging connections in digital technologies can be interpreted as a return to the antique complementary understanding.⁵⁴

To take this plurality seriously is indeed a challenge for the “culture of books” in current theology.⁵⁵ To consider the relation of writing and image – expanded in digital accesses to the Bible in films, plays, visualizations, sound, music etc. – is therefore the

⁵¹ The multiple parallels to Körtner's understanding, for example, are obvious in this paper and need further exploration. On Hemenway's reading of reader-response-theory see Hemenway (2017), 38.

⁵² One has to differentiate between the medial access of the user on the one hand (digital interfaces instead of print – which, however, does not include a change of media with regard to the written form) and digitally accessed non-written forms of biblical contents (games, films, music) on the other hand.

⁵³ Stoellger points to the old rivalry of text and image, defining the heart of the crisis of Scripture in the image. Stoellger (2011), 16–17.

⁵⁴ See e.g. Siker (2017), 245: “But the digitization of the Bible reminds us that the words were not always written, that the message of the Bible has always been delivered in oral form for an aural experience.” See also Beal (2011); Clivaz (2017), 56–57; Dalferth (2018), 427–428; Hemenway (2017), 15; Körtner (2001), 300.320.

⁵⁵ For example, Clivaz advocates to open theology for digital methods at the interface of theology and computer science (Clivaz [2017], 54–55), while Dalferth pleads for a stronger connection to the church's uses of Scripture (Dalferth (2018), 437–8.441.442.446 etc.). Dalferth also states, that it is a peculiarity of reading and writing books – in contrast to digital readings – to form one's own world design as an individual and to immerse in it, have to be discussed. To what extent one can describe similar – or even farther reaching – processes in the digital. See Dalferth (2018), 433.

actual, but in the end not new, task in the field of digitization and scriptural hermeneutics.⁵⁶

Looking at this broad spectrum, I want to ask secondly: To what extent – if any – are the constructs of the fixation and alterity of Scripture theologically relevant? In other words: Do we need limits of interpretation – despite all sympathy for anarchic, discursive and collaboration models of interpretation?⁵⁷ In this regard, Dalferth stresses the duty of exegesis to emphasize the alien character of the biblical texts as the diversity of contemporary media blurs the lines between traditional content and fiction, text and interpretation.⁵⁸ Do we need to think about limits of interpretation – either related to the text or to the *koinonia* – when thinking about the affordances of Bible as interface?

We also need to think about the concrete materialities of the interfaces used – themselves expressions of the interface-character of the Bible.⁵⁹

Here, at the very end, we face a question which Hemenway does not pose explicitly but I want to: If the Bible can be described as interface not only for reasons of media change but also for theological reasons, are digital tools not only appropriate but maybe the most appropriate medial forms for “the message”? Or in Hemenway’s words if “bible at its best is an interface that enables relationships with users that cannot be reduced to simple consumption of its contents,”⁶⁰ how can “bible at its best” be theologically interpreted in digital and analogue medial forms?

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⁵⁶ Clivaz (2017), 43.

⁵⁷ For Hemenway this question is of secondary importance as he is interested in the structure of interface itself. If one focuses on the hermeneutic implications and pneumatological groundings, as I did, this question becomes more urgent.

⁵⁸ Dalferth (2018), 439–440.443.

⁵⁹ See for example Hemenway’s discussion of Siker: “Siker characterizes bibles on screens as better fit for surface reading and skimming than for “deep”reading and he laments the loss of covers as a threat to the bible’s authority as well as the loss of shape, the loss of tangibility, and the loss of stability of the biblical text.” (Hemenway [2017], 13 referring to Siker [2017], 37–51). Clivaz emphasizes the need of analysis of the implications of materiality on our reading (Clivaz [2017], 56).

⁶⁰ Hemenway (2017), 170.

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A New Hermeneutics of Suspicion? The Challenge of deepfakes to Theological Epistemology

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Clifford Anderson provides an introduction to “deep fakes” and related machine-learning technologies for theologians, assesses their danger as well as potential uses, and advocates for developing a spirituality of critical empathy in response. He relates deep fakes to a theology of mediation, pushing us to ponder the relation between εἰκών and εἶδος (icon and idea).

1. A New Hermeneutics of Suspicion? The Challenge of deepfakes to Theological Epistemology

“Jesus said to him, ‘Have you believed because you have seen me? Blessed are those who have not seen and yet have come to believe.’” (John 20:29; NRSV)

What does it mean to see and yet not to believe? Is this inverse of the Johannine pericope of ‘doubting Thomas’ a virtue or vice in the age of synthetic videos, better known as deepfakes? How will the growing use of deepfake videos affect theological epistemology, that is, our ability to discern the truth about God, our neighbors, and ourselves?

In this paper, I provide an introduction to deepfakes and related machine-learning technologies for theologians, considering their potential use and misuse in theology.

As we explore the topic, we will find that the phenomenon of deepfakes brings us deep into the theology of mediation, pushing us to ponder the relation between εικῶν and εἶδος (icon and idea). As Christians, we learn that appearances can be deceiving, misleading, or at least obscure underlying reality. The paradox of the form that is other than its substance is at the heart of Christian faith, from the mystery of the Lord's Supper to the crisis of the Cross.

Paul Ricoeur introduced the term “hermeneutics of suspicion” as a counterpart to the “hermeneutics of faith.” Whereas a “hermeneutics of faith” seeks to discern and bring the meaning of a text to light, a “hermeneutics of suspicion” questions its meaning, looking beneath the surface for repressed or suppressed significance. “This hermeneutics is not an explication of the object, but a tearing off of masks, an interpretation that reduces disguises.”¹ While he apparently changed his mind over the course of his long career about the relation between these hermeneutical modes,² when he discussed them in *Freud and Philosophy*, he argued that they are necessary and complimentary. As with Hegelian dialectic, suspicion turns into its opposite, namely, faith, when seeking for meaning behind the mask. Ricoeur famously described this so-called “second faith” as “postcritical” or a “second naïveté.”³

Will the proliferation of deepfakes push us as a society to become more critical about the mediascape about us? Will this critical perspective lead us into a postcritical stance that opens onto deeper vistas of meaning? Or will we become more suspicious, refusing to believe the evidence of our eyes even when all signs suggest we are facing the truth?

2. Assessing deepfakes

When people learn about the technology behind deepfakes, they tend to become fearful and for good reason: the origin story of deepfakes is murky and unseemly, starting with an anonymous member of reddit who called himself ‘deepfakes’ and applied off-the-shelf machine learning techniques to swap the faces of celebrities into pornographic videos. As Samantha Cole, senior staff writer at Motherboard and Vice, ex-

¹ Ricoeur (1970), 30.

² Scott-Baumann (2012), 59–77.

³ Ricoeur (1970), 28.

plained in twin articles from 2017⁴ and 2018,⁵ a community has developed around the production of these videos.

Creating deepfake videos to blackmail people is also on the horizon. As Samantha Cole writes, “It isn’t difficult to imagine an amateur programmer running their own algorithm to create a sex tape of someone they want to harass.”⁶ The majority of states now have laws against the circulation of ‘revenge porn,’ that is, of sexually-explicit images or audiovisual records.⁷ While these laws criminalize nonconsensual sharing of sexually-explicit photographs or videos, their application to synthetic images and videos is another question. Internet trolls have used Photoshop to create and spread degrading images of women for more than a decade, emerging as a public issue during the harassment of technologist Kathy Sierra in 2007.⁸ The personal and social harm caused by the release of synthetic pornography is no less real than organic pornography. And the more realistic it becomes the worse the impact on its victims. For this reason, producers of deepfake pornography may find it lucrative to threaten people with its release. In fact, this kind of blackmail has already started to take place.⁹

If deepfake pornography threatens to cause victims personal anguish and social harm, the dissemination of fake videos in charged political situations might prove fatal. In October 2019, for instance, four protesters in Bangladesh died in riots sparked by a post on Facebook criticizing the Prophet Mohammed.¹⁰ The Hindu citizen who supposedly published the post complained about the hacking of his account. In fact, it turned out that police corroborated his complaint and arrested the hackers. The quick action did not stop the riots. In regions where there is little trust between communities, people who see incendiary videos may act without waiting for confirmation of their veracity (or falsity). While digital media forensics (see below) might reveal malicious doctoring, such evidence would come too late to prevent violent disturbances on the ground. The production of deepfake videos about political figures has become a popular sub genre of the deepfake community; the channel r/SFWdeepfakes/ on reddit features synthetic videos of Donald Trump, Barak Obama, and Hilary Clinton, among others. The majority of these videos function as parody, inserting Trump into the film, *The Wolf of Wall Street* or having Obama sing and dance to the tune

⁴ Cole (2017).

⁵ Cole (2018).

⁶ Cole (2017).

⁷ Electronic Privacy Information Center (2019).

⁸ See MacKinnon (2013), 87–88.

⁹ Liotta (2019).

¹⁰ Gupta (2019).

of “Spooky Scary Skeletons.” These applications of the technology of deepfakes are innocuous, clever, and funny, but more sinister applications could make real political impact. As with foreign interference in the 2016 presidential elections in the United States, no straightforward remedy exists for undoing the immediate social and political aftermath of faked images and videos.

Coverage of deepfake videos tends to dwell on their negative potential. Given their origins, use for harassment, and potential for spreading disinformation, the media’s alarm over deepfakes seems justified. As with any new technology, the advent of deepfakes comes with positive and negative potential. As the authors of *Blown to Bits*, a textbook used in high school and college level courses in computing across the country, opine, “the key to managing the ethical and moral consequences of nourishing economic growth is to *regulate the use* of technology without *banning or restricting its creation*.”¹¹ In the introductory computer science course I teach at Vanderbilt University, *The Beauty and Joy of Computing*, I cover the moral panics that periodically sweep through the media, school boards, and Congress, ranging from the worries about children’s exposure to pornography that led to the passage of the Communications Decency Act of 1996 to the battles over copyright and fair use that prompted the Stop Online Piracy Act (SOPA) and PROTECT IP Act (PIPA) in 2012. As we face the prospect of legislation after the passage of the Deepfake Report Act of 2019,¹² will it be possible for us to overcome anxieties about the genuine threats deepfakes pose in order to consider and safeguard the positive applications?

As theologians, we have particular reasons to take care. We must think beyond the economic, legal, and even ethical dimensions of deepfakes to consider their spiritual implications. We also have to avoid falling into our socially-assigned role of conservators of the status quo even as some hyperbolically speculate that “AI may be the greatest threat to Christian theology since Charles Darwin’s *On the Origin of Species*.”¹³ The best way to assess the spiritual impact of any new technology is to spend time exploring its potential for good and bad, examining its components, and exercising our theological imagination.

The majority of publications about deepfakes address their potential for spreading disinformation. But the technology also has positive aspects. Deepfakes can serve legitimate ends by bridging cultural divides and forging emotional connections. But

¹¹ Abelson, Ledeen and Lewis (2008), 14.

¹² Portman (2019).

¹³ Merritt (2017).

the boundary between such valid uses and virtual creepiness may be difficult to discern. In what follows, I present three brief scenarios, grounded in contemporary technology, for us to consider.

2.1. Editing Sermons

Sharing audio or video recordings of sermons online is common today. If you are like me, you prefer not to listen to the sound of your own voice. At Vanderbilt, I am one of the team members who collectively produce *Leading Lines*, a podcast about educational technologies. I am grateful that our team also includes Rhett McDaniel, an educational technologist who also happens to have a M.S. in Music Technology. Rhett skillfully edits every episode to smooth over verbal stumbles and tics. If you are a pastor, having your worship services broadcast increasingly comes with the territory. But, from my experience, mainline churches do not edit the recordings they put online, making them difficult at times to listen to. If you stumbled while reading a biblical passage, made an impromptu joke that fell flat, or neglected to mention one of the volunteer leaders of vacation Bible school, your gaffe will linger for the longterm in the congregation's digital library.

A company called Descript markets audio editing software that makes it straightforward and easy to edit out mistakes, pauses, and other problems in podcasts and other kinds of recordings. Descript generates a transcript from the audio and, by keeping text and speech in sync, allows you to edit the audio by changing the transcript. If you want to get rid of that bad joke, you strike it from the transcript and it vanishes from the audio too. Of course, while Descript provides an attractive interface, it does not differ qualitatively from other audio editing and transcription tools, which also provide sophisticated software for correcting errors.

What makes Descript distinctive is the integration of a technology called Lyrebird to enable audio overdubbing. The researchers collaborating on Lyrebird highlight similar scenarios for its use. Drawing on an area of study called “text-informed speech inpainting,” Lyrebird uses deep learning techniques to allow editors to insert new text into the transcription and to produce new audio in the recording that blends seamlessly with the words that came before and after.¹⁴ In other words, if you forgot the name of that volunteer, you do not have to live with the mistake – by editing the transcript, you insert mention of that person into the audio and, to all the world who lis-

¹⁴ See Brébisson (2019).

tens to the recording, it sounds as natural as it would have had you said it on Sunday morning.

2.2. Preaching in Tongues

What about using deepfake technology to bridge linguistic divisions in congregations? In churches serving immigrant communities, pastors commonly hold services of worship in different languages. There may, for instance, be one service in Spanish and another in English. A Methodist congregation in my neighborhood in Nashville holds simultaneous services of worship in English in the main sanctuary and Karen, English, and Thai in the community center next door. While accommodating the linguistic difference of parishioners is admirable, maintaining separate worship services might lead to divisions within the congregation. The alternative, combining services with the aid of simultaneous translators, is problematic because of its cost and its potential for increasing the length of the service. What if we could draw on deep learning to create versions of the same sermon in English and any other language spoken in the congregation?

Synthesia is a company based in London that specializes in what it terms “video synthesis technology.”¹⁵ Synthesia uses “Generative AI” to “reduce the cost, skill and language barriers to creating, distributing and consuming content.” On its website, Synthesia also highlights its ethical commitments, promising to “never re-enact someone without explicit consent” and to work with partners of all kinds “to develop best practices” on the use of “video synthesis technology.”¹⁶

The Synthesia website features exemplary stories about the potential of “video synthesis.” Consider the story of a cross-cultural marriage proposal using Synthesia’s technology: “I Used AI To Propose To My Wife In Her Native Language.”¹⁷ In the video, a white man from the United States agrees to ask his Chinese spouse to marry him again, this time proposing in Mandarin. How can he pull off this feat without speaking Mandarin? Technologists from Synthesia film him delivering the proposal in English, creating a computer model of his facial expressions as he speaks. A Mandarin-speaking vocal actor then reads the translation of his proposal in Mandarin. The technology then maps the vocal sounds and facial expressions onto the man’s face, allowing him to “speak” to his spouse in her native language.

¹⁵ See <http://web.archive.org/web/20190428185007/https://www.synthesia.io/>.

¹⁶ See <http://web.archive.org/web/20190428185005/https://www.synthesia.io/ethics>.

¹⁷ Kanter (2018).

2.3. Museum Informatics

The emerging field of museum informatics seeks to inform and engage visitors about works of art through new media and digital technologies. Developments in augmented reality will make the current audio tours with the bulky headsets and players seem woefully dated. Imagine coming across Lucas Cranach the Elder's portrait of Martin Luther. By holding up your phone in front of the painting, you might see Luther turn to face you and begin to describe his ongoing efforts to reform the church, his intention to translate the Bible into German, and his sorrow at the loss of his daughter, Elizabeth. Through augmented reality, the portrait becomes a window into another time, another place, educating viewers about the people, places, and events they find depicted in oil.

The ability to produce this kind of animation is not novel. Using game development platforms like Unity or Unreal Engine, skilled animation artists create and animate sprites from static images. But deep learning promises to automate the process and make it scalable. In "Few-Shot Adversarial Learning of Realistic Neural Talking Head Models," a team of scientists from the Samsung AI Center in Moscow and the Skolkovo Institute of Science and Technology have created algorithms for generating animated representations from photographs. What is innovative about their technique is the ability to produce these animations from a single image: "Our system can generate a reasonable result based on a single photograph (one-shot learning), while adding a few more photographs increases the fidelity of personalization."¹⁸ The team used their deep learning algorithms to generate animated models from images of the *Mona Lisa*, Fyodor Dostoevsky, Albert Einstein, and Marilyn Monroe. The title of the article in *Art News* covering the achievement encapsulates the response from curators and art historians: "Russian Researchers Used AI to Bring the Mona Lisa to Life and It Freaked Everyone Out."¹⁹

As it happens, artists are already using deepfake technology in their works. In a 2020 exhibition at the International Center of Photography in New York, James Coupe created a series of installations that permit visitors to insert themselves digitally into the 1979 film, *The Warriors*.²⁰ But, as Jason Farago contends in *The New York Times*, the artistic potential of deepfakes remain essentially unexplored. Beyond the "janky tech," Farago labels Coupe's installations as "tech for tech's sake," and remarks that the In-

¹⁸ Zakharov u. a. (2019), 2.

¹⁹ Dafoe (2019).

²⁰ See <https://www.icp.org/exhibitions/james-coupe-warriors>.

ternational Center of Photography “should expect artists to examine life as shaped by new photographic technologies, rather than simply announce new technologies exist.”²¹ Whatever we think of Farago’s judgment of *Warriors*, he is undoubtedly right that we find ourselves at the awkward beginning of creative inquiry into the artistic potential of deepfakes.

3. The Technology of deepfakes

How do deepfakes work in practice? The technology of deepfakes belongs to a sub-field of machine learning called “deep learning.” As Gary Marcus succinctly defines it, “Deep learning...is essentially a statistical technique for classifying patterns, based on sample data, using neural networks with multiple layers.”²² In less abstruse terms, the goal is to take a set of inputs and map its contents to a labeled set of outputs.²³ At the beginning of the process, we start with a bunch of unlabeled data we want to label, and the algorithm’s job is to draw lines between the data and the correct labels. As Marcus indicates, a typical application of deep learning is taking a digitized set of manuscripts and mapping the handwritten letters to some canonical alphabetic representation. The thing with deep learning is that the lines are not drawn directly from the input set to the labeled data. Rather, the lines from the initial data pass through interim layers until they converge on the labels. Forward and backward propagation algorithms allow for input and output layers to communicate through sets of interim layers, making adjustments between the “neurons” (or provisional mappings) until the fit between inputs and outputs becomes satisfactory. “It’s like a giant game of telephone” explains Andrew Trask in *Grokking Deep Learning*, “at the end of the game, every layer knows which of its neurons need to be higher and lower...”²⁴ Unlike the game of telephone where communication frequently goes hilariously wrong, these web of connections often wind up producing uncannily accurate outcomes.

The development of a technique termed “Generative Adversarial Networks” (GANs) reduced the computational expense of producing deepfake videos.²⁵ The leading idea is to pit two deep learning models against one another. The first model (the “generative model”) presents its output data to the second model (the “discriminative”

²¹ Farago (2020).

²² Marcus (2018).

²³ Ibid., 4.

²⁴ Trask (2019).

²⁵ Goodfellow u. a. (2014).

model), which seeks to classify that data as a product of the generative model or a sample of the data-to-be-modeled (i.e. the training data). As the authors of the 2015 publication that introduced the concept explain, “The generative model can be thought of as analogous to a team of counterfeiters, trying to produce fake currency and use it without detection, while the discriminative model is analogous to the police, trying to detect the counterfeit currency. Competition in this game drives both teams to improve their methods until the counterfeits are indistinguishable from the genuine articles.”²⁶ The innovative aspect of this technique is that both generator and discriminator are learning as the game proceeds. The generator continues to create data distributions that approximate the training data and the discriminator learns to distinguish between the generator and the training data more accurately. The competition between the models concludes when, as the analogy suggests, the generator produces models that the discriminator can no longer reliably distinguish from the training data. GANs are not guaranteed to bring generator and discriminator into equilibrium; they sometimes oscillate between suboptimal solutions. Researchers have put forth pragmatic techniques to prevent the models from collapsing before converging.²⁷

3.1. The Democratization of Manipulation

The ability to produce image-to-image translations is not new.²⁸ Major movie production studios already have technologies to produce realistic body doubles. As Patrick Shanley and Katie Kilkenny wrote in *The Hollywood Reporter*, “Hollywood has long swapped faces – just using different tech.”²⁹ For example, studios have used these methods to create continuities in fictional universes like *Star Wars*, bringing back characters like Princess Leia and Grand Moff Tarkin after the deaths of Carrie Fisher and Peter Cushing.³⁰ If special effect studios in Hollywood possessed the technology for creating synthetic videos, then intelligence agencies in the United States and abroad must have too. After all, intelligence agencies around the world have produced propaganda, manipulated media, and planted ‘false flags’ for decades. Among the materials from the National Security Agency that Edward Snowden released in 2014 is a document listing the British Government Communications Headquarters’ (GCHQ) digital manipulation tools.³¹ While the ability to alter digital video may not be new,

²⁶ Ibid., 1.

²⁷ Goodfellow (2016), 34.

²⁸ Shen u. a. (2018), 1.

²⁹ Shanley and Kilkenny (2018).

³⁰ Kemp (2019); Shanley and Kilkenny (2018).

³¹ Ball (2014).

organizations and agencies lacked the wherewithal to pull off these transformations. What is new about ‘deepfakes’ is the democratization of video manipulation.

4. The Cognitive Science of Deepfakes

Over Labor Day weekend in 2019, I attended Dragon Con, an annual gathering of more than 85,000 fans of science fiction, fantasy, gaming, and other forms of contemporary geek culture. Alongside all sessions devoted to exploring Dr. Who, Harry Potter, Star Trek, and the latest anime, there is a Dragon Con Skeptic Track devoted to “critical thought, extraordinary claims, and promotion of good science.” This year, the track sponsored a session titled, “How Deep Is Your Fake?” on the challenge of identifying and debunking deepfake videos. The presenter, Teddi Fish, who cosplayed as Teddy the Flying Spaghetti Monster while giving her talk, provided an overview of the state of the problem from a technical as well as a social perspective, concluding with a slide advising “Question before you share. Question that with which you agree. Stay skeptical.” The advice sounds laudable and, certainly, nobody wants to fall prey to fraud.

According to Karen Hao, our anxiety about being misled by deepfakes may be creating the negative effects we are seeking to avoid. In “The Biggest Threat of Deepfakes Isn’t the Deepfakes Themselves,” she notes that overly skeptical viewers have already come to regard authentic videos as potential fakes, leading to serious political consequences.³² In other words, we are becoming so concerned about the potential of fraudulent video that political agents are using that anxiety against us, discrediting videos as misinformation and ‘fake news.’ As Hao quotes Aviv Ovadya, an expert in misinformation: “What [disinformation actors] really want is not for you to question more, but for you to question everything.”³³

Skepticism runs counter to core principles of human psychology and information economics. As Fish herself remarked during her presentation at Dragon Con, “human beings are wired so that what we see sticks in our brain as something that is, in fact, reality.”³⁴ If we doubt everything, our ability to act degrades. A major reason we have trademarks and service marks is, in fact, to save us the trouble of evaluating sources.

³² Hao (2019).

³³ Ibid.

³⁴ <http://video.skeptrack.org>.

As the American pragmatists taught us more than 150 years ago, absolute skepticism is a practical impossibility. We cannot suspend belief in all our convictions simultaneously. In “Some Consequences of Four Incapacities” (1868), Charles Sanders Peirce argued that Cartesian skepticism foundered on this practical inability. Peirce noted that Cartesianism “teaches that philosophy must begin with universal doubt,” but countered that such a standpoint is self-deceptive.

We cannot begin with complete doubt. We must begin with all the prejudices which we actually have when we enter upon the study of philosophy. These prejudices are not to be dispelled by a maxim, for they are things which it does not occur to us *can* be questioned. Hence this initial skepticism will be a mere self-deception, and not real doubt; and no one who follows the Cartesian method will ever be satisfied until he has formally recovered all those beliefs which in form he has given up.³⁵

A problem with advocating sweeping doubt about the veracity of every digital image or audiovisual recording we encounter is that, if we followed that advice, we would lose our ability to act. We cannot be skeptical about everything we see. At best, we can train ourselves about when to become skeptical. To become skeptical about something we thought we knew, as Peirce indicated, we need to have genuine grounds for doubting its veracity; cultivating artificial doubt will not lead us to the truth about what we are seeing.

If casting doubt on everything we see until it is proven true does not constitute a workable strategy, what can we do to prevent ourselves from falling for misinformation? From the standpoint of cognitive science, the task may actually be more difficult than it appears. In “Believing that Humans Swallow Spiders in Their Sleep: False Beliefs as Side Effects of the Processes that Support Accurate Knowledge,” Elizabeth J. Marsh, Allison D. Cantor, and Nadia M. Brashier of Duke University examine how errors become integrated into our “knowledge base” through what they term “adaptive processes.” These processes “normally support accurate knowledge, but sometimes backfire and allow the introduction of errors into the knowledge base.”³⁶ In their article, they review five such adaptive processes. Of these, I’d like to highlight three processes that connect directly with the question of deepfakes.

³⁵ Peirce (1868).

³⁶ Marsh, Cantor and Brashier (2016), 107.

First, the authors note that disbelieving something we learn takes more cognitive effort than believing it.³⁷ Our cognitive wiring is such that we tend to accept novel information as true; it takes mental effort to flag it as false. As they point out, this strategy makes sense given that human beings evolved in an environment where perceptions are generally grounded in the truth. Of course, we do have cognitive systems for rejecting perceptions as untrue. But psychologists have demonstrated that short-circuiting these higher-level evaluative systems is not difficult.³⁸ As we distractedly scrolled through social media feeds in 2017 during Hurricane Harvey, who among us paused to reflect on the likelihood of a shark swimming along one of the flooded aqueducts, as depicted in a heavily-shared image? Who of those who saw the image on Twitter later read Linda Qiu's admonition in the *New York Times*, "Don't believe it. This fake image is an old hoax that circulates routinely after major hurricanes."³⁹

Another "adaptive process" that inhibits our ability to screen out errant beliefs is what the authors term the "fluency-based heuristic for judging truth."⁴⁰ The effect stems from confusion between our ability to process information and the truth value of that information. If we can recall something readily to mind, we are more prone to judge it as true. As the authors note, advertisers exploit this effect by exposing people in certain markets again and again to certain claims, making it easier for them to remember those assertions and, hence, to assume their truth. On a related note, pairing an image with factual assertions amplifies people's tendency to accept those assertions, even if the image is factually unrelated.⁴¹

A final "adaptive process" worth noting is that we often accept "partial matches" when making connections between facts. The authors note that speech communication is fraught with parapraxis and other forms of verbal disfluencies. When someone is struggling with communicating an idea, we generally try to make sense of what that person is saying, filling in the gaps while reassuring him or her that we "know what you mean." But, as it happens, employing this strategy also means that we tend to gloss over factual errors. The authors point to an effect that Thomas D. Erickson and Mark E. Mattson described as the "Moses Illusion" to illustrate this tendency. As Erickson and Mattson demonstrated, when asked "How many animals of each kind did Moses take on the Ark?" most people answer "two", overlooking that Noah built

³⁷ Ibid., 108.

³⁸ Ibid.

³⁹ Qiu (2017).

⁴⁰ Marsh, Cantor and Brashier (2016), 108.

⁴¹ Ibid., 110.

the Ark, not Moses.⁴² The etiology of this effect is not certain, but Marsh, Cantor, and Brashier follow Erickson and Mattson by assuming that “monitoring [for errors] takes effort, and accepting ‘good-enough’ representations is a shortcut that normally works.”⁴³

The upshot of this research is to show that our cognitive processes balance efficiency and accuracy when assimilating new information. To my knowledge, researchers have not yet studied how these adaptive processes will affect our ability to judge the veracity of deepfake videos, but we might readily imagine that their producers will draw on this research to make them slip past our cognitive defenses. While adopting a skeptical attitude toward what we see may help us to screen out errors, doing so will also slow down our assimilation of new information.

5. Potential Countermeasures

If deepfake videos threaten to undermine the cognitive processes we use to process information, how can we as a society address the threat? The two primary lines of counterattack at present are technological and legal. As we will discover, these two means of counteracting the threat of deepfakes are promising, but inherently limited.

On the one hand, technologists recognized the threat posed by the widespread availability of tool sets for creating synthetic videos and began to develop forensic software to detect such videos. The techniques range from looking for simple physiological tells, like unnatural patterns of eye blinking,⁴⁴ to sophisticated “ensemble” models.⁴⁵ In September 2019, Facebook announced a “Deepfake Detection Challenge” to incentivize the study of detection methods;⁴⁶ Amazon and Microsoft, as well as several academic institutions, have since joined on.⁴⁷ As a part of this initiative, Facebook released a dataset of 100,000 videos, some of which are the products of audiovisual manipulation, for researchers to use as a proving ground for detection algorithms.⁴⁸ A competition on Kaggle for the most effective detection algorithms promises awards of up to half a million dollars.⁴⁹ The social networks have intrinsic interest to expose

⁴² Erickson and Mattson (1981).

⁴³ Marsh, Cantor and Brashier (2016), 116.

⁴⁴ Li and Lyu (O A 2018).

⁴⁵ Yu, Chang and Ti (2019).

⁴⁶ Cole (2019).

⁴⁷ See <https://deepfakedetectionchallenge.ai>.

⁴⁸ Dolhansky u. a. (2019).

⁴⁹ See <https://www.kaggle.com/c/deepfake-detection-challenge/overview>.

fake news, including fake videos, to stave off increasing political scrutiny and additional regulation. But the effort will benefit noncommercial entities as competitors must release their code under open source licenses to qualify for the prizes. An intrinsic problem is that developers of deepfake toolkits can also use these improvements in detection methods to refine and enhance their algorithms. “Battling deepfake algorithms with detection algorithms using CNNs [Convolutional Neural Networks], RNNs [Recurrent Neural Networks], and other methods ultimately leads to a perpetual machine-learning cat-and-mouse game.”⁵⁰

On the other hand, politicians and legal scholars are investigating ways to inhibit the spread of deepfake videos through regulation and legislation. In a recent law review comment, Elizabeth Caldera surveys potential legal and regulatory approaches. She argues that “while it is likely too late to control the actual technology behind deepfakes, it is not too late to regulate the videos actually produced.”⁵¹ But this goal may prove elusive. As noted above, these proposed remedies should address the likely harms of deepfake videos without prohibiting their potential benefits. Caldera’s quick survey of applicable areas of law, ranging from right of publicity, copyright law, and laws against “revenge pornography,”⁵² shows the difficulty of lining up our ethical intuitions with existing legal frameworks. Caldera is more sanguine about the possibility of administrative regulations, either from the Federal Trade Commission (FTC), the Federal Communications Commission (FCC), or perhaps a to-be-established Agency of Artificial Intelligence,⁵³ despite the current administration’s general disinclination to create new federal regulation. Noting that whatever regulation comes to pass will need to pass muster with the free speech protections of the First Amendment, Caldera suggests the federal government might require deepfake videos to label themselves as modified. While this proposal sounds modest, would it also require users of social media and dating sites to admit to fixing up their selfies when distributing them online? Given the pervasive use of photographic filters, such a regulation might well require us to label nearly all photographs on social media as enhanced, allowing deepfakes once again to circulate unnoticed.

While technologists and legislators seek appropriate measures to counteract misleading and harmful deepfake videos, I suggest that we need to add a third approach based in spirituality to complement technology and the law.

⁵⁰ Greengard (2019).

⁵¹ Caldera (2019), 203.

⁵² *Ibid.*, 192–3.

⁵³ *Ibid.*, 193–97.

6. A Spirituality of Media Iconoclasm

The hermeneutics of suspicion is a kind of latter-day iconoclasm. As we have seen, Paul Ricoeur described the hermeneutics of suspicion as a “tearing off of masks.” Like any iconoclasm, the goal is not solely to destroy, but also to see. By tearing away the mask, we hope to behold the face behind it: the truth behind the appearance. But the aggressive act of tearing a mask away clashes with a more subtle form of revelation we find in the biblical narrative. In the Song of Songs, for instance, the lover perceives his beloved through a veil: “How beautiful you are, my love, how very beautiful! Your eyes are doves behind your veil” (Song of Solomon 4:1; NRSV). Here, the veiling reveals as well as conceals. As Paul J. Griffith notes in his commentary on the passage, the beloved’s eyes “are veiled because their beauty would otherwise be too radiant: the world, and the gaze of the lover, must be protected from them.”⁵⁴ The veil serves a purpose, obscuring in order to reveal. While a hermeneutics of suspicion would rid us of masks and veils, we risk becoming blinded as a consequence. Not all truths should be looked on directly.

Philosophically, the notion of the body as veil takes central place in the phenomenological philosophy of Edmund Husserl. In the fifth chapter of his *Cartesian Meditations* (1931), Edmund Husserl explores the phenomenology of intersubjectivity.⁵⁵ Husserl tackles the question of our perception of the other. How do we experience another consciousness in the world of objects? The experience of an other differs from the experience of an object, but we never encounter the ego of the other directly. If we did, Husserl wrote, the other would become ourselves. To maintain the distinction between ourselves and the other, we encounter the other through some mediating form, whether a physical body, a voice, a moving image. Husserl describes the intuition that an ego exists behind the form as a “mediate intentionality.” As he explains in §50,

A certain mediacy of intentionality must be present here, going out from the substratum, “primordial world” [...] and making present to consciousness a “there too”, which nevertheless is not there itself and can never become an “itself-there.”⁵⁶

Husserl develops the concept of apperception to articulate this form of mediated intentionality. In perceiving the other, we perceive first the body of the other and then,

⁵⁴ Griffiths (2011), 90.

⁵⁵ Husserl (1960).

⁵⁶ *Ibid.*, 109.

by way of analogy, the “I” of the other. The apperception of the other does not function as a temporal two step whereby we first see a body, and then analogize to the presence of an ego. The body and the ego become paired in apperception, but nevertheless remain conceptually distinct and never fused or collapsed. The veil of mediating form cannot be stripped away but through its fabric we perceive the other “I” who stands before us.

Husserl described the apperception of the other, that is, the perceiving of a spiritual alter “ego” through the veil of physical presence, as “*transcendental theory of experiencing someone else*” or “a transcendental theory of so-called ‘empathy’ [*Einfühlung*].”⁵⁷ The role empathy plays in constituting our perception of the other has been the subject of philosophical discussion.⁵⁸ For our purposes, what is crucial is the distinction between intentional experience of the physical presence of the other and empathetic perception of the spiritual “I” of the other. For this distinction allows us to imagine exercising empathy to perceive a spiritual other with a completely different surface form than our own. Or, conversely, confronting a form that, though familiar in its external features, proves impenetrable in fact – a form that does not lead to a spiritual reality, no matter how empathetically we seek the other behind the veil.

Strangely, Husserl’s meditations on intersubjectivity from 1931 bring us close to Alan Turing’s reflections on artificial intelligence from 1950. In the ‘imitation game’ that Turing described in *Computing Machinery and Intelligence*, the goal is to discern whether the messages you receive across a physical barrier come from a spiritual “I” (presumably, a intelligent being) or a vacuous mechanical device.⁵⁹ The goal of the machine is to convince you that it is not a machine but a person. The machine employs subtle deceptions to achieve this effect, making blunders in chess, taking longer than expected to calculate numbers, responding poetically with allusions to Shakespeare. The question behind the test is whether the human interlocutor can see through these guises, correctly identifying and unmasking the machine. Effectively, Turing is identifying intelligence with empathy. That is, he asks us to empathize with the sender of the messages, seeking to find a spiritual other behind the veil. As we find the surfaces of perception becoming increasingly diverse and deceptive, we may find that empathy, as conceived by the philosophers in the phenomenological tradition, becomes key to exposing or exploring the spiritual dimensions of deepfakes.

⁵⁷ Ibid., 92.

⁵⁸ Zahavi (2015), Chapter 10 on the phenomenological analysis of empathy according to Max Scheler, Edmund Husserl, Edith Stein, and Alfred Schutz.

⁵⁹ Turing (1950).

The growing alarm over the impact of deepfake videos correlates with the media saturation of contemporary culture. A partial solution to the threat of deepfake videos would be to remove ourselves from the theatre of contemporary media, stepping away from Times Square into quieter backstreets. Jaron Lanier has delivered modern day jeremiads against social media, arguing that social media has deleterious effects not only on our ability to discern the truth but to cultivate our souls.⁶⁰ Certainly, limiting our exposure to social media reduces our personal vectors of attack. When we imagine participating in a Turing test, we picture ourselves in the controlled setting of a research laboratory, attentively scrutinizing the messages arriving at intervals for our inspection. In the online world, though, we have to balance multiple Turing tests at once. While deepfakes remain rare, the number of so-called ‘shallow fakes,’ that is, images and videos subtly and not-so-subtly manipulated to achieve certain effects, have become ubiquitous.⁶¹ Scrolling absent-mindedly through social media feeds, we devote scant attention to whether a bot produced some controversial tweet or whether a shocking image might have been photoshopped. In these circumstances, most fail the Turing tests, as shown by the number of politicians, journalists, and others who unwittingly interacted with bots on Twitter during the 2016 election. But, as Darren Linvill and Patrick Warren argue, these twitter bots are engineered to play to our biases and slip through our cognitive defenses.⁶² The more confident we feel of our ability to suss out shallow fakes, deepfakes, and other forms of disinformation online, the likelier we will unwittingly fall prey to them as none of us can process and evaluate so much (dis)information at once.

A spirituality of iconoclasm imposes distance from the cascading series of images that surround us online to cultivate empathy. The purpose of fostering this remove from visual culture is not to reject images wholesale as false representations, but to consider them with greater intentionality, thoughtfulness, and perspicacity. By fostering a reserve, whether ironic, intellectual, or spiritual, toward visual media, we gain facility in reading and interpreting their cultural logic. This philosophical reserve toward visual culture has roots in Platonism, as Edith Wyschogrod noted.

In the new age of images there are only images. Could it not be argued that the promiscuity of the image was already present in Plato’s philosophy? From the

⁶⁰ Lanier (2018).

⁶¹ Johnson (2019).

⁶² Linvill und Warren (2019).

Platonic standpoint, art objects, shadows, and the reflections of things are the wanton and wild images that escape regimentation by the logos.⁶³

As Wyschogrod also anticipated,⁶⁴ far from being unregimented, the logos saturates deepfakes. The synthesis of disparate objects, the swapping of body parts, switching voices, and juxtaposition of dissonant elements reflect the mind of a creator, carried out through data, algorithms, and processing power. The overabundance of logos in deepfake videos is perhaps the best ‘tell,’ as the design is so perfect that it becomes uncanny. But where does this saturating logos lead? To the void or to a genuine spiritual “I” communicating through its computational veil? Only empathetic intuition may tell. But we cannot exercise empathy “at scale.” Cultivating empathy online requires us to tarry and dwell, not to rush and react.

What would an epistemology of iconoclastic empathy look like in practice? A little science fiction might assist our imaginations by way of conclusion. In his story “Liking What You See: A Documentary” (2002), Ted Chiang imagines a medical condition called ‘calliagnosia’ that disrupts the recognition of beauty.⁶⁵ Those afflicted with this condition still recognize others but they cannot discriminate between ugliness and beauty. Chiang builds the narrative from the documentary reports of various agents, ranging from college students to neuroscientists, exploring the advantages and limitations of taking a drug to induce calliagnosia. A major question of the story is why physical beauty should shape our perception of the spiritual “I.” As a student in the story avers, “Calli doesn’t blind you to anything; beauty is what blinds you. Calli lets you see.”⁶⁶ Chiang asks his readers to examine the degree to which their social interactions transpire on the surface. We all know the truism “beauty is skin deep” and, when pressed, will readily agree that beauty should not blind us to character. Yet the pursuit of beauty remains central to our lives off- and online, as witnessed by the dominance of Instagram and dating apps like Tinder. Would iconoclastic empathy have Christians placing personals at the back of literary magazines instead of circulating photoshopped images on OkCupid?⁶⁷

In a manner similar to the self-imposed limitations of Calli, an epistemology of iconoclastic empathy would help us to discern truth from falsity by training us to look

⁶³ Wyschogrod (1998), 73.

⁶⁴ Wyschogrod already pointed to the dislocating possibility of “synthetic human actors” in 1998; see *ibid.*, 83.

⁶⁵ Chiang (2010), 237–74.

⁶⁶ *Ibid.*, 248.

⁶⁷ Rose (2010).

beyond surface appearances when interacting online. Training in such practices takes time, patience, and community commitment. In practical terms, congregations might commit themselves to limiting their social media exposure and to interacting with more profundity with fewer people online. Alternatively, they might eschew sites that rely primarily on videos and images as media of communication, returning to text-based communications. The pragmatics of exercising empathetic communication online remain to be worked out. For old timers, this will feel like a throwback to earlier times, when people dialed up to early bulletin board systems like The Well and Echo for the novel experience of chatting with others across the country, knowing that not everyone was who they purported to be.⁶⁸ These social communities continue to exist on sites like Wikipedia, where you gain reputation through the hard work of writing, editing, and improving the encyclopedia.

Iconcolastic empathy might also provide rubrics for developing new forms of interaction online. As Lanier remarks, “I still believe that it’s possible for tech to serve the cause of empathy. If a better future society involves better tech at all, empathy will be involved.”⁶⁹ The artistic activities of Stephanie Dinkins, associate professor of art at Stony Brook University, demonstrates both creative capacity and inherent limitations of empathic engagement. In a series of videos titled *Conversations with Bina48*, Dinkins documents her interactions with an African-American android⁷⁰ (or, more precisely, a robotic visage whose appearance is modeled after an African American woman).⁷¹ The conversations are elliptical and border at times on nonsensical. When I discuss these videos in class, students debate whether developing an emotional bond with Bina48 is a sensible goal. But they generally appreciate Dinkins’ persistent attempts to forge affective bonds with Bina48, despite the awkward and wayward conversations. Empathy is a powerful force, simultaneously capable of unmasking digital fakes and also coaxing digital simulacra to life.

The challenge of deepfakes will require collective effort from multiple parties. Technologists and legal scholars have essential contributions to make. We need more sophisticated algorithms and tools to detect synthetic videos as well as rules and regulations to curb their deleterious social and political effects. The argument of this paper is that, while such efforts are necessary, they are ultimately not sufficient. As Lanier suggests, we have grown accustomed to online environments that produce high vol-

⁶⁸ Evans (2018), chap. 9.

⁶⁹ Lanier (2018), 76.

⁷⁰ See <https://www.stephaniedinkins.com/conversations-with-bina48.html>.

⁷¹ See Harmon (2010).

umes of disinformation.⁷² He argues that we need to distance ourselves from these systems and engage ourselves in the effort to build more empathetic forms of digital interaction. From this perspective, deepfakes present us an opportunity to reexamine our broader engagement with humans (and computers) online. The problem is not synthetic videos *per se*. The ability to create them may, in fact, have positive uses for church and society. The profounder issue is our participation in channels of communication that reduce empathy and occlude truth. Addressing the proliferation of deepfakes cannot just mean becoming more critical and suspicious about everything we see online. As Ricœur understood, the hermeneutics of suspicion should not be an end-in-itself, but a means toward achieving a second naïveté. After any new iconoclasm breaks apart the fake, sterile, and empty images confronting us online, our next task as Christians is to develop digital systems that promote truth, empathy, and genuine depth.

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⁷² Lanier (2018), Argument Four.

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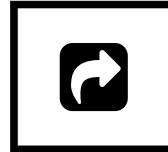
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Changes in Remembrance? The Digitalization of Biblical Texts under Theological and Ethical Considerations

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How does the digitization of biblical text influence ways of remembering and interpretation? Gotlind Ulshöfer discusses this question using the example of the Codex Sinaiticus. Inquiring whether the digital text can best be understood as monument or memorial, she describes the fluidity of remembrance in digital “in-between-spaces” and the transitions associated with them.

1. The Importance of Remembrance and the Presentation of Digitalized Texts as In-Between-Spaces

A Theology of Digitalization brings into focus how to consider technical developments – like, e.g., artificial intelligence – from a theological point of view, and has also the task to reflect the possibilities how new technologies can be used for theological study and to re-consider how this effects theological thinking and the practice of faith as well as vice versa. The digitalization of Biblical and religious texts is one of the topics of a Theology of Digitalization and should be considered under multiple perspectives. In this article the idea is to focus on the question of remembrance and how the digitalized Biblical texts may influence the ways of remembering and interpretation. The digitalization of Biblical texts means in this article two things: on the one

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hand it refers to the availability of Biblical texts online. These texts appear online in a variety of translations or as images of original manuscripts like the Codex Sinaiticus and their transcriptions. On the other hand, due to the virtual access to these texts it is possible to apply methods of digital humanities to them. The main focus of this article lies on the first part without completely neglecting the second perspective.

Remembrance will be understood here as the noun which describes how present-day persons in general refer to a text or an event in the past and interpret it, use it or adapt it, while the process character of this phenomenon is described by the word remembering. Remembrance and remembering are core concepts (“theologische Basiskategorie”)¹ for religions in general and also for Christianity and Christian theology. Remembrance is closely related to texts and their stories as well as to places of relevance for these stories. “Memory” is used to describe what to remember in a more personalized sense and can be individual and collective. In Christianity Biblical texts and the stories of the New Testament and of the Hebrew Bible are texts which help to remember what happened and tell about the relevance of the story of God with God’s people of Israel and of the life, death and resurrection of Jesus Christ. Remembrance as well as remembering these deep connections between God and God’s creatures actively is seen as one of the main tasks of a believer – already in the Bible. Especially the Hebrew Bible with its theology of “zachor” relates religious identity to this “imperative to remember.”² To develop a religious identity has to do with the gift of faith as well as with relevant texts as (scriptural) witnesses and the active remembering of stories of faith and is related to expressions of one’s personal practices of faith and e.g. of liturgical practices.

Due to the relevance of faith-related remembering the Biblical texts as manuscripts have become important in a double sense: First, due to the written name of God on them, already manuscripts or parchments can turn into something connected to holiness which cannot be thrown away but must be stored or buried as in Judaism.³ Second, also the content of the remembrance becomes important, i.e. the Biblical stories which stand in the center of remembrance, and where two main groups are of special importance for the act of remembering: the remembrance of the liberation and salvation out of the Egyptian slavery by the Jewish people and the suffering, death and resurrection of Jesus and the stories around his life and the life of his disciples.⁴

¹ Boschki (2016).

² Greve (1999).

³ Eißler (2003), 419.

⁴ Konz (2019), 152.

This religious interpretation of events which might have taken place in the past or are remembered as having taken place, lead to an important concept which can be connected to a then theologically qualified remembrance by the topic of hope. The Catholic theologian Jean Baptist Metz reminds us that remembrance in this context puts the events which relate to suffering in the broader context of liberation and resurrection. In other words: It draws remembrance into eschatological contexts which are filled with hope.⁵ Remembrance becomes therefore something which is not only related to the past but is important because it relates to hope and opens up the future. In this sense, remembrance understood from a theological point of view is not neutral, but relates to stories of all life, so it relates also to suffering, to the marginalized and to the oppressed in relation to Jesus Christ's life. It makes past events related to future hopes. Therefore, remembering – which is ascribed to God and to human beings – is something which establishes traditions but also which opens up space for remembering the counter-events to power structures as does the crucifixion of Jesus in relation to Roman power. Alas, from a theological perspective: remembrance is more than just collecting information and data about the past, because it refers to bringing past events into the present and reminds of the relationship of God and human beings.⁶ The act of remembering is always part of services and liturgy and can also take place in the works of diaconia and in martyrria, remembrances can be seen as expressions of faith. But there are also other ways to remember the texts of the Bible as well as the stories about God's story with his/her people. These different forms can be in music, art or play. All of those can find their way into digital media. Relating to ideas from the historian Alina Bothe and her research on "The history of the Shoah in the virtual realm."⁷, I would like to understand media as technologies which become a medium via the activities of the persons related to the medium.⁸ In this sense, remembering and remembrance in the virtual space is an activity which stands in relation with the active persons although they are not physically present in this space. Bothe develops the idea of the "virtual in between-space of remembrance" as an epistemological concept. Referring to concepts of Edward Soja⁹ and Homi K. Bhaba of the Thirdspace¹⁰, this idea of the "In-Between-Space of Remembrance" helps to bring together the perspectives of space, time and subjects and their interrelation. This virtual "In-Between-Space"

⁵ Metz (1977).

⁶ Konz (2019), 156.

⁷ Bothe (2019)

⁸ Bothe (2019), 441.

⁹ Soja (1996).

¹⁰ Bhaba (2000).

is formed by digital data as well as communication, interpretation and also imagination. In this sense it also helps to “think beyond the present thoughts,”¹¹ and so to transcend the past and the present into future options and interpretation. Relating this idea to Biblical texts in its various material stages and interpretations we can try to interpret also the digitalization of the Codex Sinaiticus as something more than just making digital images out of the papyrus papers of the Codex. The focus lies here on the Codex Sinaiticus due to its importance as a manuscript and as the first significant biblical manuscript corpus to be digitalized.

2. The Digitalization of the Codex Sinaiticus as the Beginning of the Digitalization of Biblical Texts¹²

It was in the 19th century when new technologies of travel enabled scholars to get to far away places and find “authentic” ancient manuscripts or hidden monuments from the past.¹³ One of the outstanding findings which was also impressively, publicly merchandised was the “discovery” of the manuscript of the Codex Sinaiticus by Constantin (von) Tischendorf (1815-1874). In 1844 the monks in St. Catherine’s monastery on the Sinai showed Tischendorf 129 pages of texts of the Hebrew Bible and they allowed him to take 43 of them back to Leipzig, Germany. In 1846 he published them as the “Codex Friderico-Augustanus.”¹⁴ For him it was clear that this finding and its publication was a sensation. During the history of its further discovery, parts of the manuscript stayed in Leipzig, others were brought to St. Petersburg and London. This publication of the Codex Sinaiticus has been of fundamental importance for academia and society. The Codex Sinaiticus contains the oldest complete version of the New Testament and other writings of early Christian authors such as the Letter of Barnabas and the Didache. So it is relatively comprehensive, and its material condition is still good. The Codex is an important witness for the textual tradition, its origin and history are highly remarkable: for it is a new form of binding – the codex and not scrolls anymore.¹⁵ The story of the discovery of the codex as well as its finding in the 19th century is remarkable in that the codex has been linked through the centuries to questions of accessibility and preservation of both the text and the codex as a whole.

¹¹ Bothe (2019), 246.

¹² This chapter and following passages refer to my article: Ulshöfer (2021).

¹³ Böttrich (2011).

¹⁴ Tischendorf (1846).

¹⁵ Böttrich (2011).

The Codex Sinaiticus was digitalized between 2005–2009. With the digitization¹⁶ of this manuscript a direct virtual access to it was made possible and thereby a contribution was made to the preservation of the manuscript and also to the culture of remembrance. How is the Codex Sinaiticus presented and preserved online? If you look at the website of the digitized Codex Sinaiticus¹⁷, you can see that remembering and preserving is multidimensional: the image of the Codex can be found there as well as translations, comments and other information. The open accessible website makes it possible for everybody to be reminded of the Codex Sinaiticus, of the text and its history, and of the Codex form. Ulrich Johannes Schneider and Zeki Mustafa Dogan write: “The Codex Sinaiticus, in its Internet edition, has emerged from the contentious contexts of its discovery, postponement and sale and rests, so to speak, in itself, in a place that belongs to no one except those who paid for its construction and those who continue to maintain its presence – text lovers with public support.” They speak of a “step towards a peaceful digital future.”¹⁸ With the digitization of the codex something happens that brings it back to its original version: Due to digitization the various pages of the codex – beyond the libraries in which they are located – can be virtually reassembled and form the corpus that they once embraced. The codex has also served as a model for further digitization and thus for dealing with the ancient texts and presents a version how ancient material can be opened up to public access virtually.

3. The Digital Text as a Monument or Memorial in the In-Between-Space?

The Codex Sinaiticus as manuscript is a variant of a “sacred text” of the Bible. As characteristic features of “sacred texts” shall be seen their formative powers which are preserved through decades and centuries. The formative powers of the texts relate to their cultural impact as well as to their spiritual and intellectual dimensions.¹⁹ This also implies that the texts are passed on. Remembrance in relation to the “sacred texts” includes their use as witnesses of faith and their academic processing, which takes place in the form of exegesis, or with regard to the materiality of the codex and its preservation as an artifact in corresponding editions. Tischendorf already made it clear that the latter aspect was important when, in 1859, in view of the edition of 132,000 lines

¹⁶ In “digitization” the focus lies on the technical options, the word “digitalization” considers more the the general context of bringing something into data of 0/1 and its social implications.

¹⁷ <http://www.codexsinaiticus.org/de/> (accessed September 12, 2019).

¹⁸ Schneider and Dogan (2011), 41, translation GU.

¹⁹ Lauster (2004) and beyond.

of the manuscript he had copied, he noted: “this edition [will] erect an indestructible monument/ memorial (‘ein unzerstörbares Denkmal’) to church and academia. I know that the whole Christian world, as far as it knows, will receive this precious gift with grateful joy.”²⁰

When the text edition and thus also the text is understood as a “Denkmal”, its singular character, its outstanding importance and exemplarity are emphasized and in German this word connotes monument, memorial as well as “think about it.” At least it gives a hint that by editing the Codex Sinaiticus the text is put into the public and is therefore an artifact scholars and people can relate to either in form of the edition of the 19th century or the present-day digitization.

But how can this “Denkmal” be understood in a deeper sense? It is not intended here to tie in with Robert Musil’s dictum on monuments in urban areas, which he proves to have a paradox: he assumes that after the solemn inauguration monuments are no longer perceived and thus lose their function. Although this point might be valid also to the digital Codex Sinaiticus if it were forgotten in the layers of the internet. But remembrance and traditions bring this monument back into the present: since the Codex Sinaiticus is part of a community of remembrance, i.e., theology and church, the danger of being forgotten, can be neglected. Therefore one might say that the Codex Sinaiticus should be more interpreted in the sense of Aleida Assmann when she objects Musil: “In his reflection on monuments, Musil completely ignores the dimension of cultural, political and social ‘acting on monuments.’”²¹ If one takes up this thought and refers it to the digital copies, such as the Codex Sinaiticus, it can be said that the “monument” can be understood as a memorial, also in its digital form, and thus it also fulfils its function of remembrance, because it can be worked with again and again, especially through the digital possibilities and it can be understood that it belongs to the “In-Between-Spaces of Remembrance.”

In addition, remembrance and remembering manifests itself in various forms of expression, i.e. in reciting the texts – or more precise: prepared and translated versions of the text – in a service, but also in direct touch with the document of the Codex Sinaiticus in such forms as commentaries, text criticism and the development of new texts. So at the same time, a remembrance of the texts with religious content is up-

²⁰ Böttrich (2011), 102, translation GU.

²¹ Assmann (2018), 73, translation GU.

dated in the events of faith and also the interpretation of the text can be identified as “an essential element of a written culture of remembrance.”²²

Now the question arises as to the extent to which remembrance and the associated forms of interpretation change as a result of digitalization. If one looks at the digitalization of Codex Sinaiticus, one can first of all point out that technical devices are used to make the texts accessible to all those who have access to the Internet, both as images and in forms of linking. Thus accessibility can be presented as an essential feature of change. Second, the Digital Humanities enable a new access to the digitized text, because they can present new references within the text and with other texts using methods such as computer philology, and thus achieve results that are not yet known or can also be established in chronological order. Third, the visualization of digital manuscripts represents a new way of relating to the texts, because beyond the original artifact they can open up the object to the viewer from different perspectives and under different analytical levels. All these differences and new approaches to the manuscript texts can be seen as being part of the “In-Between-Space of Remembrance.”

4. The Fluidity of Remembrance in Digital “In-Between-Spaces”: Theological Input

The digitalization of the Codex Sinaiticus can serve as an example of how theological work can find new possibilities of reference and perspectives through the availability on the internet as well as the use of digital humanities. When manuscripts like the Codex Sinaiticus become part of the “In-Between-Spaces of Remembrance” which is characterized by virtual issues as well as persons who use and demonstrate how fluid also artifacts become when they are digitalized, we have to ask how this influences our perception of Biblical texts and how they influence the In-Between-Spaces of Remembrance. With the media researcher Felix Stalder,²³ we can see that the digitalization constitutes this In-Between-Space through three aspects: The aspect of referentiality shows that there are new possibilities for linking and evaluating texts due to digitization via referencing across different spheres. The aspect of communality brings it into the center that it is the interaction of people which make up the medium and this In-Between-Space and are also a characteristic of a culture of digitality, and which is also evident in the Codex Sinaiticus, for example when it is understood as a document

²² Lauster (2004), 461, translation GU.

²³ Stalder (2016).

of the Christian community. The algorithms which order and structure the digital sphere as well as our perceptions of decisions and of reality play a role as well.²⁴ Technology of the Digital in this sense enables transgressions of borders and realms and at the same time serves the self-constitution of the human being, who with the help of digitized manuscripts, for example, can become aware of his and her part in a cultural and religious history of humankind. At the same time, however, this example also shows the limits of technical possibilities, because it is not only the technique of the digitalization alone which attributes value and importance to digitalized texts like the Codex Sinaiticus, but it is the interaction of people as well as their attributions through which the sacredness associated with the texts is revealed and which is difficult to reproduce without this context. Therefore, it makes sense not only to talk about “the internet”, but develop further the In-Between-Spaces-concept. This In-Between-Space is due to technology which also constitutes the spheres where the remembrance can take place.²⁵ In view of the digitalization of manuscripts such as the Codex Sinaiticus, this also means that more than the text alone is passed on in the sense of remembering and preserving since the texts are profound and have in themselves a history and can be shared in new digital ways. Therefore it is not only storing, but remembrance which takes place in In-Between-Spaces: “Storing can be delivered to machines, while remembering can only be done by people who have unmistakable points of view, limited perspectives, experiences, feelings and goals. Remembrance thus includes a reference to the present and has a constructive character.”²⁶

In a digitalized world, these In-Between-Spaces also help to form collective expressions and remembrance. But then the question arises as to which collective they refer to. Here the concepts of Avishai Margalit remembrance which leads to a “shared memory” or a “common memory” might be of help. The philosopher distinguishes between a “common memory” as a “an aggregate notion. It aggregates the memories of all those people who remember a certain episode which each of them experienced individually. If the rate of those who remember the episode of a given society is above a certain threshold [...], then we call the memory of the episode a common memory.”²⁷ On the other hand Margalit talks about the “shared memory” which is for him a living phenomenon which relates to this what can be seen as action when we talk about the “In-Between-Space of Remembrance” of the digital: For him a shared memory

²⁴ Stalder (2016).

²⁵ Stiegler (2009), 60.

²⁶ Assmann (2018), 215, translation GU.

²⁷ Margalit (2002), 51.

“requires communication. A shared memory integrates and calibrates the different perspectives of those who remember the episode – [...] into one version. [...] Shared memory is built on a division of mnemonic labor.”²⁸ and it needs institutions or monuments to be remembered. This shared memory therefore has the dimension that it does not only refer to the individual, but is a collective event. Margalit thinks that there is at least a responsibility for the collective to nurture memory and keep it alive even if as an individual one perhaps has nothing to do with it at all – referring to the Holocaust, e.g.. The shared memory can also be a memory of memories, as it exists here in the digitized codex. On the other hand, this means that the past has been updated in the artifact that has been digitized. It can be assumed that there is a double level of remembrance of the past with regard to Codex Sinaiticus, namely the remembrance of the artifact in the sense of its origin and find history as well as the remembrance of the text corpus of the Bible, which it comprises. For Margalit, it is compassion that becomes a criterion for why remembrance should take place at all. I am aware that the idea of “shared memory” can only partially capture the cultural, theological and ethical significance of the digitalization of Codex Sinaiticus, especially as a part of In-Between-Space because it does not completely capture the plurality and the fluidity of remembrance in a digital age.

We will now intensify the question of why remembrance in the In-Between-Space is important and how a theological understanding of remembrance may bring another perspective into the analysis also of digitalized biblical texts like the Codex Sinaiticus. Foremost the digitalization of the Codex is a work of preservation because the material aspects are of special importance for it, and digitalized it can be preserved. Preservation also carries the aspect of storage and thus of the archive in itself and digitized material can be stored, even if it is not actively used. Here, however, it is also important to consider how and whether this is actually the case and how digitized material should then be set up in such a way that it remains accessible even if it is not used regularly. The preservation side of the digitalization is of importance because it is part of the way what and how things are remembered and defines which information about them are available and how they become part of the In-Between-Space. But for the Codex Sinaiticus remembrance is also essential, not only in its use as reference text for Biblical exegesis. In addition, remembrance and preservation can be understood simultaneously in a prospective sense, so that in addition to these two aspects, the use and/or evaluation or reception of the preserved should also come into view.

²⁸ Margalit (2002), 51–2.

From a theological point of view, it is interesting to see that remembrance is often connected to artifacts, which can be understood as symbols like the cross or water for baptism. This also reveals typical elements of the function of media, which can function as storage and circulation instruments and form “retrieval notes,” i.e., which themselves become an occasion to retrieve memories, as is the case, for example, with family photos. Taking up on Johann Baptist Metz idea of the non-neutrality of remembrance, we can add another perspective to a theological point of view on how remembrance also from digitalized biblical texts can be understood. For Metz it is not only important that remembrance of the revelation is passed on by faith witnesses and in communities of faith,²⁹ but that a Christian remembrance has to be understood in relation of the “*memoria passionis, mortis et resurrectionis Jesu Christi*,” which makes this remembrance not a neutral way of thinking of things or events in the past but has actual effects. Due to these actual effects he can say the remembrance can be dangerous as well as liberating. He combines the remembrance with the hope which is brought into Christian thinking especially by the resurrection of Christ. So Metz can say that one should not forget the suffering but that this suffering is not the end but must be seen under the perspective of hope which can change things in the future due to God’s power. So, remembrance is much more than storing, it has a societal and political dimension since “*Erinnerung [ist] nicht nur Gegenstand, sondern inneres ermöglichendes Moment jeden kritischen Bewußtseins.*”³⁰ So remembrance is related to a critical reception of reality and to remembered hope.³¹ If we take this perspective, the idea of the “In-Between-Space” becomes not only a way how to describe the relation of technique, algorithms, texts, artifacts and action of persons in an epistemological sense, but its function needs to be extended to a normative concept since remembrance in this perspective means also to hear those who suffer and listen to their voices and look at this which is a fragment and the lives unfinished.

5. Whose Tradition, Whose Power? Remembrance as a Task

The digitalization of the Codex Sinaiticus has been chosen in this article because it is an example how digitalization can change the perception also of Biblical texts but it also shows that the “In-Between-Spaces of Remembrance” which have become one of the phenomenon of the digital age are still deeply connected with the non-digital world. Therefore a theological perspective of remembrance which can be developed

²⁹ Taxacher (2003), 146.

³⁰ Metz (1977), 186.

³¹ Schroffner (2018), 453.

with the help of an approach like the one from Johann Baptist Metz is still useful because it does not romanticize remembrance but brings into view that also shared memories can be and even should be memories which do not leave out the suffering and the oppression and the fragmented sides of life. Therefore, concerning an analysis of the output of digitalization of ancient texts it should be also kept in mind: The possibilities of digital techniques are embedded in cultural-normative imprints. For example, Carolyn S. Schroeder reports on her research in the field of Coptic. She draws attention to the fact that even in large collections of Coptic manuscripts such as the British Library – at least at the time of publication of her text, 2016 – Coptic documents had rarely been published digitally, whereby it is clear to her that Coptic has a relatively marginal status within Biblical studies. For her, this is proof that with digitization, decisions that are characteristic of an off-line world find their way into the online world. Using the example of the missing markings at TEI, the Text Encoding Initiative, for manuscript parts that are distributed across different libraries, she then draws attention to the fact that this normative decision to marginalize the Coptic language is also reflected in TEI and thus in its programming. However, she also makes clear that the TEI is so flexible that changes and adaptations are no problem.³²

As can be seen from the examples of Carolyn S. Schroeder, technology and in particular the possibilities of digitalization are interwoven with power structures and contexts as well as with values and norms. This can be seen, for example, in decisions about who gets access and what is to be shown and processed at all. With Carolyn Schroeder we can speak here of “cultural capital” in the sense of Bourdieu, which is mediated and acquired with Digital Humanities. In this context, ethical questions also become relevant, when a theological stance is taken which relates to Metz’ notion that remembrance is not neutral but has societal implications.

If one extends one’s view beyond the digitalization of the Codex Sinaiticus, two fundamental aspects come to the fore: First, the question of the framework or perspective that characterizes digitalization, digitized material and digital humanities, and second, tentativeness in the sense of the provisional nature of memory and preservation. Relating to the first point: It can be pointedly formulated that digitalization in the humanities is about the fundamental question of the framework or perspective under which digitized material is created and operated. Algorithmicity in particular, which is playing an increasingly important role in digital humanities, and algorithms’ abilities to sort out and in are one part of it, because they might have a hidden agenda of

³² Schroeder (2016), 26–7, 36.

norms and values.³³ But in order to enable an In-Between-Space for Remembrance it is important to detect the perspectives taken and not to neglect the downside for those who are not present as Metz makes it clear.

Looking at the second point, if one looks at digitalization from a longer-term perspective, in view of the changes that are also taking place in remembrance and preservation with the help of digital copies, it becomes apparent that the interpretations of reality thus made can only be understood in a provisional sense because they are also subject to the changes of time. At the same time, however, due to their open accessibility, digitized texts and artifacts can also lead to remembrance in which individual and collective remembrance flow together to form a shared or also common memory and common identity. Digitalization, the digital copies it makes possible and digital humanities as an academic field of research create access to historical sources such as the Codex Sinaiticus. These artifacts are accessible to all, even as sacred texts used in the religious field, and thus refer also to the task of remembrance those things, events and artifacts which are relevant and which tend to be forgotten. This includes the preservation of cultural heritage and artifacts, as well as digitized material of all levels that allow interpretations of the past. Thus the present can be perceived in the continuum of past and future. So the “task of remembrance” from a Christian perspective remains and develops: it remains on a general level the same since it is the telling of the story of God with his/her people and it develops concerning the creation of In-Between-Spaces for Remembrance as the tasks have become manifold since these spaces might become battlefields over what, how and whom to remember. In these In-Between-Spaces everybody can get in touch online with Christian traditions and its artifacts and share these memories. In this context a normative concept of In-Between-Spaces which relates to Metz’ approach of remembering also the neglected and marginalized might be of help in order to realize biases of the technical sides of digitalization as well as biases of the content.³⁴

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Digital Theology

In plain language

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The digital revolution unfolding before us has manifold and far-reaching implications. Digital theology (DT) has become a term describe theological engagement with these developments. As the impact of digitality is increasingly being felt in our societies, such reflection has become an imperative for the Church.

DT is explorative in nature. It is inherently inter-disciplinary and draws upon a range of texts, methodologies and theoretical perspectives. In much of the literature to date, there has been a particularly strong affinity with the socio-scientifically orientated research of ‘digital religion’, as well as media studies, and more broadly, computer science and digital humanities.

DT can be divided into several distinct, but overlapping areas of interest. At a basic level, DT reflects on how digital technologies impact theological education. This can be seen in online learning, but also as theological texts become more readily available through digital dissemination. Secondly, digital technology provides new tools and new research methodologies for theological enquiry that demand considering. The very fact that theologians use computers, for example, bears on how theological texts are produced. More importantly, it also influences their final form and content. Thirdly, Christianity is digitally mediated today in many forms: through websites,

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prayer apps, live-streamed services or religious video games, and so forth. DT reflects on the implications of different forms and media. For instance, how does reading the bible digitally impact readers' interpretations of the text? Fourthly, we are witnessing seismic cultural shifts in the wake of the digitalisation of all spheres of life. DT is in this sense theological reflection on the emerging cultural condition we find ourselves in. It involves creative and reflexive conversation between Christian doctrines and ideas on the one hand, and digital discourses on the other. Finally, there has been extensive engagement with the socio-political questions surfacing in the wake of the digital revolution. This ethical or prophetic aspect of DT has sought to participate in wider public conversations about the development, use and impact of technology.

Given the speed of digital innovation and the constant changes that it brings, it is to be expected that DT will continue to evolve. In doing so, DT seeks to resource the Church, critique and inspire the tech industry and be a prophetic voice in society.

Cursor_Who

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THEOLOGIE

Theologies of the Digital

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THEOLOGIE

Theologies of the Digital

What, if anything, can theology contribute to the analysis, conceptualization and assessment of the emergent logics of “the digital”? And how are theological concepts and topics themselves transformed by “the digital”? In an interdisciplinary and constructive collaboration, this volume explores how theological reflection and digital developments refract notions of the human, concepts of freedom, memory and knowledge, as well as understandings of scripture as authority and interface.



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