Summer 7-18-2024

Memetic memory as vital conduits of troublemakers in digital culture

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Research Article

CONVERGENCE

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Convergence: The International Journal of Research into New Media Technologies
2024, Vol. 0(0) 1–21

DOI: 10.1177/13548565241262421
journals.sagepub.com/home/con
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Abstract

Recent fears of data capitalism and colonialism often argue using implicit assumptions about cybernetic technology's ability to automate data about culture. As such, the level of data granularity made possible by cybernetic engineering can be used to dominate society and culture. Here we unpack these implicit assumptions about the datafication of culture through memes, which both act as cultural data and cultural memory. Using Alexander Galloway's critical method of protocological analysis and descriptions of media tactics, we respond to fears of cybernetic domination. Protocols – the source by which cybernetic technologies enable automated datafication – enables us to respond to fears with optimism, and it further enables a more extensive development of how memetic memory functions. Our development shows that memetic memory often emerges before cybernetic datafication, offering moments of resistance from cybernetic domination. Further, this development enables a vitalist development of memetic memory, borrowing from Bergsonian theory and related contemporary media theories. Such a work contributes by providing cybernetic context in which culture, characterized through memes, resists cybernetic domination. In the process of this contribution, it also contributes a novel theory of memetic memory. Inspired by recent posthuman new media theory, we provide a novel reading of Richard Dawkins' genetically inspired meme as well as Limor Shifman's notion of memetic 'stance'. Taken together, we contribute the beginnings of a memetic theory of vitalism which speaks more readily with critical cybernetic discourse.

Keywords

Cybernetics, media theory, memetics, memory, posthumanism, protocological analysis, virtuality, vitalism

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Introduction

In *Costs of Connection*, Couldry and Mejias (2019) assert the Internet is propelled by capitalism and commodification towards 'data colonialism'. If data colonialism succeeds in datafying every action and neurological measure, then there will be no profit left to extract from human labor. To achieve its goals, data colonialism technologically automates cultural data in what we call *cybernetic domination,* where every bit of society and culture, including our memories, are datafied and extracted for profit. This data colonized dystopia develops from information technology carving out society into computationally automated inputs and outputs, extracting representative data of everyday activity. However, in the following pages we suggest that digital media offers a resistance to cybernetic dominations of memory, by pointing to Shifman's (2014: 12–15) 'conceptual troublemaker': the *meme*.

Responding to *Costs of Connection* and similar pessimisms, we frame memes – often understood as connective visual artifacts online – as short-circuiting cybernetic automation. Our goal is to show that the technology of digital society, which seems to make the cybernetic program's goals inevitable, also provides tools to begin the countermovement Couldry and Mejias call for. Our argument makes three key moves:

1. We resist the traditional mind-body dichotomies in meme studies by positing a vitalistic interpretation of meme, composed as inseparable 'mindbodies';
2. We develop memes' relation to existing information technologies, and protocols specifically;
3. We reimagine the memetic relationship to memory.

Step 1 conceptualizes a *vitalistic meme* that exists in collective memory. *Vitalism* refers to the indeterminate, dynamic, contingent, and anti-mechanistic processes of life. We frame the vital actions of memes within and across platforms such that they afford potential for resisting data colonization and cybernetic domination.

Step 2 contextualizes memes within the technologies of *cybernetic domination.* These technologies mechanically reduce memes to semantically static artifacts. However, we show their static reductions are complicated by describing the digital infrastructure in which memes exist online with Galloway's *Protocol* (2004), using his 'protocological analysis' to show what memes materially do in digital space.

Step 3, initiates an understanding of memetic resistances to cybernetic domination, exposing the protocological limits in capturing memory. These limits contribute a theoretical development of how memory functions in relation to memes.

Throughout these steps, we provide loose connections for how memes and memetics could enable unique developments in cultural heritage, critical algorithms, and platform studies. We conclude, arguing that memes can be interpreted as a decentralized creative power[1] that can be utilized as tactical media that openly mock protocols and resist the effects of cybernetic domination.

Practices of cybernetic domination

In *Costs of Connection* (2019) Couldry and Mejias argue that digital technologies are designed with the colonialist goal of automating the datafication of society. As such, tools like APIs for surveillance or marketing, moderation algorithms for automated hate speech detection, computational analysis of textual civility qualify as colonialist practices. Within their horror-esque digital

landscape, the authors conclude that 'Data colonialism […] still awaits its countermovement: there is as yet no major change in social thinking or government policy to challenge its cruelties' (2019: 150), thus fearing 'a battle of all against all – via an algorithmic simulation that preserves, indeed stimulates, social appearances while regrounding them in capitalism's general drive to profitable extraction'.

Couldry and Mejias are not alone in describing dystopian views of information culture. Providing unique insights, some focused on social effects of colonization through 'big data' (Thatcher et al., 2016), or inequalities of data ownership, use, or western centrism (Milan and Treré, 2019, 2020, 2020). Others have focused on social and cultural politics of relatively static notions of data and technology, or the capitalistic origins of the problem (Srnicek, 2017; Zuboff, 2019) and consider technology a symptom.

We echo Couldry and Mejias in stating that Cloud Empire's capitalistic motives might be necessary, but they are not sufficient for their dystopia. It also requires irreducibly granular data of everyday life. This is why we focus on the mechanisms of technological control which automate datafication of culture: that is, *cybernetic domination*. Couldry and Mejias highlight an emergent cybernetic ideology which dominates through cybernetic engineering. The resulding technologies are '[T]he very infrastructure of digital networks (the wires, servers, and signals that constitute them) are the embodiment and medium of violence, and a conduit through which [data] extraction takes place', (2019: 45–46). The dynamics of these material technologies result in the ideology of *Cloud Empire*, which iteratively re-engineers data as a kind of cybernetic governance.

Narrowing to cybernetic domination within Cloud Empire provides the beginnings of a countermovement through everyday resistance. Resistance is enabled by short-circuiting the 'conduits' of data extraction. These conduits materialize through *protocols*: the conductors of digital signals underlying cybernetic technologies. For example, when a user posts content on social media, protocols translate something occurring from the user's local computer keyboard into an underlying code that re-encodes that data into a representation elsewhere (see, Hayles, 2008: 25–49; Thacker, 2004). Since telecommunication technologies are *engineered as protocol designs*, any set of protocols are *the* conduit of information for cybernetic control. Couldry and Mejias' countermovement requires us to understand how protocols transform information into mechanistically structured data.

Step 1: Rethinking memes as vital creatures

In contrast to mechanistically produced data, we posit that digital information contains a vitality that inherently resists control. Following Katherine Hayles, we argue that digital technologies are designed in ways that allow unexpected emergence in cybernetic activity to become '"creatures" (that is, discrete packets of computer codes)' that 'evolve spontaneously in directions the programmer may not have anticipated' (2008: 11). Memes are data resisting static form, displaying a fluidity of meaning and action that challenges conventional understandings of protocols and their control mechanisms. In other words, *memes are exemplary vital creatures.*

Couldry and Mejias, by contrast, focus on the mechanistic aspects of memes: 'When […] we participate in weekday memes like #ThrowbackThursday, we imply that the way to understand life is to package it and distribute it according to models specified by the dynamics of the Cloud Empire', (2019: 42–43). For Couldry and Mejias, memes eventually become mere media products for a capitalist to co-opt. Without a countermovement, these media products' meanings, that is, *semantics*, become products furthering Cloud Empire. Below, we provide context to the idea of memes that have become merely media products by theorizing them as *meme-as-artifacts*.

Yet, memes are not merely cybernetic data products. We optimistically see memes as 'resisting domination' (Berger, 2018). For justification, we argue that memes are vital creatures as well as a medium of speech which subverts dominant structures through *tactics* (Berger, 2018; Certeau, 2011; Galloway, 2004).[2]

Tactical media have an aesthetic of subversion, which 'exploit[s] flaws in protocological and proprietary command and control […] to sculpt protocol and make it better suited to people's real desires', (Galloway, 2004: 176). For the cybernetic context, we borrow Galloway's theorization of tactical media which focuses more on cybernetic designs in decentralized digital networks. In particular, memes tactically leverage the technical and political aspects of 'protocols' (Galloway, 2004) to resist cybernetic domination with memetic vitality. The next section outlines how protocols and memes function in this context.

Step 2: Rethinking memes through protocol

Galloway (2004) is focused upon networked organizations of *protocols*: technologies such as HTTP and TCP/IP. Protocols provide a purely algorithmic task of escorting information: they either (1) let information pass through them given correctly formatted information or (2) do not let information pass.[3] Borrowing cybernetic etymology, protocols *steer* information (Wiener, 2019). For example, either a social media platform either supports a specific file type (such as a GIF) or it does not. Protocols merely interpret metadata about a message such as the file type, its size, where it comes from, and where it is going. In performing Galloway's *protocological analysis* we 'focus on the possible and the impossible, […] not a demystification of some inner meaning or "rational kernel" within technology. *Protocol is a circuit, not a sentence*', (Galloway, 2004: 52–53). Protocological analysis is valuable for providing fixed boundaries of information exchange and automated cybernetic 'meaning'. While protocols steer information, they do not understand what is passing through. When posting an image file, a protocol considers its format (e.g., a png, jpeg, or gif), not the semantics the file cognitively provides.[4] However, this schematic becomes one of complexity when we see many such artifacts being submitted to many different protocols nested within or chained across other algorithmic protocols which define the Internet. This complexity is precisely what occurs to a meme as it spreads in Cloud Empire.

To interpret the protocological complexity of an Internet meme, it is necessary to know a meme is not *an* input to *a* protocol. A meme is not a single digital artifact. A brutally simple definition of 'Internet meme' is a *collective grouping of digital artifacts* carrying a common meaning across social groups. This 'meme' is distributed across Cloud Empire subject to the process of data colonialism's mechanistic production. However, in transmitting through conduits, memes can also be investigated in relation to Galloway's method of *protocological analysis*. Such an analysis enables us to theorize latent power within a distribution of artifacts, providing us space to develop a countermovement to data colonialism.

Protocological analysis and platforms

Galloway describes protocols as technologies affording control in decentralized networks, making them a material force of Cloud Empire. These control systems are necessary when designing functional, decentralized networks. Without them, information cannot be transmitted through computational transmitter-receiver models. With the same lines of code, protocols *enable* and *control* information transmission by steering them. However, baked into protocological programming is a weakness: ambivalence towards semantic meaning.

Yet, protocols enable looking for computationally predefined data from digital artifacts, and thus, attempt to simulate semantics after the fact. Use cases for simulating semantics include catching violations of copyright law, or sharing explicit content such as pornography or hate speech. The enforcement semantic norms define *platforms.* As such, we outline how platforms surveil information transmission. If platform technologies could seamlessly datafy people to the extreme that it could automate moderation successfully and entirely, then the dystopia of Cloud Empire is realized. As such, the following paragraphs explain the semantic limitations of *automated moderation* specifically to show that these moderation practices do not escape the limitations of protocols. Rather, platforms make protocological limits visible.

Protocols often become visible when experienced through platforms like Facebook and TikTok because these platforms provide immediate feedback of protocols' models of meaning. Platforms are centralizing technologies leveraging protocols to design cultural spaces within distributed networked telecom infrastructures (Plantin et al., 2018) specifically tasked with moderating culture. As Tarleton Gillespie argues, 'platforms do, and must moderate the content and activity of users using some logics of detection, review, and enforcement. Moderation is not an ancillary aspect of what platforms do. It is essential, constitutional, definitional', (2018: 21). Managing cultural norms are the defining product/service distinguishing platforms from the open web.

Platforms use the tools of cybernetic domination, including protocols, to manage expected subjectivities within their subcultures. Exemplifying this, Gillespie wrote a chapter on the semi-automated process of handling breastfeeding images where each image is scanned for predefined content. In private groups about mothering, Facebook classified breastfeeding as pornographic. Facebook automating this moderation method, incriminates artifacts showing breastfeeding practices as 'pornographic' alongside any other similar artifacts despite context. Just like protocols, moderation algorithms fail to recognize dynamic and diverse semantic contexts.

Gillespie argues platforms must make these utilitarian decisions about which approximate context for efficiency. Automated moderation responds to scale and controls subjectivity in judgment. Such moderation methods intend to judge information in aggregate, ambivalent to contextual meaning (which memes rely on). The algorithm does not 'know' whether a picture of breastfeeding is semantically pornographic or educational. Either the picture contains predefined offending data or not.

Whether a protocol or automated moderation, the algorithm is limited in understanding of the *fluidity* of emergent and vital meanings: 'there are fundamental limitations that may be impossible to overcome: the lack of context, the evasive tactics of users, and the fluid nature of offense. […] The most effective automatic detection techniques are the ones that know what they're looking for beforehand', (Gillespie, 2018: 97–98).

Despite being different technologies, we argue platform's automated moderation algorithms are subject to the same semantic limitations as protocols.[5] These algorithms intend to simulate semantics; yet, they fail to capture the *actual* semantic content of (meme) artifacts. As such, we will refer to automated moderation technologies as 'protocols' unless otherwise needed. We can now focus on the digital functions connecting *protocols*, upon which Cloud Empire relies instead of its ideology. This focus provides access to emergent (memetic) memories which can be used to tactically challenge Cloud Empire.

A protocological analysis of memes

Within a protocological analysis, the power of memes is not in their ability to 'break' protocols as a means of resistance to Cloud Empire. Rather its power is provided by analyzing a protocol as a

physical force instead of as a fixed agential semantic choice. Trying to resist protocols directly would be like 'opposing gravity – there is nothing that says it can't be done, but such a pursuit is surely misguided and in the end hasn't hurt gravity much', (Galloway, 2004: 147). Many have accurately argued that protological technologies, platforms included, all *design* determinisms about the flow of information (Couldry and Mejias, 2019; Zuboff, 2019). However, Galloway also correctly argues that all telecom technologies use protocols regardless of their design. Therefore, an action bound to a particular protocol should be interpreted as if that protocol is attuned to the 'physics' limiting and enabling particular actions (i.e., an affordance) more so than compliance with some transcendent ideology or 'rational kernel'.

Galloway's opposition to interpreting protocols as 'rational' minds helps clarify some of the effects of Internet memes we present below. In particular, he concludes *Protocol* with three chapters: 'Hacking', 'Tactical Media', and 'Internet Art' (2004: 147–238). The core argument of each is that *disobedience* to the intentions of protocols requires *exploitation* of protocols' semantic ambivalence**.** In agreement, we interpret the troublemaking of disobedient memes as decentralized Internet art and tactical media which openly mock protocols and resist cybernetic domination.

We agree with Galloway that 'Tactical effects […] point out the flaws in protocological and proprietary command and control' (2004: 206). These flaws, or points of subversion, are actualized through media, like memes, leaving traces suggesting routes to escape dominance.[6] These paths, these *vitalist conduits*, are ways in which memes communicate through protocols while going unrecognized by mechanisms of protocol. Recognizing a meme provides those who resist data colonialism a vitalist conduit to access tactics outside of cybernetic dominance. Galloway suggests these tactics are difficult to see by design, but it can be seen most regularly through 'only traces of their successes […] discovered later by the ecologists of media', (2004: 175).

But how do memes tactically exploit protocols' semantic ambivalence? There are potentially infinite ways this can occur, however we provide three examples. The first describes a meme which goes *unnoticed* by the protocol while passing through it. The second exploits protocols by creatively using a platform's algorithmic attempts to 'notice' semantic context. The final example connects human memories of semantic content despite the information not being materially present in the artifact.

This first example of a tactic requires altering metadata such that it confronts the semantic intent of protocol design. Twitter's API enabled people to put absurd metadata into the 'tweeted from' field. Performing this action ultimately became a meme. The following image capture shows the 'tweeted from' field was altered to a 'KFC Ice Cream Machine'. Changing this field exemplifies making trouble for the expected semantics of Twitter's data[7] (Figure 1).

A second exemplary tactic for exploiting protocols' semantic ambivalence is to intentionally activate moderation algorithms in order to convey a meaning about it. During COVID-19, Meta (Facebook and Instagram's parent company) used a computer vision algorithm to look for visual data referencing COVID-19 in posts. If found, it automatically added health resources to the bottom of the images. This led to the creation of humorous memetic content which teased the legitimacy of the algorithm's semantic 'awareness' (Figure 2).

In a final example, a meme exists which uses human memories directly while avoiding capture by protocols. There exists a meme where the punchline depends upon cropping critical information out of the artifact. The following are two examples of this meme. Both are using highly 'memed' quotes from somewhat popular television shows, the first being IT Crowd and the second being Dr Who (Figure 3).

In each case, the punchline is cropped out. The meme's joke *is about the lack of sensible information in the artifact.* Only an agent with memory can fill in what is missing. Unless an

Figure 1. The two artifacts above represent two instances of meme-as-artifacts. They are connected in the sense that they manipulate metadata of the tweet in ways that they culturally indicate manipulation of metadata.

algorithm has this information ready to pair with these artifacts as they pass through the protocol, the meme's semantics would go undetected by an algorithm. As such, obviously a protocol could not find the information to moderate it; it explicitly isn't there. And yet, semantically from the human perspective, if one is aware of the fluid cultural context of the artifacts, it may as well be there.

Such behaviors may appear trivial relative to a fully realized countermovement to Cloud Empire. However, it stands as a case of protocol being used to semantically challenge mechanistic models of meaning and surveillance through memes which could be used for more actively confrontational outcomes. For example, a user might frustrate attempts to determine the origin technologies of a post by 'tweeting from' KFC Ice Cream Machines and other made up devices or hide information within human memories instead of in the artifacts themselves.

Though simple, troublemaking memes serve as part of cultural heritage because they document the humorous and overt undermining of the expected semantics of protocols. Cloud Empire might motivate the goals of surveilling specific phones or Meta having dominant power over deciding health resource decisions for people, however memes mocks that expectation when they 'perform strange things within the channel' (Galloway and Woolbright, 2023).

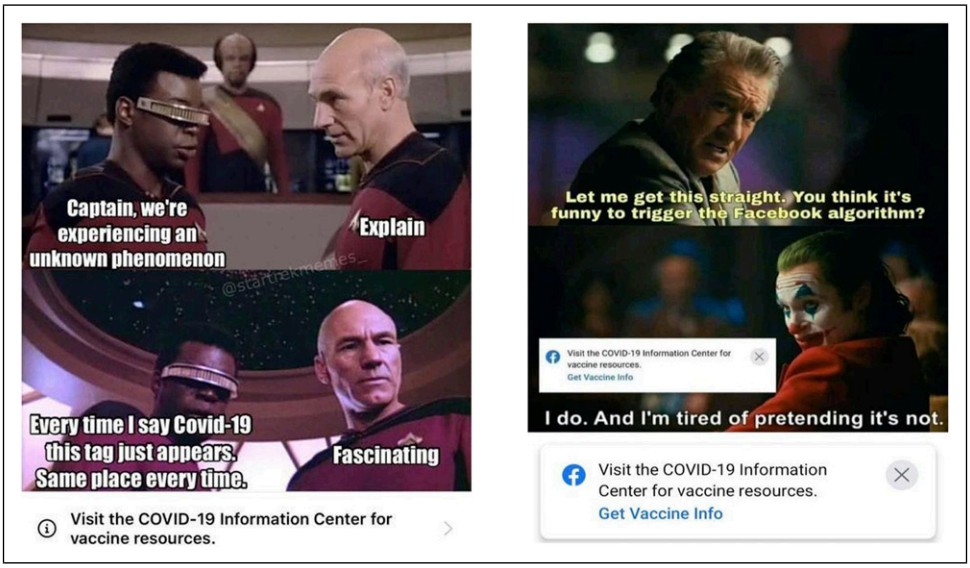

Figure 2. The above two artifacts are representative of a meme-as-artifact which makes use of computer vision tools to recognize "context" of COVID-19 in order to apply hyperlinked vaccination information.

Figure 3. The two artifacts above represent two meme-as-artifacts in which a significant portion of the punch line text is cropped out of the artifacts, thereby creating a visual-(implied) textual punchline in which human memory fills in the gap in such a way that is not immediately present in the artifact's image-file data.

These memes actively play with protocols, making jest at their knowledge deficits. They also educate people about protocols' inner procedures and how to creatively manipulate them. People gain *memories* through memetic artifacts about surveillance protocols by showing us what triggers them or how to escape them. Remembering and reimagining the semantics afforded by protocols is exemplary of resisting cybernetic domination. In this way, we agree with Galloway: hierarchies struggle to fight networks as well as other networks do (2004: 205). In this context, the battling networks are meme networks resisting reduction to the intended purposes of protocol networks.

Step 3: Rethinking memes and memory

While previous Internet memetic theory has casually or implicitly suggested memory is important, it remains undertheorized.[8] *Our argument contributes by framing memory as vitalist and virtual*. With vitalist and virtual memory being a feature of memetic processes, we continue theorizing how memes enable escape from cybernetic domination. We posit an understanding of memory that resists reducing cognition to models afforded by protocols' data outputs, especially in cases which oppose the resulting data's meaning.

In Cloud Empire, information technologies are designed for profit extraction, mining and selling data from society's digital actions. 'Physical' boundaries of extraction are protocological. Within our framework, a protocological analysis implies a semantic space where *memory* is actualized through memes. The memory-power of memes, allows them to resist reduction to extracted computational data. Memes, which actualize memory, can move through, beyond, and against the semantic intentions of protocols.

While Limor Shifman (2014) framed memes as 'conceptual troublemakers' – a challenge to be solved – we have framed memes' conceptual troublemaking as describing their vitality and 'tactical' resistance (Berger, 2018; Galloway, 2004). To describe their tactical power, some disambiguation is needed. Memes are commonly imagined as static images, such as in Cloud Empire. We need to redevelop their relationship to memory and the virtual. To do this, we re-conceptualize what a meme is in two empirically inseparable but analytically different interpretations: *meme-as-artifacts* and *meme-as-memory.*

Meme-as-artifacts

A common interpretation of memes is as a collection of semantically related artifacts, typically static images: we call these *meme-as-artifacts*. *Meme-as-artifacts* are assumed to be related due to some observable relationships.[9] As examples, all the artifacts may be iterations of near equivalent visual data as in the case with 'image macros' (Dynel, 2016; Brand, 2014), or perhaps they all contain Pepe the Frog (Demsky, 2021; Lobinger et al., 2020; Pelletier-Gagnon and Pérez Trujillo Diniz, 2021), or possibly every artifact shows similar actions such as 'planking' (Shifman, 2014). Commonly, these begin with some pile of mechanistically similar visual data, and the academic quest is to generate some pragmatic organization or cultural meaning to the meme. While not all memes are visual data, much of what has been studied in Internet memetics is multimodal semantic relationships between visual artifacts and linguistic text (Yus, 2019). Such contexts suggest a meme as an arrangement of static file types: for example, 'joint photographic experts group' (jpeg) or 'portable networks graphic' (png) image files.

Yet, to conceive memes merely as *meme-as-artifacts* is to imitate a protocol's perception of reality. Such a view uses induction to apply semantics after the fact (Smith and Hemsley, 2022), and any tool or technology that tries to create static patterns, or temporal 'snapshots' via iterative jpegs

only provide partial views of the world. However, memes, like reality, are not static. Memes are durational: dynamic and heterogeneous. Thus, *meme-as-artifacts,* like all other static digital objects, limit memes within the colonizing effects of Cloud Empire. So when Couldry and Mejias argue that memes 'package [life] and distribute [life] according to models specified by the dynamics of the Cloud Empire', (2019: 42–43), they are describing *meme-as-artifacts*: an arrangement of static data emulating culture.[10]

We contrast these *meme-as-artifacts* – that is, static, discrete, recursive, and spatially distributed collections of image files – with the *meme-as-memory. Meme-as-memory* takes into account the dynamically temporal, or virtual, aspects of a meme, and how it gets embodied through and within memory. Our concept of *meme-as-memory* emerges from a Bergsonian metaphysics, where all of reality is made up of 'images'.[11] In this metaphysics, we are able to perceive the images that make up reality because of two ways that memory functions for humans, *habitually* and as *recognition*.

Bergsonian memory

The first way memory functions, habitual memory, gets actualized in moments like one's usual walk to work or one's half-conscious scrolling through our everyday social or news media platforms (e.g., 'doomscrolling'). Habitual memory is passive and linear. However, the movement of memory can also happen actively through *recognition*. This punctuated form of memory involves moments like differentiating the face of a friend in a crowd, noticing icons such as street signs, or recognizing instances of *meme-as-artifacts*. Recognition memory is immediate. One does not have to actively move through every linear position of the past to get back to the moment when they first saw a particular meme. While each form of memory is analytically reductive, they empirically work together to push time forward, allowing us to select new data to remember in the present and thus shaping new futures.[12]

A key difference between habitual and recognition memory is their phenomenological intensities. Recognition memory intensely pulls us away from habitual continuity. As an example of this perceptive reduction, consider the iconographic recognition implied in the statement, 'I saw a Pepe meme'. The statement collapses a dynamic memory of Pepe into an instance of active recognition of Pepe by sensing what a protocol has presented: a digital artifact. The statement prioritizes what is subjectively perceived as important about the digital artifact: *a human memory of a meme*. However, Pepe is only a part of the total data in an artifact or its broader informational context. The statement, 'I saw a Pepe meme', is reflective of the reductive limitations of human perception. Perception, which involves both present sensations of the body in an environment informed by immediate and long-form memory, always provides only limited interpretations of reality. We typically only perceive what is useful to us for continuing into the future. Therefore, the semantic content of a meme is always in excess of our subjective perceptions. No single or iterative series of accounts of a meme are the whole account of the meme. Assuming otherwise reduces *meme-as-memory* to *meme-as-artifacts*. However, like habitual and recognition memory, *meme-as-artifact* and *meme-as-memory* are empirically connected despite being analytically distinguishable.

Having used Bergson for some important terminological disambiguation, we have provided a highly summarized view of how we 'remember' the material world. That is, our bodies and perceptions are an epicenter of memory, and memory is used to actualize present memory and bring about new future memory. In contextualizing Bergson's points with memetic discussion, we provide valuable parallels and distinctions. Putting these concepts in conversation with some popular memetic discussions, we show that Bergson can provide clarification towards ambiguities in the history of memetic theory.

Meme-as-Memory

On its surface, *meme-as-memory* might sound similar to Richard possessive Dawkins concept of meme-as-idea. The major difference is that Dawkins' meme provide replications of information as passed from a quasi-static body to another. That is, Dawkins' information is *spatialized*, where time is proxied by lineages of each replication from body to body. A parent's gene/meme provides t = 0 where their offspring's common gene/meme provides t = 1. When a protocol provides us an artifact, statically embedded on a Web site and has similarity to another artifact we have seen, we intellectualize these artifacts as the meme's 'data'. By contrast, a Bergsonian understanding of evolutionary information sees data not as spatialized packets selected according to protocological logic, but rather, as pragmatic selections containing memories of the total past which inform a living-beings present duration.

Dawkins' metaphysical lens works within a positivistic, biological scientific worldview. His informational selections must express static ideas through a protocological logic. He argues that for a meme to *inform* us of culture, the data must be a static and objective representation of cultural ideas, traced spatially across bodies. Yet, Bergson argues this view is *not* real, but is the intellectual tendency to rationalize an illusion of stasis, homogeny, and singularity for reality. Our Bergsonian framework above describes how the human apparatuses of perception, intelligence, and other embodied tools regularly obscure our experience of and access to reality. Since reality is durational (dynamic and heterogeneous), any tool or technology that tries to create static patterns, or 'snapshots' – such as protocols – can exclusively provide partial views of the world that cannot be mistaken for its actuality.[13]

Returning to Dawkins, defining memes as quasi-static cultural ideas, his science requires data to be *meme-as-artifacts* (as collection of static artifacts) instead of *meme-as-memory* (as virtual, vital, and dynamic). Dawkins' position is the ideology of memes in Cloud Empire. His memetic data define a meme to the transcendental idea provided by data analogous to base nucleotide data in genetic protocols. By contrast, Bergson argues such static data is averse to real memory. For data colonialism to capture memory itself as a (memetic) product, the data of memory would have to be completely different from how Bergson argues memory occurs. For Bergson, memory 'data' is vitalist, not static. From Dawkins' perspective, the vitality of our meme appears magically. Memetic memory has no nucleotide-like basis. Yet, a meme which still performs its memory is alive. It remains a cybernetic creature with affective drives connected to distributed memory. As such, it regularly escapes capture by cybernetic data (data colonialism) despite existing in a cybernetic world (Cloud Empire). Memes carry 'jester's privilege', regularly emerging to perform the fool's critique in the face of Cloud Empire's protocols and policies. It is precisely memes' vitalistic performance, evading data capture by protocols, that Dawkins struggled to recognize which shows how they are different from genetics.

Exemplifying this, Winnie the Pooh is often used to represent the ex-president of China, Jiang Zemin (McDonell, 2017). For a time, this went unnoticed, passing through the protocols without problem. It was only after Chinese officials understood it as a critical icon, and wished to reduce its critical sentiment, that instances of Winnie the Pooh were systematically censored. However, now Winnie the Pooh partly exists as that memory, ready to be re-actualized to other yet-to-be associated artifacts. That is, the Winnie the Pooh meme is *vitalist* data.

Shifman offers a similar critique of Dawkins in her reframing of memes. She disagreed with Dawkins' insistence on dissecting the ideas from the medium which carries the meme. She argued that part of the larger problem is that 'the study of memes has been subject to disputes centering on

mind-body or genotype-phenotype dichotomy', (Shifman, 2014: 38). She rejected his framework as it presupposed a separation between the idea and the media of a meme.

In our use of Bergson and Shifman, we interpret that phenotypic iterations cannot generalize to *real* images of evolutionary culture as Dawkins argues. He reduced *meme-as-memory* to *meme-as-artifacts* by analytically flipping the direction of causality to *memory-as-meme*: that is, a static and finite idea. He assumed from the outset that all similar artifacts contain a core static *idea*, and all that is needed is to carve away the differentiated artifacts from the idea to get an absolute *form* which transcends the materiality of artifacts. If this were true, then evolutionary culture could be positivistically explained by the metadata and information provisioned from *protocols* alone, that is, the data extracted from the information transfer from sender/parent to receiver/offspring. Yet what is captured by protocols is merely information about cultural transmission, not the semantic process of culture. This is what Shifman calls a *mentalist-driven* memetics.

In contrast, falling on the other side of the mind-body dichotomy, is what Shifman describes as *behavioral-driven* memetics. In this characterization, memes are conceived 'as behaviors and artifacts rather than ideas. In the behaviorist model, the meme vehicle and the meme itself are inseparable', (Shifman, 2014: 38). However, behavioral-driven memetics fails for the same reason as Dawkins' memetics, albeit in a more direct way. The behavioral-driven framework naively reduces ideas to aggregate instances of behaviors, bodies, or artifacts which represent them, that is, *meme-as-artifacts*. In this case, memes are all copies of some documented schematic, such as a patent, blueprint, or choreography. These are the 'packages' of simulated life that Couldry and Meijas describe memes to be. No 'mind' is required to justify the meme. Shifman expects there must be some kind of continuity or durational connections between digital artifacts: that is, dynamic and durational memory which tracks almost directly with Bergson's concept of the virtual (memories and the past as active forces on the present) implicit in our theorizations above.

Consistent with memory's active role in the present, Shifman provides an argument for how such a continuity happens with an *inclusive* memetic approach. To explain this approach, Shifman quotes Susan Blackmore in referring indiscriminately to 'memetic information that can be copied by imitation in any of its many forms; including ideas, the brain structures that initiate those ideas, the behaviors these brain structures produce, and their versions in books, recipes, maps, and written music', (Blackmore, 1999: 66). More discriminately, Shifman refers to memes with people as the underlying actors sharing imitative 'content units with common characteristics' and then goes on to break down memes into 'content, form, and stance' where *content* and *form* are conceptually analogous to the expressed genotype and phenotype, respectively, suggesting the memetic idea and its material/behavioral expression (2014: 39–40). Summarized, Shifman suggests the expression of an idea (content) and the media it is expressed within (form) are connected. She avoids Dawkins' mistake of focusing on expressions of ideas in order to reduce to ideas by introducing the concept of *stance*.

Memetic stance

Stance is where Shifman provides a dimensional distinction from mentalist and behavioral memetic accounts: 'I use "stance" to depict the ways in which addressers position themselves in relation to the text, its linguistic codes, the addressees, and other potential speakers […]; when re-creating a text, users can decide to imitate a certain position that they find appealing or use an utterly different discursive orientation', (2014: 40). The problem with this framework, is that, if this was merely a person decoding information with meaning or re-affirming an existing meaning, then this falls into the *meme-as-artifacts* trap we have just provided for both the mentalists and the behavioralists.

Wiggins affirms our hesitation, arguing that when it comes to analyzing video memes, for example, 'stance relies heavily on the presence of speech. With other non-video examples, stance is joined by content inexorably due to the relationship between the expression of ideology and the manner by which meaning-making is accomplished without speech acts, thus emphasizing (or elevating the importance of) the role of semiotics and intertextuality in non-video memes', (Wiggins, 2019). Importantly, Wiggins argues an expressed ideology is a part of the meme. As stated previously, ideology is a human decoding of a meme. It is not *really* meme-as-memory. This 'ideology' is how humans interpret or select a meme in their own fractured interpretations or aggregate, networked, or layered use of meme-as-artifact (Blommaert, 2015). Stance collapses to content for Wiggins because, whether intended or not, it suggests reduction to linear and static linguistic speech acts.

Stance risks collapsation to one side of the mind-body, ideal-material, or content-form dichotomy if by 'inclusive' we interpret stance as having 'relativistic' mind-body status. When speaking about *meme-as-artifacts* or *meme-as-memory*, if Shifman's framework does not affirm the analytic distinction, Cloud Empire can claim her theoretical framework to justify reduction of memory to iterative computations on artifacts and thus draw a false identity between static data and memory. This issue is closely tied to how memetic information functions in cybernetic systems (Smith et al., 2024).

In order for Shifman's account to be inclusive *and* resist cybernetic domination, we develop a specificity in how stance resists collapsation and the duality of mind-body dichotomies. When interpreting stances, content, and form as a *meme-as-memory,* a stance must avoid being interpreted as being in relation to a static idea or an individual body. If static, such iterations of *stance* would also reduce to *meme-as-artifacts* instead of providing a *meme-as-memory.* To avoid such a reduction, one could simply take the liberty of redefining Shifman's *stance* as durational, posthuman memory. However, recall Shifman defines 'stance' as communicative actions of individuated addressers. Stance, as it is outlined by Shifman, is more easily interpreted as reducing to individually documented speech acts as Wiggins suggests than *meme-as-memory.*

To approach how stance and memory work through vital, non-mechanistic bodies we modify the concept of stance as connected to haptic responses (Marks, 2002) of *meme-as-artifacts* such that it enacts the power of the virtual (the active movement of the past upon the present) as a distributed connection with *meme-as-memory*, mutating the meme's totalizing past. What this haptic connection means is that *meme-as-memory* touches protocols, but it doesn't pass through them as *meme-as-artifacts* do. This haptic process of memory, which appears as a stance and passive data transmitting through protocol, is what allows for a Pepe meme to enable multiple distinct stances consistent with being an alt-right icon (Demsky, 2021; Dixit, 2022), an icon of the Hong Kong protests (Peters and Allan, 2021), and critical icon of Chinese ex-president Jiang Zemin (Seta Gde, 2019). That is, Pepe, as a meme-as-memory, persists through tactics (and tactile actions) via the touching of media screens, such as sharing, liking, or upvoting instances of meme-as-artifacts.

These individuated, haptic actions are the material traces which provide the data for Shifman's memetic stances, which are phenomenologically connected to Marks' 'folds' (2010, 2024). Yet Pepe, at present, contains these stances *and more,* at once, as a *meme-as-memory.* As such, memes of resistance can provide 'connective', distributed memories to individuals (Silvestri, 2018) instead of quasi-homogeneous, and algorithmically aggregative, memory. These instances are not the totality of Pepe. If viewed only through protocol, Pepe is the meme-as-artifacts data which could be banned or allowed as it aggregates into a 'collective' memory. Such data are perceived through a computational lens that privileges a static and finite development and historically homogeneous stance.

While platforms may continually try and update the static data-memory from which protocols draw upon to allow a passthrough, the speed and fluidity at which memes evolve means protocols will always be out of sync with dynamic mutations of cultural semantics. The haptic touch of human bodies fleshes out Shifman's *stance* such that our meme now has a *vital body*. This haptic interpretation of stance can starve off the cybernetic dystopia while still fairly describing an empirical study of evolutionary culture by recognizing durational haptic responses upon the media of meme-as-artifacts as the 'organs' (Hui, 2019; Marks, 2024) which provide the senses for *the recognition memory of the meme itself* by using our fingers for 'liking', 'commenting', 'scrolling', and so forth.

Now that we have described how humans literally sense the protocol through a meme, what happens to a protocol which has been sensed? We begin with an analogy to film technology as a simple protocol. Here we simplify Bergson's technological discussion of the 'cinematographical apparatus' (2022) such that we can discuss its similarity to cybernetic engineering and platform technology.

Imagine an old Hollywood film projector where a spool of film unravels from one negative to another. Acting protocologically, the projector is semantically ambivalent to what the film projects so long as it passes by the projector. The projector feeds this information in a physically linear progression from one negative to another. Yet, protocols can afford nonlinear feeds. Once upon a time, Facebook feeds were linear artifactual histories, but eventually this was abandoned for predictive algorithms based on 'user preferences' and content recommendations. The order of the information is not just different from person to person but also from one moment to the next. Consider a film spool where the negatives are constantly being reorganized depending on when it was watched and/or who is watching it.

The reason for the infinitesimal excess of reorganization of artifacts from these technologies are because of data inputs which mark the passing of the haptics humans potentially provide. Settings, preferences, and interactions with content affect the arrangement of artifacts provided in a feed. These could be defined through upvotes, downvotes, profile bans, personal or privacy settings, chosen affiliations with a Facebook group or subreddit, whether a video is swiped past in one second or three, etc. The data interpreted from a protocol, defining each feed, are a digital reduction of durational haptic responses. When we feel compelled to touch the screen by giving a 'heart' to a TikTok video or swiping to the next video, it is not clear what information we are telling the algorithm to provide us with next. With this level of situational complexity and haptic design, it is no longer feasible to determine *who* delivers the next image in the feed and what human agent made that decision. Even if the decisions of distinct protocol designs are all human designs, when orchestrated together they often respond to each other *and* to our haptic responses in ways where they contain an emergent agency even though these technologies have no cognitive awareness of the semantics projected to us.

Further, neither the algorithm nor the people designing them fully know what sparked our memory into liking a video. Neither the person scrolling nor the protocol has a determinable agency of what stimulated our memory, propelling the feed into the future. Unlike the narrative of a film projected to us through the film spool, where a type of narrative agency can be traced to the director, or viewer, or small groups of particular people in a theater, with protocols of platforms, there is no preconceived narrative which carries linear power or even continuity from one person's feed to another. Every person who has watched a few seconds of *Star Wars* has at least some view in common with any person who has watched all of *Star Wars*, situating them in an expected linearity of narrative time in the Star Wars universe. However, nobody has seen all of TikTok. It is feasible and probable that no two feeds on TikTok are the same, providing decentralized and even discontinuous views of TikTok's larger virtual memory.

While the negatives unraveling in film are protocologically bound to the linearity of film as a physical media, protocols providing us social media posts are not. While TikTok or Reddit feeds are suggestive of linear 'doomscrolls' in time, they are radically decentralized adventures without end or pre-existing narrative arcs. While Bergsonian (habitual) memory on platforms is perceived as linear from human perception, it almost never is in connective or collective memory. Furthermore, we hop between differently designed protocols regularly. Intermissions in using TikTok are filled with Twitter, in turn, filled with work email, until ultimately we land on a couch watching Netflix at the end of the day. Each of these platforms augment minor aspects of what protocols afford by automated content moderation, designing each feed on each platform.

Such protocols are the digital physics affording memetic ecologies. Certainly these protocols are designed by people who have the power to shape social media feeds, and thus have some control over memory. However, it is crucial to notice that if a single platform can have disconnected views, then also certainly it is feasible there exist multiple human memories of any given computer recognizable object. That is, any video, png, jpeg, or gif containing common information can have multiple interpretations which could provide spectral (e.g., via semiosis) or discrete (e.g., polysemic) meanings. When one leaves TikTok to see Twitter, TikTok does not immediately re-evaluate its feed in consideration of the memory gained from Twitter. In the context of memes, *meme-as-memory* is subjected to humans with potentially infinite differentiations of protocols through time which construct subjective memories of a meme.

A caveat should be stated so that we do not get carried away. Cybernetic domination strongly shapes many contexts in which information is provided to and extracted from us online. Furthermore, it is incorrect to suggest protocols cannot be redesigned, or that they enable a transcendent ecology beyond our control. However, even updates are mechanistic, iterative and thus platforms can only respond approximately.

Platforms provide terms of service, conduct guidelines, and/or mission statements, that they seek to uphold. While algorithmic content moderation within the platform judges the content without semantic context, terms of service policies act as human interpretable 'rules'. Algorithms, left to themselves, act as fundamental forces, like gravity. These algorithms' semantic purpose(s) or use(s) in design are not self-contained to the protocol's rationalized purpose, like how the theory of relativity does not contain the actions of gravity itself. Rather a theory provides an interpretation of what gravity semantically means. If gravity behaves slightly differently than the theory suggests, then the semantic accuracy of gravity's identity is only approximate. Terms of service agreements can only be approximate to what protocols can allow even when updating them. As such, platform designers vitalist human moderation, a psychologically and physiologically laborious task. Conformity to predefined semantic goals requires labor that is not fully captured by protocols or automated moderation. It requires an agent of duration in the Bergsonian sense, someone with access to the dynamic and growing past (the virtual).

For meme moderation by a human, like all other humans, has to have the memory of a meme to moderate it. That is, while the meme exists in the broader virtual-sphere of the past, the human can only act as a pipeline for its actualization if they have had a particular encounter with it, ready for recollection. Problematically, these punctuated encounters mean that moderators have a biased perspective about what memes mean. Media objects have to be flagged as *meme-as-artifacts*, for example, instances of images which aggregate into a supposed harm-laden semantic, such as dog whistles, slur, or misleading information. That is, a moderator does not see memes from a similar vantage point. While the meme exists in the totalizing past, the human-moderator still only has access to a reduced version of the meme's potential semantic meaning. So, biased to moderate a

meme-as-memory as a *meme-as-artifacts*, the moderator might only see the meme for its negative, horrific, and shameful affects. Elsewhere, their access to the virtuality of the past might allow them to perceive a meme for its positive affects. That is, the memory of a meme, constructed among distinct actors by and through numerous platforms and protocols, carries a full assemblage of memory greater than what any protocol, platform, or a platform moderator has the scope to interpret without computational omnipotence across platform and protocol. In carrying memory as meme-as-artifacts, the power of the meme exists *before* one can attribute that power to one of the artifacts of meme-as-artifacts, and thus a moderator, and protocols even more so, will *always* lag in being able to moderate a particular memetic artifact. The meme must go from being a mediated affect to being a clearly semantic and semiotic artifact. That is, *the memetic memory is pre-data, making a meme pre-data colonization.*

At this point, we have defended our central claim. Memetic memory actualizes and distributes before it becomes data. Thus, memes always exist with virtual potentials to escape cybernetic domination.

Rethinking memetic stance and memory

What does this mean for memetic theory? We have produced a radically vitalist interpretation of Shifman's memetic 'stances', reimagining them as actualized memory via haptics (Marks, 2002). A consequence of how memory has been arranged around Internet memes in our argument is that *memetic memory* holds a unique position relative to 'human' and 'protocol'/'platform' memory.

As we have stated, protocol and platform 'memory' are mechanistic aggregates, built from metadata of the actual information transfer generated by protocols, and stored in databases. Protocols and platforms provide a digital 'nervous system' carrying pre-semantic haptics upon which memetic memory emerges with its own agency.

Memetic memory, in contrast to protocological 'memory', is not a predefined computational aggregate or computational sorting. It is a vitally mediated assemblage of information, generating an emergent sort of agency. It is not immediately datafied in protocological memory, nor is it immediately accessible to human memory or semantic use. Meme-as-memory is fluidly performing between these two memories. Memetic memory connects mechanism of artifacts with the vitality of Bergsonian memory: what cybernetic theorist Yuk Hui calls *organicity* (2019).

In memetic organicity, we exemplify their phenomenology as being analogous to Steven Shaviro's speculations of 'thinking like a slime mold' (2016: 193–215): memes 'split the difference between unicellular and multicellular forms of life' which swarm and provide artifactual 'fruiting bodies' which disperse through haptics. Memes, like biological slime molds, contain no brain, and yet they appear to exhibit a form of intelligence for cultural survival through cybernetic resistance to domination, spreading across the memes' artifactual instances, either in a singular mind-body blob or as distributed bodies of not-quite individuated cognitions.

As such, 'stance', as Shifman describes it, is interpretable as ethnographic traces of the haptics upon 'fruiting bodies' (i.e., meme-as-artifacts) which mark the passing of assembled and actualized memetic memories. However, these traces when arranged or organized materially are more like *cultural heritage* – a medium or technology imbued with the power of memory (Taylor, 1995; Viejo-Rose, 2015) – than memetic memory alone. These traces document memories existing in the ever expansive past. While such traces ethnographically exist, reducing the potentiality of these memory networks to actualizations of 'stance' fails to capture their complete and organic vitality: their cybernetic 'organicity' (Hui, 2019).

It is the virtual and actual *memetic memory* networks which provide a potential for battling protocological networks. This memetic memory is seen more clearly in how they actualize across protocols and automated moderation algorithms. The content of some memes are the affordance to 'foolishly' challenge datafication in comradery with humans. It is here that memetic memory is recognized in human memory as anti-protocological, and its traces are unsystematic to the protocol, and yet humans are aware it is there before it has been accounted for via cybernetic domination. Yet, as these memes can never be fully known by any particular actor, we assume memes always contain unknown vital potentials. As such, memetic resistance to cybernetic dominance occurs by way of a meme's virtual memory first and foremost, to be actualized via the assemblage network, not necessarily via any particular human memory.

Therefore, 'stance' exists as an existing or predicted ethnographic trace or actualization of virtual memories. It represents a *semiotic* (as opposed to merely *cybernetic*) conduit vector upon which memory passes and shapes.

As such, the cultural memory provided by a meme, be it from the memetic memory or human memory, protocol derived data does not adequately capture what the meme is or how it generates semantics from virtuality. If one wishes to provide a countermovement or actionable designs for it, we suggest one would start by leveraging the distinction between data generated through protocols and actualized memories. While frequently one is used to proxy for the other, as in the automating tendency of Cloud Empire, it always will do so with error in predicting what propels platform feeds into the future.

Conclusion

A lot has been said at this point. It is important we reflect on what our core development is. We started this discussion by arguing that memes offer an exemplary case of resistance to cybernetic dominance. Producing data is a fundamentally profiteering enterprise and governable production through protocological circuits. As we have argued, memes perform in such a way that offers mediated affordances for evading semantic capture, short-circuiting cybernetic automation of semantics. Memes (when understood as we described *meme-as-memory*) are particularly slippery because they perform and suggest memories that are fluidly distributed between people, platforms, and the protocols of the open Internet.

Our primary development of memetic resistance additionally extended to developing what 'memetic memory' is, and how it is a unique extension of previous memetic conceptions. We have provided revisions, extensions, and connections between many memetic theories in such a way that somehow provided living flesh and organicity to memes in which the mechanistic meme-as-artifact is connected to the vital meme-as-memory. One such consideration has been in addressing a particularly slippery issue of datafying *stance*, be that through Shifman's initial framework, Wiggins' artifactual meme, or Blommart's semiotic account. Additionally we have theorized how memetic memory is connected to other sorts of memory and how they are documented.

Memes, as developed here, are ripe for connection with many spaces connected to memory, cultural heritage, algorithmic studies, platform studies, and many other spaces. As such, we have attempted to leave space for those connections. Much more can be developed than is possible within our present development. By our extensions, we suggest memetics, which is more than human to human mediated communication, can also be used to theorize power and agency in posthuman, sociotechnical, and cybernetic worlds. It is our hope that our theorization makes space for these connections as well as inspiring creative performances which starve off data colonialist dystopias.

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Notes

1. Recent academic discussion proposed the notion of fluid agencies within algorithmic contexts (Siles et al., 2023a; 2023b). We discuss memes as having *decentralized and distributed power* when interpreted sociotechnically. But as a symbiotic relationship, memes are *creatures with fluid agency* provided by a posthuman and cybernetic world. Implicitly, our arguments suggest that our conception of meme provides specificity to a particular kind of 'fluid agency' but we do not explicitly develop this connection ourselves.
2. Using memes as channels of communication, Certeau argues can use informational contingencies to make the 'weak' triumph over the 'strong'. Certeau speaks towards a more general communication theory of which we apply to the case of cybernetic communication structures (Shannon and Weaver, 1998; Wiener, 2019).
3. Protocols can be interpreted as specialized algorithms producing the 'transmitter' and 'receiver' nodes in Claude Shannon's communication model, making them *first order* cybernetic communication channels. That is, protocols are mechanistic algorithms, which act *without* internalized cognitive actors.
4. Claude Shannon's *Mathematical Theory of Communication* (1998) insists that cognitive action is not included within his theoretical design of communication protocols. This is also well noted in Hayles' history of cybernetics (2008: 50–83). This is not to say there are not external cognitive forces of the protocol designers which schematically exist outside of the communication channel. In fact, the constant redesign for data that Couldry and Mejias refer to requires external cognitions for cybernetic feedback loops. Feedback provides the empirical information to re-evaluate what a protocol does such that it can be redesigned for its semantic purpose. This is what Hayles refers to as reflexivity in cybernetics, which she says was marked by an 'endless regress' of reflexivity (2008: 188–191), marking *second order* cybernetics. The cognition occurs after *reflection* on what information was transmitted, that is, it happens after the transmission is received, decoded, and made sense of. The 'regress' occurs because this system requires infinitesimal feedback loops, each of which is initiated *after* information transmissions which are uninvolved with cognition. Each of these infinitesimal feedback loops augment the last, but they do not ever supplant the technology of the protocol as diagrammatically understood in Shannon's transmitter and receiver model.
5. This is an example of the never ending reflexivity of second order cybernetics described by Hayles. Even if the automated model is a machine learning model working with 'real time' data, it already must have enough data to trigger a signal to provide feedback stating that a piece of media contains offensive content. The algorithm must capture a significantly large aggregate in meaning through feedback before it can model an 'offense'. In other words, the meaning which triggers automated moderation already exists as a dominant message on the platform, and it must recognize it as that meaning, incriminating all other possible meanings. These algorithms create adversarial models of meaning through aggregates. However, for those interested in sociopolitical and political economic distinctions of these technologies, we suggest starting with the difference between 'platform' and 'infrastructural' goals (Plantin et al., 2018) which implies a 'rational kernel' of these technologies.
6. Such tactical memes teach the weak communicative tactics (Berger, 2018; Certeau, 2011) to challenge cybernetic dominance.
7. It should be noted that manipulating metadata in this way could be performed in ableist ways. For example, many visually impaired folks count on alt text and image description texts to interpret visual content through screen readers (Lewis, 2018). We obviously wish to reduce the ableism online in our collective tactical resistance to cybernetic domination. However, it would be a serious omission to not state that with

networked media and multimedia, research surrounding issues are woefully understudied. There are excellent resources, such as Lewis, who provides first hand experiences of what is helpful as well as more formal resources such as the W3C standards and best practices. (See: https://www.w3.org/WAI/fundamentals/accessibility-intro/). However, very little research has been done with accessibility which involves the kind of connective memory and kinds of resistance presented here. This is a serious tension that our theorized tactics must reckon with in order to provide more accessible emancipatory power. We urge memetics researchers, meme curators and disseminators, and those dealing with memory and media more broadly to think carefully about these issues.

8. Recently there have been a few examples of memetic memory. Some involve collective memory studies (Seet and Tandoc, 2023) and connective memory and semantic resistance to political rhetoric (Silvestri, 2018).
9. Exemplary of meme-as-artifacts, Wiggins and Bowers discuss 'meme as artifact' which presumes a connection of artifacts to memory traces: 'the procedures of designing specific memetic content in such a way to be recognized as memes in order to promote a recursive reconstitution of related memes', (Wiggins and Bowers 2015). That is, an agent makes artifacts based on some structure and process such that it is recognized as a 'meme as artifact'.
10. This is also affirmed with 'Meme as genre' (Wiggins and Bowers, 2015) through a dualism of structure and systems characterized in Giddens' structuration theory (1986). This dualism is the 'interaction between agent and structure' where 'recursive action that helps to reconstitute the duality of structure that memes are propagated', (2015: 1895). Agency for us is more aligned with 'fluid agencies' (Siles et al., 2023a) which resists the agent-structure dualism of structuration theory. While attempting to argue that memory and artifact are connected, memory is proxied by discrete artifactual recursions within online structures (e.g., protocols).
11. Images in this case exist as more than that which ideally is a 'representation', but they are less than realist 'objects' or 'things'. Images exist somewhere between these positions (Bergson, 2022).
12. Not to be confused with the 'digital' or the 'digital-virtual' each of which have their own conceptual lineages that often do not account for temporality. Bergon's concept of the virtual cannot be reduced merely to the virtual-as-digital. Memories gathered through the 'virtual-as-digital' provides us with examples of Bergon's 'virtual', but the former 'virtual' is an information technology and the latter is uses memory for future speculation (Loewen, 2022).
13. Bergson writes in *Creative Evolution* 'We take quasi-instantaneous views or snapshots of the reality that passes by, and, given that they are characteristic of this reality, we can simply string them together – along a becoming that is abstract, uniform, invisible, and situated at the foundation of the apparatus of knowledge – in order to imitate what is characteristic in this becoming itself. In general, this is how perception, intellection, and language proceed. Whether it is a question of thinking, expressing, or even simply perceiving becoming, we hardly do anything other than set into motion a sort of inner cinematograph. We might thus summarize all of this by saying that the mechanism of our ordinary knowledge is cinematographic in nature', (2022: 306).

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