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RESEARCH ARTICLE

Parasitic universes: Organisational and technological meddling in the social

Simon Bailey[1] | **Marc Lenglet**[2] | **Gemma Lord**[3] | **Dean Pierides**[4] | **Daniel Tischer**[5]

[1]University of Kent, Canterbury, UK

[2]NEOMA Business School, Mont-Saint-Aignan, France

[3]The Open University Business School, Milton Keynes, UK

[4]Newcastle University, Newcastle upon Tyne, UK

[5]Sheffield University Management School, Sheffield, UK

Correspondence
Marc Lenglet, NEOMA Business School, Mont-Saint-Aignan, France.
Email: marc.lenglet@neoma-bs.fr

Abstract

Debates about technology theorising 'the social' solely on *dyadic* and *fixed positional* terms fail to grasp important ways that new financial technologies participate in work organisations. As an alternative, we build on the work of Michel Serres to propose that these technologies already inhabit *triadic* and *relational* parasitic universes in which they introduce interruptions that do much more than mediate between degrees of technological and social determinism. To understand the forms of agency this affords, we analyse two contrasting studies of workplaces where financial technologies were introduced. In a UK non-profit social care organisation, relations of care were fundamentally disrupted by disorderly, dysfunctional forms of agency, whereas in UK retail banking, management used disorder to strategically obscure their own agency. Technological innovation and 'future of work' narratives are shown to feed each other, in service to interests that benefit from the repurposing of technologies, people and organisations.

KEYWORDS

agency, financial technologies, parasite, relationality, retail banking, social care

INTRODUCTION

A political-economic shift away from value creation towards value extraction, as pursued through shareholder value (Krippner, 2005), has been convincingly linked to the interests and objectives of employers and workers (e.g., Cushen, 2013; Cushen & Thompson, 2012; Thompson, 2003, 2013). Thompson (2003) observes the conflict inherent in this financialised capitalism between expectations of, and investments in, labour, arguing that strategies such as delayering and downsizing, as well as being bad for both workers and managers, are also inherently unsustainable. Subsequent studies identify mechanisms through which value extraction can be translated into the workplace, for example, through private equity business models (Clark, 2009), corporatisation (Cushen & Thompson, 2012) and outsourcing (McCann, 2014), all performed via the 'elevated' role of accounting in organisations (Cushen, 2013). The net effect on labour is 'insecurity, work intensification, suppression of voice and the enactment of falsely optimistic behaviours' (Cushen, 2013, p. 314).

Concurrently, financial technologies have become central to how organisations—financial and non-financial firms, IGOs and NGOs alike—conduct their activities globally. The interplay between financial management and technological advancements is important in the shift from industrial to financialised capitalism and is widely considered to have profoundly altered capital and labour relations (Lapavitsas, 2011; van der Zwan, 2014). Far more than FinTech (Lagna & Ravishankar, 2021), these financial technologies are systemically embedded in processes and systems, making up day-to-day organisational life. They reshape organisational processes and traditional forms of corporate control (Lagoarde-Segot & Currie, 2018; Meyer, 2017). Dynamic instability of capital markets has become the locus of a shift in emphasis that diminishes traditional forms, sites and practices of control, accountability and security, relocating these to corporate-level structures, removed from firms and their managers (Cushen & Thompson, 2012; Thompson, 2013).

The implications of this shift are hotly debated. While some have predicted a jobless future (Ford, 2015), others insist on the new types of cooperation and collaboration afforded by algorithmic technologies (Fleming, 2019). Some have even suggested identifying alternative models of work (Susskind & Susskind, 2015). Notwithstanding the important contributions made by existing debates, the forms of agency afforded by the labour–capital relationship also need to be theorised alongside the specificities of the technologies themselves. A significant challenge here is that the structural disempowerment of labour resulting from financialisation has displaced many classic sources of workplace agency, described by labour process theory as resistance or misbehaviour (as in Ackroyd & Thompson, 2016; Thompson, 2013). This forces us to reconsider agency within a reconfigured context of labour–capital relations.

In this paper, we develop the provocation that existing debates about financial technologies that theorise 'the social' solely on *dyadic* and *fixed positional* terms fail to grasp some important ways that these new technologies participate in work organisations. By building on the work of philosopher Michel Serres who believed that new information technologies are generating a cognitive revolution (Serres, 2015b), we develop the notion that 'every dialectical relation or dialogue is built on the exclusion of the third [...] which precedes—and must be killed for—its founding' (Watkin, 2020, p. 305). This move from a dyadic perspective to a *triadic* description highlights the role of shifting relationalities in making sense of the actors/actants of a given relation.

If capital and labour are assumed to be stable forms of structure and action, analysis then proceeds to unpick the dynamic movements of these forms in light of technological innovation

(cf. Orlikowski, 1992). Yet, financial technologies introduce interruptions to work organisations that do much more than mediate between varying degrees of technological and social determinism. There are similarities here with platform capitalism, the technologies of which encapsulate this problem well because they 'weave' interaction in ways that go beyond their infrastructural capacities (Caliskan, 2020). Platforms are comprised of many circuits and networks, apparently black-boxed from scrutiny or intervention. Yet, like all technologies they are concrete, allowed to exist by deliberate accord and shaped by specific management practices (Moore & Joyce, 2020). Financial technologies, specifically, push forward binary logics, which 'automate and traumatize us', yet 'also reveal perhaps what has always been there—the sociotechnical networks that exist beyond and outside of us' (Halpern, 2021, p. 251).

This relationality is depoliticised when it comes at the expense of locating specific sites and practices of power and exploitation. To advance the debate on the development and dissemination of financial technologies and as the contribution that accompanies our central provocation, we set out our subsequent analysis according to three key moves: first, we critique *dyadic* and *fixed positional* terms of debate and propose instead that the new technologies of interest already inhabit *triadic* and *relational* parasitic universes; second, we draw upon the work of Michel Serres and his interlocutors to make this first move, introducing a set of related concepts with which to think; third, we use vignettes from two contrasting studies of work in non-profit social care and retail banking to show how these concepts broaden our understanding of the situated movements of capital, technology and labour.

We draw on Serres' (1982a) notion of 'the parasite' to shift from provocation to alternative (see also, Brown, 2002, 2004, 2013; Clegg et al., 2004; Gasparin et al., 2020; Lehtonen, 2020), while also attempting to shift the overall discussion about agency toward a wholly different conception of the cosmos. The idea of the 'cosmic' attempts to get away from a world inhabited only by signs to one that is always already filled with physical action (Serres & McCarren, 1992, p. 3):

> We have lost the world: we have transformed things into fetishes or merchandise, the stakes of our games of strategy; and our noncosmic philosophers, lacking a cosmos for nearly half a century now, can only discourse on language or politics, writing or logic.

In the parasitic universe we describe, agency appears as the fundamentally impure element that is both sought after and expelled, desired and reviled, always already there while seemingly absent.

Reading our analytic vignettes 'illuminates' what is gained from the conceptual advances we make (cf. Jarzabkowski et al., 2014), allowing us to discuss implications for work–capital relations in organisations that make use of new financial technologies. For the social care organisation that we analyse, we show how relations of care are fundamentally disrupted by dysfunctional forms of agency, which results in a technologically mediated inconsistency between different governance interests. In short, the service of care appropriates and disaggregates the relations between care and the organisation. In retail banking, we highlight sector-level changes. These are not solely an outcome of technology per se; they are brought about by strategic shifts and organisational reconfigurations driven foremost by managerial elites and investors.

In both cases, the concept of the parasite allows us to illuminate the ways in which there always already exists a dynamic and relational interplay between different interests. Financial

technologies might at times be said to 'feed upon' productive or service-oriented economies, while at other times such technologies might play 'host' to other situated sectoral interests. The value of recognising that this parasitic universe exists prior to our analysis of it is that we can start to better understand the emergence of orders of relations between capital, labour and technology that are not reduced to the depletion or even 'killing' of one by the other, while at the same time understanding how they render visible the strategic positioning available to different parties in the relation, and consequently from which they can extract value.

The paper is structured as follows. We begin by expanding upon the position outlined in this introduction to situate and explain the conceptual move that we propose, subsequently introducing the work of Serres in more detail. We then present the two vignettes, dividing each into three sections that describe the empirical context, the parasitic universe each produces and what our analysis enables us to articulate about the interplay of capital, technology and labour within specific workplaces. We conclude our paper with some suggestions for how to build upon our contributions in future research.

FRAMING TECHNOLOGY AND THE 'FUTURE OF WORK'

Studies that have situated the increasing hegemony of financial products and services within the workplace, often referred to as 'financialisation', have demonstrated the presence of a conflict between expectations of, and investments in, labour (Thompson, 2003). The strategies that are mobilised to ameliorate this conflict, such as delayering and downsizing, are bad for workers and managers, and are inherently unsustainable (Cushen, 2013; Cushen & Thompson, 2012). It is clear from such studies that technologies are essential to financialisation, which would not be possible were it not for their ability to forecast and carry decisions instantaneously across the globe. At the same time, it is through this transglobal traversing of times and spaces that the sociomaterial relations of production can be obscured (Howcroft & Taylor, 2014; Thompson, 2020). When this occurs, technology is seen to be determining a future of work in which artificial intelligence will entirely sweep away human work and employment as we know it (Ford, 2015; Frey & Osborne, 2015).

Although this is a relatively extreme position that has been robustly critiqued (Hughes & Southern, 2019; Morgan, 2019; Thompson, 2020), it is a position made possible by a set of conceptual commitments, which are shared far more widely. This is in part a problem of framing (Aroles et al., 2019). By establishing a linear commitment to 'the future of work'—an expression that has now become a catchphrase (Schlogl et al., 2021)—analyses are limited to either a critical or affirmative outlook (Granter, 2009; Holtgrewe, 2014). It is also in part a product of the contemporary reach and sophistication of digital technologies. Innovation appears to occur elsewhere, workers and managers are required to act in response (Susskind & Susskind, 2015) and analysis lapses into technological determinism once again (Howcroft & Taylor, 2014). These two problems are both symptoms of a third, which is the tendency to conceive of technology as a 'thing' and then study 'its' effects.

Studies that treat technology this way can provide instructive cases that demonstrate how both technological and social worlds are reconstituted through practice; nevertheless, they are littered with descriptions of 'pieces' of technology, their 'insertion' into the workplace and the 'capacities' of managers and workers to either embrace or resist (e.g., Edwards & Ramirez, 2016; Stroud & Weinel, 2020). Often building on Orlikowski's (1992) identification of three dimensions characterising technologies (as intended or unintended effects, direct or indirect

effects and degree of reconstitution in practice), these studies draw attention to the 'immanence' of the technology itself. For Edwards and Ramirez (2016, p. 103), the character of this reconstitution is shaped by further characteristics:

> immanence matters because the more that an effect is inscribed in the technology, the more the social choice is one of "take it or leave it". Where effects are less immanent, there is more space to moderate any negative effects.

Authors of similar studies would claim that their thinking is dualistic and relational, insofar as actors (including technology) have varying degrees of agency in a dialectical relationship with structures. Yet, as the quoted passage above shows, the inscribing of technology with characteristics that impose themselves upon social worlds, albeit with dynamic degrees of reconstitution, inadvertently imposes a hierarchical ontology, in which human agency takes on a residual character—what is left over, given sufficient space by technologies. This tendency has been extensively critiqued over the last 3–4 decades (Callon, 1987; Latour, 1991; Pinch & Bijker, 1984). It leads us to the claim that, though dynamic, such thinking is nevertheless *dyadic* with theoretically *fixed positions* because both actors and structures are anchored within an abstract schema without regard for their actual relations. If social orders are understood to be artefacts of technological innovation, then this must have specific effects that are distinct from the positions in which these theories abstractly anchor actors in advance of their description.

Our emphasis is therefore upon the empirical realities of financial technologies and their operation both within and outwith traditional domains of finance. These technologies appear to intrude upon situations, altering in unpredictable ways what once appeared fixed. These sites are not simply a 'response'; they become new kinds of entities. The need to move from dyadic to triadic accounts is sensible insofar as it is needed to make sense of these new kinds. As we show, these entities are also not anchored into fixed positions in an abstract scheme, but shifting in relation to each other and the events they encounter. Importantly, our paper thus contributes an approach for studying the agency of actors within the labour–capital relationship that breaks free from established critiques of new technologies—specifically from forced dualisms. This challenges the analysis of agency to suspend fixed or linear ideas of subject–object, structure–action, design-use, to instead permit these concepts to remain open and relational (Smith, 2021). As our vignettes show, the conceptual tools we introduce in the next section avoid an ascent to abstract dualisms and instead focus on the empirical realities of financial technologies in work.

SERRES AND THE PARASITE

To develop our argument, we use the concept of 'the parasite' from Michel Serres' (1982a) eponymous book. The French 'parasite' has three distinct meanings, upon which Serres develops his essay. The first is *biological*: a disease, an organism that lives on a host, from which it feeds itself. Second, the parasite can also be understood to be the 'uninvited' or 'abusive guest', somebody who not only delegates his or her care to others, but insists on doing so. Third, the parasite conveys the idea of *noise*: the background noise, the interference distorting or blurring communication between sender and receiver is said to be parasitic ('noise or static in information theory in English is translated as parasite in French', see Serres, 1982b, p. xxvi). Each meaning, taken with the two others, allows Serres to think of parasitism as a specific type

of relation, where positions are not easily assigned, nor assigned once and for all as they remain interchangeable. The parasitic chain is what links the three meanings by resting on the idea of a disturbance or perturbation, taking place within the relational, or 'in-between' space, that is, 'the milieu, the mediate', or 'the middle term' necessary for communication (Serres, 1982a, p. 65). To illustrate parasitism, Serres uses a number of verbs such as 'to perturb' (Serres, 1982a, p. 195), 'to disturb' (Serres, 1982a, p. 31 or 78), or to 'complicate' (Serres, 1982a; p. 84, 239). With this, one can think *dynamically* about the three parasitic elements, without having to assign a fixed position to each element.

Serres also emphasises the idea of in-betweenness by making use of a fourth, slightly distinct, meaning of 'para-site' (written as a preposition): when he does so, Serres points in the direction of what is 'beside' (Serres & Latour, 1995, p. 101), or that which remains near even though it is 'expelled or excluded' (Serres, 1982a; p. 155):

> To play the position or to play the location is to dominate the relation. It is to have a relation only to the relation itself. [...] Never to the things as such and, undoubtedly, never to subjects as such. Or rather, to those points as operators, as sources of relations. And that is the meaning of the prefix *para-* in the word *parasite*: it is on the side, next to, shifted; it is not on the thing, but on its relation (Serres, 1982a, p. 38).

The parasite, 'that which eats alongside one' (Connor, 2015, p. 8), enacts a displacement and takes things in a *para*-sitic direction, which is both disorienting and reorienting for the host or milieu disturbed by the perturbation. The parasite is a 'catalyst for complexity' (Brown, 2002, p. 16), and the proxy of relations, which 'are in fact, ways of moving from place to place, or of wandering' (Serres & Latour, 1995, p. 103). As noted by Marcus (2000, p. 8) in an explicit reference to the para-sitic nature of the parasite,

> Serres suggests how metapositions are established within systems by operators (or parasites) who manage to find ways—constructed spaces—to develop a special sort of knowledge that considers the system itself in the context of the parasite's dependent relation to it.

With the parasite and its associated 'parasitic chain', Serres offers an analysis of relations that are not understood as dyadic, but that includes a third element, in a move towards a triadic account of relations that is amenable to precisely the kind of analysis that we require to understand the relations between organisations, financial technologies and people in work. For Serres, the shift from the classical perspective of dyadic relations to triadic entanglements is accomplished by way of a parasitic element, which can be understood as the necessary perturbation coming with any form of communication, relation or exchange (see also, Gasparin et al., 2020, p. 387). Dyadic relations, which are meant to be simple systems, are indeed always interrupted by an 'unassimilable element' (Connor, 2015, p. 5). This element, which Serres calls a parasite, is 'that which disturbs or complicates a system: and yet, by that very action, may provoke a consolidation of the system through complexity' (Connor, 2015, p. 9). What this paradox means is that the parasite disrupts the dyadic relation, but at the same time, by complexifying it, the parasite reveals the nature of this relation. Or, as Serres (1982a, p. 79) puts it:

> Systems work because they do not work. Nonfunctioning remains essential for functioning. And they can be formalized. Given, two stations and a channel. They

> exchange messages. If the relation succeeds, it is perfect, optimum, and immediate; it disappears as a relation. If it is there, if it exists, that means that it has failed. It is only mediation. Relation is nonrelation. And that is what the parasite is.

Serres is writing against the principle of the excluded middle (or 'excluded third', see Serres, 1982a, 22 sq.), because it limits the possibility for logical thinking to only two positions (A, non-A; there, not there). Serres replaces this with a 'trivalent logic', setting our analysis in motion so that we can understand the shifting forms of agency that this affords (Serres, 1982a, p. 23):

> as soon as we are two, we are already three or four. [...] In order to succeed, the dialogue needs an excluded third: our logic requires the same thing. Maybe they also require an included fourth (Serres, 1982a, p. 57).

Because the parasite is an operator—not only does it feed itself on inputs, or pre-existing states of affairs, it also produces outputs by rearranging those states of affairs (Brown, 2002; Watkin, 2020, p. 36, no. 2). Parasitic logic, then, both strengthens and disrupts relational systems:

> For there to be system, which is to say orderly and regular relations, the parasite which interrupts those relations must be excluded; but in order to be excluded, the parasite must be made a constant preoccupation, and therefore included. To be held at bay, the parasite must be kept at hand (Connor, 2015, p. 10).

This therefore clearly goes against the familiar logic of the excluded middle. Its triadic logic is foundational for Serres, whether from a logical, philosophical, political or anthropological perspective (Serres, 2015a, p. 126). And this idea is carried in and contained by the prefix *para-*, a prefix describing a relation (Serres, 1982a, p. 55, 144; see also Watkin, 2020, p. 304), or a reciprocity (Connor, 2015, p. 6). As a result, relationality is first and foremost approached from within the mediation (contrary, once again, to unmediated approaches of relationality as in Plato's forms or Kant's 'things in themselves'). This relationality is best evidenced in hosts and parasites, which are 'always in the process of passing by, being sent away, touring around, walking alone', as they 'exchange places in a space soon to be defined' (Serres, 1982a, p. 16).

While this parasitic universe might seem to take us quite far from the empirical realities of work, used as a heuristic tool for analysing those realities, Serres' proposal provides us with a direct response to the challenge that we posed above. Without sacrificing the material politics of the situation, it allows us to locate forms of agency that do not depend upon a fixed, ossified, positional understanding of labour–capital relations. Next, we analyse two vignettes to show how this is achieved. For each vignette, we first describe the context before analysing it using the above concepts so that we can then discuss the implications.

VIGNETTE 1: 'CARE' IN A UK SOCIAL CARE ORGANISATION AS REPOSITIONED PARA-SITE

Context: Shifting social and technical relations under financialisation

Social care and non-profit organisation (NPO) are connected in the contracting of social care services in the United Kingdom. Some NPOs (our case included) align their income strategy to

available funding instead of pursuing the more traditional revenue-generating activity of philanthropic giving. NPO is a definition of negation, an overt and exclusionary device that references another, seemingly higher-order, organisational purpose; one qualitatively distinct from profitmaking. Within civil society, it is organised for a collective or societal cause, typically a derivation of the church, the welfare state, campaigning or some hybrid of these institutions. Contracting between NPO and social care weds the organisation as custodian of aid with sector-level grant funding. Higher-order social care and the NPO basis become logically affiliated, consistent for, and with, relations in work. When optimum, this relationship is thus disappeared because of its success. The enactment of social care in work is defined with recourse to an ethical preoccupation of citizenship and of the distributive or benevolent properties, or both, inherent to one's understanding of the 'self' in society. Social care work is relational care with diligence for 'the other', one's community, as well as oneself. This relational capacity is manifest in collective formations of labour (Held, 2006, p. 15). Transmission of care occurs via those relations that are configured by the specificity of the social ill. The implications of this optimum relation are an uncomplicated enactment of care in work.

Historically, the NPO in our vignette made minimal use of work surveillance technologies, justifying this decision with reference to finance and trust in professional judgement. Grant funding modalities for social care contracting, although increasingly outcome-focused, were readily available before the Global Financial Crisis. Projects, staffing and overheads would be costed, and annual grants at a local and national level were sought to fund these. Rolling grants provided some certainty for long-term planning. Finance planning and responsibilities were mostly retained within finance roles and senior positions in the organisation. It was uncommon for organisations delivering social care contracts to retain surplus: they did not envisage surplus as theirs, nor as profit (Lord, 2019). Instead, spending surplus income before the end of the contract ensured a similar amount would be awarded the next financial year; and whatever remained unspent was typically returned.

With the change from grant to competitive funding modalities, anticipatory technologies were introduced to the organisation for the purpose of predicting the financial outcomes of care projects. This change in finance mechanisms blurs traditional sector-specific distinctions (Civil Exchange, 2016). It means that organisations formally constituted as charities can continue undertaking charitable, non-profit work, alongside other activities through which profit is generated, any surplus from which must be reinvested in the organisation. Profit became necessary for the organisation to survive financially given that competitive funding excludes overheads. The primary focus of the technology is to forecast profit deficits for projects and for comparing individuals. Timesheets track every half an hour of employees' weeks and the technology is used to allocate staff an amount of time per project. If they spend more time than this allocation, they are reprimanded. If they 'spend less' and thus generate a time-counted profit, they are rewarded. If professional 'workarounds' are to be achieved (Dupret, 2017; Goff et al., 2021), labour must locate capacity for profitmaking as the relations between the social and the technical shift.

Analysis: Parasitic chains

The NPO is parasited through a financialised process that inserts profitmaking into the relations of the NPO. The parasite attaches onto the organisational approach to income in the

transformation from custodian of aid to maximiser of return. The technology is participative in the emergence of profit extraction as a process by which the dynamics between NPO and social care contracting shift. Indeed, the inclusion of profit, the once 'unassimilable element' (Connor, 2015, p. 5), disturbs the previous optimum relation between social care and NPO. The transmission of care hosted by the NPO experiences a perturbation with the inclusion of profit, and the relations are therefore subject to rearrangement. Financial gain is rendered the outcome of labour relations and the higher-order interests of 'the social', to which the sector is in service, are repositioned with this disturbance. Fundamentally, we witness the expression of the transformative—or 'catalytic'—function of the parasite (Brown, 2002, p. 16).

Profit is, in Serres' terms, the guest: an uninvited presence in the relations between the organisation, social care and its collective formations of labour. The parasitic nature of the relations rearranges the existing labour relations into new distinct forms. The technology, key to these shifting relations, is deployed at the point of work to monitor and control activity. Work is bound to measurement and financial forecasting, compelled by surveillance practices, which are fixed by organisational objectives set from outside. Profit–deficit forecasts assess the viability of social care programmes and allocate resources to projects, just as in the for-profit, corporate-like, world. They also incentivise the reduction of time spent 'on projects' and the generation of demonstrable care outcomes. The complexity of care is transformed from multiple and variable outcomes to outcomes mapped dualistically, devoid of the nuance and relationality of care. The technology separates work into elements that can and cannot be regulated. Those that cannot—for instance, professional decision-making, or the ethic of care—are discounted in favour of inexpensive solutions and measurable and profitable outcomes. Care outcomes thus degrade with the financial preoccupation and professional judgement is rendered an obstacle or management problem to be solved.

In the triadic relation, profit—the uninvited guest now included—shifts into a dominant position. And yet, the extraction of profit from labour is only a partial assessment of the parasitic nature of the relation. In exchange, the parasite provides the organisation with a rationality with which to navigate the economy of social care. With the technology, it provides the basis upon which uncertainty can be reduced. The technology is harnessed to undertake the mining of care contracts for profit and to guide resource allocation, measuring individuals' activity in relation to the profitmaking capacity of care work. Contracts can thus be pursued with assurance from a framework of maximising revenue. NPO as custodian of aid is redesignated as miner of contracts for profitmaking capacity. The NPO cannot suppress profitmaking; it hosts it as it tries to harness it. This parasitic chain changes the relations between the organisational interests and the social it is meant to serve. The parasite produces an output that changes the state of affairs. The message between profit and NPO becomes conflictual, and, in Serres' terms, profit generates a kind of 'static' in the dialogue between the collective capacities of care.

Organising the processes of labour, attentive to a social ill, demands transcending the individual to achieve the relational and collective capacities of care (Gilligan, 1982). The dialogue between the collective capacities of care is envisaged and enacted by and with the relational 'We' in labour activity. The parasitic relations and the technology appropriate and disaggregate the previously optimum relations between care and organisation. Consequently, the production of financialised care reconfigures the labour process around the need to revive the individual: the 'I' becomes of paramount importance in separation from the group. This transforms the relational 'We' in care delivery into disaggregated outcomes. The flow between organisation and care work is disrupted and a diversion is created. The technology, preoccupied

with profit, participates in a revival of the previously transcended sovereign 'I'. It structures and incentivises individual action that weaves the collective differently. The dialogue between (relational) care and the collective 'We' is interrupted by the noise created, by the inclusion of the individual.

Discussion: The excluded middle, included

In their attempts to navigate the noise that the inclusion of the individual generates, employees side-step the technology in several ways. Finding capacity in the work for taking care of the numbers demands relocation of when and where work is done. Location of work thus becomes an area of contestation (Shulzhenko & Holmgren, 2020). Staff also undertake care work outside work time: on their way home or at the weekend. They engage in processes of 'gaming' the time-based systems to disguise project-based deficits, and to keep working on certain projects. Despite pressure to avoid loss-making activity, care is achieved via organisationally dysfunctional forms of agency, an additional output of profit's inclusion in the relation. Via the technology, the 'I' is included and moves into a dominant position alongside profit in the labour relation. This shifts the collective 'We' (the practices of care) into a different position. However, care is not the excluded middle precisely because it remains near: both in terms of its position in the contracting and sectoral milieu as well as in labour relations; albeit in the dysfunctional forms of agency described above.

Care and its collective practices are in an adjacent position alongside the relation that now includes profit and the autonomous individual. Thus, in this setting, the parasitic relations and the technology displace care and its practices, taking things in a 'para-sitic' direction. In terms of Serres' fourth conception, care is displaced, now operating beside the relation. The basic sectoral ethic of the labour—that of relational care—is at once excluded via the technology, while also faithfully 'kept at hand' (Connor, 2015, p. 10). With care positioned in a para-site, conflicting imperatives are experienced through agency positions that are in flux. There is significant oscillation in positions at the point of the labour. It, therefore, becomes clear why employees experience tensions and dissonance. At this point, NPO as host has become excluded, disoriented, 'touring around' the space (Serres, 1982a, p. 16), while agency positions are constantly changing and disorderly. When rendered this way, the assumed sociotechnical split also permits the depletion of certain prior forms of agency as employees navigate both shifting messages and the noise generated by the inclusion of the individual. Our second vignette takes the analysis to the domain of retail banking where, in comparison to the NPO, we are able to chart the interrelations of finance, technology and labour over a longer period of time. This enables us to expand on the capacities of each agency to parasite, and be parasited, by one another.

VIGNETTE 2: TECHNOLOGY AS PARASITIC NOISE IN UK RETAIL BANKING

Context: The parasited parasite

Serres' parasite allows us to develop an understanding of the ways the parasite 'financial technology'—technology used to support operations of financial organisations and decision

making—alters the relation between work and capital, between workers and management, in banking and finance. A new technology introduces a change that redirects flows towards it while retaining the host. Over time, as it automates processes and creates efficiencies it may also develop its capacity to displace traditional work and, therefore, to profoundly alter the relationship between work and management. For example, early digitalisation of withdrawals via ATMs initially reduced demand for branch work both in scale and scope, allowing branch staff to engage in higher-value activities. As the transaction capacities of ATMs increased beyond cash withdrawals, the increased usage of ATMs, in turn, placed pressure on branches and contributed to the widespread closure of bank branches. Successive rounds of technological innovations can reconfigure the triadic relations between work, technology and management. Technology, the once *excluded* third, becomes a semipermanent fixture, *included* (Serres, 1982a, p. 22), a key component in the triadic relationship between work and capital. As with the above NPO example, it continues to consume in exchange for its presence, a process that can continue until technology replaces the diminished host.

Serres' (1982a) conceptualisation of the parasite allows us to go even further in describing the role of technology, beyond its parasitic effects. Financial technologies are well placed to illustrate that parasites are themselves always parasited by a third element; that is, financial technology itself becomes subject to parasitic forces. To suggest that technology only assumes the role of the master, the last element in the parasitic chain, ignores the agential capacity of other actors, for example, managers, to deploy technology strategically for their own purposes. Whilst technology, on the one hand, has the capacity to alter flows of resources towards it, its function within a triadic set of relations, on the other hand, can shift into a direction that is determined by management, for example, to increase returns, thereby reinforcing the superior position of capital as parasite. Such a purposeful deployment of technology allows management to parasite not only technology itself but to calibrate technologies' capacity to redirect flows from other elements up the parasitic chain. Digital payments, for example, have not only cut costs from transactions (or at least have the capacity to do so in future) but also fundamentally altered work processes. Work previously done in branches shapeshifts into digital protocols and algorithms doing 'work', with the occasional human doing 'algorithmic work' that acknowledges these processes (Bailey et al., 2020). Work is digitalised through technology, but technology, whilst facilitating much of this, is by no means in total charge. Engineered to redirect resources, it itself is deprived of some of these resources by other parasites further down the chain, such as management and capital owners.

Analysis: Financial technologies as noise

No financial technology operates in isolation. Instead, it becomes entangled with other financial technologies to form a complex system of intra-technology relations. Serres deals with this background complexity as 'noise'—the singular, specific form of financial technology as parasite is included in a broad system of financial technologies, which has implications for how a specific financial technology can *interfere* with the work–capital relation. While we can observe the 'impact' of a singular technology, it is, however, not only this technology that produces change. Technology, as the observable part of a larger system of technologies, the background noise, is instead productive. Parasitic noise is based on the premise that its totality remains invisible, obstructed by its complexity and therefore impossible to disentangle. Noise is emitted from a *black box*, which, although unobservable, is busy interfering with all relations

(Lange et al., 2019). Noise organises without being instructive: 'we are surrounded by noise. And this noise is inextinguishable' (Serres, 1982a, p. 126).

According to Serres we can only observe noise in part, by minimising disorder; by focusing on how a specific technology alters the relation. Although we cannot observe the complexity of noise in its totality, formally recognising its existence provides opportunities to think about the role of a financial technology as part of a larger system of technologies. Noise stipulates that parasites are rule-bound, that is, they do not exist outside the system, but rather are a part of such a system. Noise recrafts relations by reproducing existing rules or generating new rules that together shape the environment in which work exists. A new financial technology simultaneously interferes at both the system level and the work–capital relation, but whilst the work–capital relation is a receiver of change, the system is both receiver and sender. Disorder, *disruptive technology*, becomes ordered, it becomes a *productive technology*. Technology as noise is always present and with each technology entering, disconnecting and reconnecting across the complex system, it creates opportunities for system change. This is what Serres means by noting that '[s]ystems work because they do not work. Nonfunctioning remains essential for functioning' (Serres, 1982a, p. 79).

Discussion: The strategic role of new financial technologies

A system of financial technologies acts both as a source of variation and as a sorting mechanism (Kockelman, 2010, p. 412). New financial technology can challenge a system's core function, but is equally subject to it, a rhythmic pattern of change and stability. For example, the emergence of digital payment technology, whilst interrupting certain processes, enables the system to change over time, creates new processes, new rules and new operations that would otherwise be impermissible. A dyadic and fixed positional analysis focuses on a specific agentic capacity of technology as the driver of change that reorders and recasts organisational work, visualising the impact on various organisational stakeholders, in particular workers, as a form of subjugation to increasingly technology-driven work processes. Understanding this dehumanisation of work is analytically important but it also underemphasises the complex repositioning done by the technology itself.

When technology enters a parasitic universe, our relational analysis describes how it disturbs the state of affairs *and* in doing so produces agentic possibilities. An example of this would be the introduction of digital payment mechanisms. The technology upends traditional exchange practices in which cash is exchanged, stored in a till, before being paid into a bank to be credited. All of this work is 'lost', and yet it is not entirely lost. Technology does not simply subtract (i.e., by removing parasites), it also adds (i.e., by introducing noise). It reorders relations by automating exchange once contact has been made between bank card and payment terminal. Payment technology does not stop being productive at that point. Adding complexity to a system of existing technologies is where its productiveness flourishes. Payment technology alters relations elsewhere in the system, far beyond the purchase exchange: instant payments, individuals transferring money to each other, purchasing goods online, the emergence of digital ('crypto') currencies, as well as bank internal processes. Each adapts or is generated precisely because digital payments have complexified the system.

Technology as noise, as part of a system of technologies, may also provide additional opportunities for management to parasite up the chain as well as bring about broader, strategic change in organisation. Technology can become a source of disruption that remains largely

invisible to everyone due to the complexity of the system of financial technologies. The ability to order what may otherwise be perceived as disorderly, to use financial technology strategically, ought to be attractive to management. By referencing technological determinism that requires imminent action, management generates both a justification and an intervention in the work–capital relationship. Traditional work patterns, and indeed workers, are losing out, as technologies take hold and become naturalised organisational features. Management's own intentions remain obscure while recognising the opportunities that are presented at the system level promising additional productive, parasitic technological change over time. In the same vein, it may provide alternatives for how technological shifts are negotiated at the industry level. The 'new technology as a force for good' narrative can be challenged by accounting for the systemic change generated by a single parasitic technology in the right conditions.

CONCLUSION

Using Michel Serres' concept of 'the parasite' we have shown how to relationally analyse the development and dissemination of digital technologies. We avoid the determinist traps to which such an analysis is otherwise prone and instead build upon the idea of a 'parasitic universe' as an ongoing ordering and reordering in which technology, people, organisation and, indeed, agency are relational and interdependent. Our final aim has been to encourage discussion, debate and research by critically examining the limitations of *dyadic* and *positional* thinking; explaining what we mean when we propose *triadic* and *relational* analysis as an alternative; and, demonstrating the expanded possibilities this move affords through two vignettes. Taken together, these conceptual moves enable us to develop a contingent explanation of how movements of capital, new technology and labour might be better understood. In this parasitic universe, situated movements, such as the ones we have described, alter the relations themselves. The resulting constraints and affordances must be analysed in relation to specific interests, which in our data and analysis are sectoral.

The parasite cannot be used to define a 'final' or determinate knowledge or characterisation of technology or agency; to do so would run counter to the move from position to relation upon which our argument builds. We use the parasite to show how work and organisation, as combinations of different orders, are linked contingently, in a 'chain' of changing relations between interdependent phenomena (capital, technology, organisation, labour). Within this relational perspective, these phenomena are a means of temporary 'ordering, codifying, framing and classifying' (Clegg et al., 2004, p. 34) that provides stability and form to an otherwise chaotic universe; they are 'reality-constituting and reality-maintaining' activities (Chia, 1998, p. 366). To do as we have done and temporarily fix the parasite in a 'place', such as technological effect, managerial interest or capital movement, is an analytically necessary act of reification, which demonstrates the ultimate limitations of sustaining this kind of simplification in practice.

The vignettes from non-profit social care and retail banking provide two contrasting empirical contexts that differentiate agential affordances to which the parasite gives us access, emphasising its catalytic nature. The alternative *triadic* and *relational* approach we propose highlights different distributions of agency through which work might be characterised. Agency in the social care organisation was constantly changing and disorderly, appearing to exceed the organisational capacity for containment; in retail banking, it was management that used this disorder to strategically obscure their own agency. The vignettes show how to

describe and analyse the parasitic universes of these two specific contexts, but the concepts can be used for analysing other empirical contexts in which new technologies are put to work. We would, therefore, in the first instance, encourage other researchers to draw on our work to explore a range of empirical contexts where we find new technologies to better understand the forms of agency these parasitic universes afford. The remainder of this conclusion briefly indicates some ways that our situated narratives point towards a broader set of propositions.

By setting up our analysis against the abstract framing of technology and 'the future of work' in studies of work and technology we can draw out the shifting production of different forms of capital, technology and labour over time. In the NPO, where the application of financial technologies to the workplace was relatively nascent, we find both organisational forms and human agencies to be in flux, unsettled and undetermined. Consequently, institutionalised forms of agency had been required to adjust to, and accommodate for, financialised workplace technologies. Workers could mobilise in alternative ways, to work around and game the systems. Yet, such activities were costly to the organisation and to individuals. This makes visible a set of contradictions between the individual, organisational and societal purposes, which NPOs have traditionally fulfilled. Individuals embody organisational memory. The reordering we have described enables us to see the conflicting understandings of 'legacy' derived from human and technological systems; when technology is taken to determine work, then the legacy system is inconvenient and obsolete. Technological innovation and 'future of work' narratives feed each other, in service to dominant interests that stand to benefit from an organisation of technology and social change that is individualising and deterministic.

However, the picture of gaming that parasitism helps us see demonstrates a nuanced form of resistance. In part, gaming within the context of financialisation appears to further employee subjugation by generating compliance with a performance target, if not its 'point'. At the same time, this exposes an organisational dysfunction, produced by employing technology in the form of a performance management system 'as if' the desired outcomes could be technically determined. Managers were aware of this dysfunction and were seeking ways of redressing it. Regardless of the form this redress might take, it signals that a new reordering has been set in motion. The agency of workers is expressed here as the excluded third, included—animating the system as calculative, in a manner which simultaneously extends beyond formal limits of acceptable behaviour. This problematises a dyadic understanding of counter-performativity, which depends upon the ability to express the action of a mechanism in terms of its intended performance; it cannot account for the multiple and possibly conflicting interests and imperatives which might be at stake within a given performance, and to which the idea of parasitism gives us access.

Aligning with Thompson's (2003) thesis on the inherently unsustainable nature of the employment relations produced by financialisation, the parasite could 'kill' the host. The combined effects of workers' dissonance, managerial conflict, and ritualised system conformity thus cause organisational failure. Yet, contemporary examples such as healthcare or education in the United Kingdom, Australia, and elsewhere, suggest that senior management will more likely find ways to mobilise the systems so that value can be extracted from professional work, ultimately straining but not breaking the psychological contract (Spina et al., 2020). Conflicts between organisational and social imperatives end up being contained or worked around within a professional ethos (Bailey et al., 2019; Goff et al., 2021), or are met with entrepreneurial zeal (Bailey et al., 2017; Hodgson et al., 2022).

Paradoxically, the more 'mature' intermingling of capital, technology and labour in retail banking from the second vignette demonstrates the potential for greater indeterminacy over

time, enabling acts of strategic reinterpretation. The shift from 'technology as parasite' to 'technology as parasitic noise' shows the productive capacities of financial technology. Introducing new technology to an organisational or sectoral system can create disorder that forces relations to reconfigure around, and take into account, the recent addition. Another order is created by integrating the parasite into the system, making it function within a set of increasingly complex relations (Connor, 2015).

Echoing some recent critiques of digital capitalism (esp. Moore & Joyce, 2020; Thompson, 2020), the implication here is that technology is not an invisible force for either good or bad, but rather a set of tools in service to particular interests. These interests might be capital—as noted by those who have critiqued the idea that digitalisation and the network forms upon which it flows are necessarily engaged in processes of decentralisation (Thompson, 2020). As Tischer (2020) shows Facebook's Libra proposal proclaimed decentralisation and universal access at the level of technology, but its integration into a system—Libra's proposed governance, organisation and technical integration—usurped this. The Libra proposal was thus about centralisation and a grab for power. Simultaneously such interests can also become more visible and amenable to regulation, as Moore and Joyce (2020) show with regard to the regulatory and legal disputes that can be mobilised to challenge platform technologies and in some cases to bring about changes in their design and use. This undermines the common assumption that the complexity of algorithms makes them 'black boxes', which are beyond scrutiny (Pasquale, 2015). Rather, the disregard for labour law and regulation that is inscribed into an automated system is what makes the algorithm available to challenge (Reddy et al., 2019). This provides an appealing foil to the technological determinist, for whom the increasing sophistication of technology drives their mastery of socioeconomic processes.

Future research could therefore usefully focus upon dimensions such as time and temporality, sectoral logics and governance (Taylor, 2010), as well as the interplay between levels and domains (cf. Thompson, 2013), which help to differentiate the possible chains and trajectories of labour, capital and technology within the kinds of situated analyses we have provided here. This makes visible a set of ethical choices at the political economy level. If we know that workforce and sector-level actors are impelled to make decisions between functional and dysfunctional organisational forms of action, then this affords political actors a discourse for critique and intervention. Formal organisational and relational possibilities are thus foregrounded, while simultaneously obscuring or rendering obsolete managerial interventions overemphasising efficiency.

Management as resource dependency and efficiency requires formal processes to make things visible, which in turn rest upon a humanist assumption of what can be made visible or must remain invisible (Bailey et al., 2020; Lenglet, 2021). As Thompson (2020) notes, if a political debate is prefigured by a paradigmatic assumption of the 'postwork' economy, then the policy agenda that is pursued, regardless of the position on the political spectrum from which it is being pursued, will be limited to 'accommodating' and 'adjusting' to a set of market conditions conceived as having already been settled elsewhere. Bringing a relational understanding of agency through work, back into the analysis provides one way of challenging such a conception. It provides examples of the kinds of human work upon which digital technologies depend, even as they also feed upon them. By drawing out the triadic nature of this encounter, we identify potential positions for political intervention. This could be rooted in, and begin from, an understanding of the necessity of human labour, amidst the essentially conflicted logic in which it is situated.

All change, within a triadic logic, is a process of reordering, of working and reworking. Capitalist expansion and the excesses and inequalities that come with it depend upon this work, and simultaneously benefit from its reification. It follows that specifying and investing in collective human and physical capital in itself performs a necessary move against abstract

schemas in which capital and labour are fixed in their codependency, and the advance of one must come at the cost of the other. If this relationship is once again understood to be contingent, then new ethical possibilities become available. The triadic logic is in this sense an invitation to intervene, as well as a clue for where and how that intervention might occur.

ORCID

Simon Bailey http://orcid.org/0000-0001-9142-2791
Marc Lenglet http://orcid.org/0000-0002-7267-9425
Gemma Lord https://orcid.org/0000-0002-9332-5917
Dean Pierides http://orcid.org/0000-0003-0876-9909
Daniel Tischer http://orcid.org/0000-0003-3180-7862

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