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Futures Literacy through Narrative

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Abstract

This paper explores the particular role of narrative in developing futures literacy. As literacy denotes the ability to express and absorb meaning through language, enabling individuals to parse information and relate to others, then futures literacy also needs to draw on the insights of narrative to embrace its full emancipatory potential. We set out the importance of narrative in (1) framing, (2) shaping, and (3) critiquing the world-building techniques that form the foundation of futures thinking and futures literacy. These insights into the "storiness" of futurity, we argue, enhance critical reflexivity and illuminate our wider understanding of the dynamics that drive assumptions about the future(s). This paper offers three examples of how working with narrative tools can enhance futures literacy. First, we show how narrative theory can help us understand the limitations of the human imagination when it comes to futures thinking. Second, we offer an overview of how collaborative, character-led storytelling can activate an agentic relationship with uncertain and complex futures. Finally, we explore how speculative fiction reveals the importance of context in futures thinking. Overall, we demonstrate how proficiency in narrative theory and literary studies can shed more light on the cultural and ontological perspectives and specificities to be considered in how we anticipate and engage in futures thinking.

Futures Literacy through Narrative

Introduction

In the domain of futures thinking, forecasting, scenario building, and horizon scanning, we are not dealing with concrete certainties but with "present imaginaries of future situations" – that is, with future scenarios and strategies which are *narrative* fictions (Beckert, 2013, p. 325). When we speculate about the probabilities, possibilities, and desirabilities of any futures, we are dealing with present imaginaries of future possible worlds – that is, with fictional *story* worlds. Indeed, it has long been recognized that we understand and explore our place in the world generally – and in future worlds especially – through narrative and story (Poli, 2018; Liveley, 2017; Miller, 2011, 2006; Currie, 2007). As Miller (2006) points out: "it is crucial to recognize that the elaboration of exploratory situations (for human society) is largely a storytelling task" (p. 7). Understanding the narrative dynamics which drive this storytelling process is therefore an important skillset for Futures Literacy (henceforth FL) to develop and for its practitioners to hone. For, as Prince (1990) puts it, "narrative ... does not merely reflect what happens; it discovers and invents what can happen" (p. 1).

In this paper, then, we set out to cast new light upon the importance of narrative in (1) framing, (2) shaping, and (3) critiquing the world-building techniques that form the foundation of futures thinking and FL. Significantly, each of these interrogations is informed by practical insights into FL-in-action, garnered through research collaborations with various national government agencies and initiatives conducted under the auspices of the UK-based Futures Literacy through Narrative (FLiNT) project. FLiNT's research to date has focused upon testing innovative theories and creative methods in real-world contexts, and the project's key objective is to build a new network of government policy-makers, practitioners, and academics with interests and expertise in futures and narrative. In this way FLiNT aims

to bolster the on-going co-development of a "toolkit" of creative futures methods, specifically around the more sophisticated use of narrative for better envisaging uncertain futures and communicating those possible futures in impactful ways.

The first section, on "Narratology and Narrative Frames", synthesizes the research findings from one of the projects FLiNT has been developing in collaboration with the UK's National Centre for Cyber Security (NCSC), and the Research Institute in Sociotechnical Cyber Security (RISCS). Successfully managing risk in these contexts involves particular expertise in thinking about the future using "future-based information [and] acting in the present" (Poli, 2017, p. 260; cf. Miller, Poli, and Rossel, 2017; Miller, 2018; Poli, 2018). FL – defined here as "the capacity to think about the future" – is particularly important in the domain of security (including cyber security) because it helps to clarify the knowledge and understanding needed in order to achieve optimal risk assessments and plans for resilience. This section offers fresh narratological insights into FL informed by an investigation into the ways in which we might better understand futures thinking by recognizing the impact of narrative frames upon our anticipation of future storyworlds, taking as an example of one such framing heuristic "the principle of minimal departure" – the cognitive bias that suggests we assume the conditions of any (future) fictional or possible world we encounter to resemble closely a (past or present) world with which we are already familiar.

Informed by work co-produced with the Institute for Social Futures (ISF) at Lancaster University UK and developed with the UK's Defence Science and Technology Laboratory (DSTL), the second section of this paper explores "Narrative World Building". This section offers an overview of FLiNT's experimental futures work that draws on the techniques of oral storytelling, improvisation, and collaborative theatre to create an anticipatory futures practice. It argues that narrative plays a significant role in the way that individuals, communities, and institutions construct identities, and starts from the premise

that we make ourselves identifiable to ourselves and each other by telling stories – a contention put forward by scholars of cognitive science, linguistics, and narrative selfhood alike (Lakoff & Johnson, 1980; Turner, 1996; Cavarero, 2000; Butler, 2005; Wolf, 2007; Zak, 2015). In fact, we are dependent on others for the completion of our "narratable selves" (Cavarero, 2000). This, it is argued, is because there are aspects of our own story that remain opaque to the self, the early unrecollectable years, for example, or aspects of experience that resist attempts to shape them into a coherent narrative. Tapping into our narrative selves might therefore constitute a key component of developing FL, not only for the reasons outlined above, but also because the active "making" involved in narrative-based creative practice is profoundly connected to agency (Reason & Heinemeyer, 2016). This means that narrative-driven creative practice can engage people with the "present future" – an idea of the future that informs the present – and move them to stake a claim in the shaping of better social futures (Spiers, 2018). The central hypothesis informing this work is that the "worldmaking" (Goodman, 1978) and relationality inherent in narrative-based creative practice has the power to shift patterns of thought, practice and behaviour, combatting "locked-in" future narratives and opening up diverse and unanticipated possible futures (Milojević & Izgarjan, 2014; Palmer, 2014).

Drawing upon insights emerging from recent work undertaken for the UK's Governmental Futures Community of Practice, the third section of this paper considers "Speculative Futures" and interrogates the ways in which speculative (or science) fiction (sf) helps to expose the inherent limitations and assumptions of many other futures methods. Too often dismissed as irrelevant, an understanding of the narrative foundations of sf can help to foreground the contexts within which a futures extrapolation is made, thereby enhancing our preparedness for a broader context, rather than a specific outcome. It proposes that an awareness of the *narration* of the future is not an essential requirement of FL but that the

awareness that sf brings with it offers a particular mode of "cognitive estrangement" that is uniquely able to help futures practitioners to mitigate against cognitive bias about the possibility spaces under analysis.

1. Narratology and Narrative Frames

Narratology – understood here as a blending of theory and praxis in the critical analysis of story form as well as the telling of individual stories – has long been concerned with such issues. From Aristotle and Plato to the "Ohio School", narratologists have recognized that narrative constitutes a crucial sense-making tool and that we make sense of the world "narratively". That is, we view narrative as a metaphor for life, and negotiate our lived experience – past, present, and future – as "storied". This has important implications for understanding how we think about the future – and narratology therefore has significant insights to offer into the narrative dynamics that frame our futures thinking. Here, we examine just one of the framing devices whose operations narratology has helped to expose and explain: the so-called "principle of minimal departure".

When we imagine possible futures, we necessarily imagine them from our present situation. Indeed, as Miller (2006) points out: "Of necessity, the very language used to conceptualize a future context is limited by the terms and practices of the present" (p. 7). And, according to Poli (2017), all future projections and imaginations are "extensions of the present" and "linked to known trends" (p. 69). Through a failure of imagination, therefore, we risk populating the future with our present priorities and with our present concerns – which have been, in turn, shaped by our past experiences. As Bode and Dietrich (2013) warn: "being able to think about the future […] is perpetually spoilt by our present incapacity to be sufficiently imaginative, to think the unexpected, to factor in surprise, discontinuities, reversals, tipping points, etc." (p. 100). Recent research in cognitive narratology supports

this view and indicates "a limit of intelligibility, and imaginative resistance" (Mikkonen, 2011, p. 112) in the way that we typically process fictional possibility – that is, a cognitive limit to what it is possible for us to imagine, including what it is possible for us to imagine about the future.

Narratologists connect this limitation to the phenomenon of "minimal departure" – "a kind of cognitive mechanism, or an economy in reasoning" (Mikkonen, 2011, p. 116). According to the "principle of minimal departure" (henceforth, PMD), we will typically assume that the conditions of any fictional or possible world resemble our own – at least, unless and until any pertinent differences are revealed (Ryan, 1980; Ryan, 1991, pp. 48-54). When we negotiate the dynamics of possible future worlds – both fictional and real-world – we are likely to assume that the future will essentially resemble the present unless and until we are given clues and cues to notice its differences. As Bruner (2002) puts it: "Narrative fiction creates possible worlds – but they are worlds extrapolated from the world we know" (p. 94).

The first full description of PMD is attributed to Ryan and her 1980 essay on the phenomenology and pragmatics of reading fiction. But here she draws upon earlier work by the modal logician Lewis (1978), in which he had already demonstrated that in order for us to make sense of an imagined world we must use our actual knowledge of the real world. Lewis characterizes such imaginative extrapolation of actuality onto fiction as a feature of logical and cognitive economy – as "the least disruptive way" (Lewis, 1978, p. 42) of making sense of something new. In turn, this understanding of the cognitive limitations placed upon our understanding of imagined worlds is already aligned with the work of several structuralist narratologists. This includes Genette, who argues that readers fill in the gaps and blanks in fictional storyworlds with information based on their pre-existing assumptions and conventions (1968); Todorov, who stresses the importance of actual world resemblance or

vraisemblance to imaginative world-building (1970, p. 51); Barthes, who observes that "previous experiences form structured repertoires of expectations about current and emergent experiences" (1974, p. 204); and Culler, who analyses the tendency of readers to simplify unfamiliar storyworlds by aligning them with more familiar contexts, according to a cognitive process he describes as "naturalization" (1975, pp. 134-160).

There are numerous variations of what Ryan labels the "principle of minimal departure" in later scholarship too. Rabinowitz points to what he terms "the rule of realism" – suggesting that readers typically assume that "all fiction, even the most fantastic, is realistic except when it signals to the contrary" (1981, p. 342). Walton subsequently re-describes this as the "Reality Principle", and applies his term to the tendency to imagine "fictional worlds [which are] as much like the real one as the core of primary fictional truth permits" (1990, pp. 144-45). A closely-related principle is also found in Fludernik's cognitive model of narratology, and her notion of "experientiality". This maintains that a possible world is only understood as such through its re-presentation of and appeal to an audience's pre-existing familiarity with real-world experience – through what Fludernik terms "natural" cognitive parameters and schemata (1996, pp. 30-34). Audiences assume that narrative time mirrors real-world temporality, that narrative situations mimic real-world conversations, and that the conditions of a storyworld reflect those of the actual world unless and until cues force them to make a cognitive readjustment and acknowledge a difference or departure from that actuality.

Most recently, "script", "schema", and "frame" theories in cognitive psychology and narratology (informed by the latest insights into AI and machine learning), suggest that one of the ways in which we make sense of the unknown, both in the real world and in stories, is by regarding new data and experiences as essentially repeating and resembling old data and experiences already stored in stereotype and pattern form in our memories. We make sense of the unfamiliar by assessing its resemblance to the familiar—testing its relation to so-called

"knowledge frames" or "knowledge scripts" and making predictions of future patterns based upon templates shaped by our prior knowledge (Tait & Norris, 2011, p. 20). This research suggests that PMD may be "hard-wired" into human cognition as a basic standard for futures thinking.

Despite the variations in terminology over time and in different studies, the basic parameters of each of these rules and principles display a common foundation that finds its fullest and most influential expression in Ryan's primary principle. According to Ryan, the principle "applies to all statements concerning alternate possible worlds" (1980, p. 407; 1991, p. 58) – including statements concerning possible future worlds – and to every interpretation thereof. She explains that, "whenever we interpret a message concerning an alternate world, we reconstrue this world as being the closest possible to the reality we know" (1980, p. 403; 1991, p. 51). One of the literary examples that Ryan uses to illustrate this principle in the world of fiction is Lewis Carroll's nonsense "Jabberwocky" poem (Ryan, 1980, p. 415):

Twas brillig, and the slithy toves

   Did gyre and gimble in the wabe:

All mimsy were the borogoves,

   And the mome raths outgrabe.

We may recognize some of the English language and syntax in (and at) play here, but for most of the nonsense words used to configure this possible world and its strange creatures we have no immediate real world references. Yet, we do not need to wait for Carroll's character Humpty Dumpty to explain to us that "brillig" designates "four o'clock in the afternoon, the time when you begin broiling things for dinner", or that a "borogrove" is "a thin shabby-looking bird with its feathers sticking out all round, something like a live mop"

(Carroll, pp. 328-331). Like Humpty, we readily reconstrue the unfamiliar using the familiar, and we reconstruct this possible world as something close to the world we already know. What is more, as the book illustrations that typically depict the Jabberwock as a fantastical dragon-like beast help to show, we may also reconstruct this possible world as something close to the other *fictions* that we know.

Indeed, one of the additional insights that Ryan adds to her model of PMD in its 1991 reworking is the recognition that the relationship between "real" and "possible" worlds is not unidirectional and that knowledge about fictional worlds can shape knowledge of real worlds through a process that Ryan terms "intertextuality". She suggests that:

> The frame of reference invoked by the principle of minimal departure is not the sole product of unmediated personal experience, but bears the trace of all the texts that support and transmit a culture. Through an inversion of the principle of minimal departure, knowledge about the real world may be derived not only from texts purporting to represent reality, but also from texts openly labeled and recognized as fiction. If we reconstrue fictional universes as the closest possible to the real world, why not reconstrue the domains of the real world for which we lack information as the closest possible to the world of a certain fiction? (1991, p. 54)

Deliberatively or otherwise, our ability to imagine and anticipate futures in the real world will be influenced by our knowledge and experience of fictional futures. There are obvious problems in using fictions from the past and present to help us fill in the gaps in our imagination of futures about which we necessarily lack full information. Imagining that any future will include devices and threat actors just like those encountered in cinematic fictions,

TV dramas, and in literary science fiction, will tend to produce scenarios that disproportionately imagine a high-risk, distinctly dramatic, and likely dystopian world (see Cave et al, 2018). But PMD warns us that such "intertextual" influences will shape the way that we imagine the future anyway, whether or not we are conscious of their affects. Like other cognitive biases and heuristics (anchoring, availability, confirmation, declinism – for example), PMD therefore well describes the dynamics of one of the mental shortcuts or information-processing rules that frames our futures sense-making.

Being futures literate, then, should arguably include a suite of skills and competencies drawn from the world of literary criticism to help expose the mechanisms and heuristics which we draw upon in making sense of the possible worlds that the future represents – especially if we are to imagine possible futures which do not merely re-present (that is, continue or make "present" again) the priorities and concerns of the present.

2. Narrative World Building

In its work supporting the development of such FL skills and competencies, FLiNT is a strong advocate for anticipatory futures practice, drawing upon the techniques of oral storytelling, improvisation, and collaborative theatre to help bring to light such storyworld-building heuristics. This practice involves guiding FL workshop participants to develop fully realized characters, fictional human beings, in order to unfold possible future worlds collaboratively and performatively; the discursive sculpting of the world is a "doing", an act of construction. The method allows for an exploration of whether we imagine the future differently when doing so through the eyes of another imaginary person and what new, previously hidden, insights into the world such collaboratively developed characters and contexts might reveal. It also provides an opportunity for the ensuing scenarios – or

"performances" – to be captured as accessible and impactful futures outputs that engage audiences with possible futures in audio-visual form.

In their work using oral storytelling with community and school groups, Reason and Heinemeyer (2016) argue that the "relational experience (between participants, the artist facilitator and the storyworld) […] aligns with Nicolas Bourriaud's (1998) concept of a 'micro-utopia': the value of which consists in the temporary, small-scale instance of connection and exchange it brings into being" (Reason & Heinemeyer, 2016, pp. 558-559). The micro-utopias emerging from these collaborative instances of storytelling about the future constitute a vital resource for anticipatory futures practice as, in Donna Haraway's words, "situated knowledges", as futures, are "about communities, not about isolated individuals" (1988, p. 590). The active "making" involved in this character-based shared storytelling is also profoundly connected to agency (Reason & Heinemeyer, 2016). The method engages people with the "present future" – an idea of the future that informs the present – in an embodied and intersubjective manner allowing them to stake a claim in the performative shaping of futures (Spiers, 2018). For example, one participant in a narrative world-building workshop commented that: "[The workshop] helped me understand the present is not a fixed point and that the future is something I have the power to impact".

Asking participants to negotiate possible future worlds in their characters recalls Jerome Bruner's (1986) idea of the existence of a "narrative mode of thought", which, as Reason and Heinemeyer argue, is "not about the facts or information contained within the story, but rather the transmission of tacit knowledge about the meanings of lived experience accessed in and through the form of the narrative itself" (2016, pp. 559-566). Within this narrative mode of thought, what Reason and Heinemeyer call "storyknowing", meaning is shaped in a manner that is situated and embodied, improvised and collaborative: "To know within and through story (storyknowing) is to know something in a situated and relational

manner. It is to know about impact and affect, about consequences and thoughts and feelings located within gestures, within bodies and within the fine grain of experience" (2016, p. 571).

In this work-strand, we combine "storyknowing" with Goodman's (1978) concept of "worldmaking", which is indebted to Martin Heidegger's notion of "welten" or "worlding", in which the work of art, or narrative, allows reflection on what for many remains conceptually ungraspable: the phenomenon of the world's "worlding" (Heidegger, 1971, p. 42). Drawing on Donna Haraway's conceptualization, "worlding" denotes the various ways in which different modes of knowing, different technologies and species interact in an, at times, co-operative, at other times, combative manner. "Worldly" thinking, for Haraway, is a "risky game of worlding and storying; it is staying with the trouble" (2016, p. 13). The notion of "worlding" underpins this research through its formulation in the gerund, it links the "world" and "worldliness" to agency, to an act, a performance, to something we do in a place and time. The creative dimension of working with such situated and relational "storyknowing" allows for a convincing disruption of a "business-as-usual" mode of futures thinking, allowing for a break in the normative frame of discussion and allowing new conversations to shift the terrain.

Character-led performative futures workshops require participants to develop their characters, with guidance from the facilitator, in isolation and, subsequently, in conversation with the rest of their group. Next, they spend time collaboratively devising a possible world that could bring the characters together out to a given future date. This challenge involves the participants embodying their characters in the act of negotiation, creating a performative setting in which different subjectivities, emotions and modes of knowing are brought together to envisage a possible future.

The facilitator must be able to guide participants in moving out of a normative mode of thinking about the future, so constructive disruption of the kind Haraway calls "staying

with the trouble" (2016, p. 13) is at times required. The point is to break the frame of present

expectations and introduce a new set of questions into the discussion. To do this, the

facilitator can ask questions directly to the characters about their values and beliefs,

encouraging them to engage in an embodied anticipatory practice. As characters talk, pictures

of the world unfold in a performative conversation between participants (see Figure 1),

occasionally galvanized by a question from the facilitator. Slips in the mode of address may

begin to occur as participants speak to their peers using their characters' names, using "you"

instead of "she" or "he". At times, they might speak directly in the first person when

responding to a question, then slip back into referring to their characters in the third person.
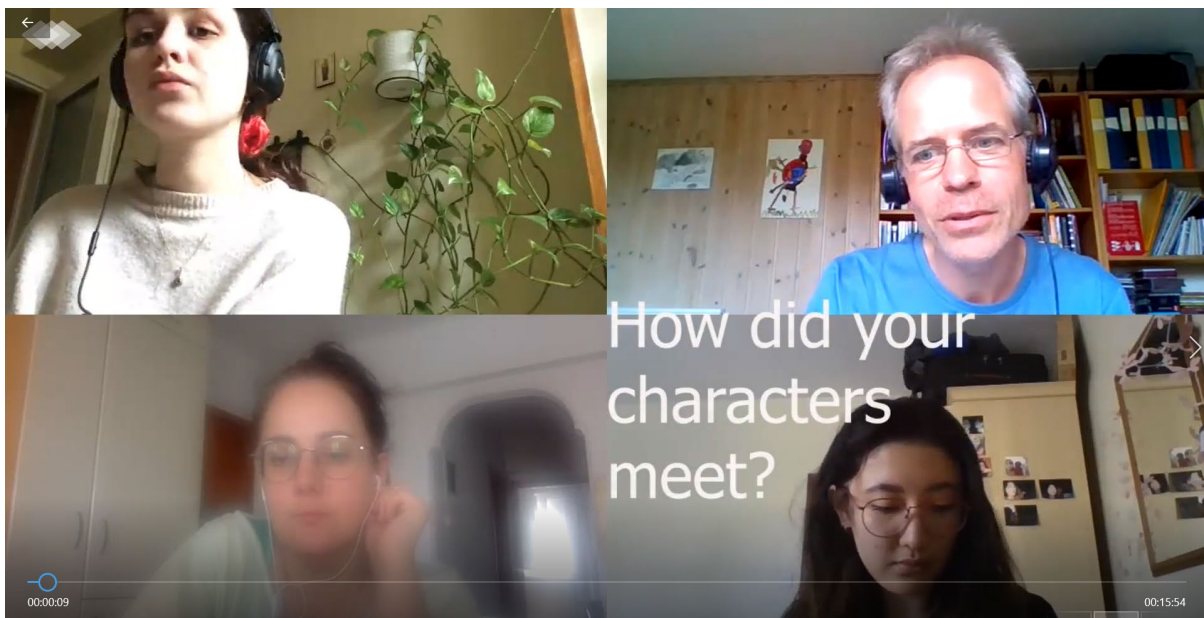

Figure 1: participants negotiating the possible future of research in 2030 performatively

through their characters (June 2020, with kind permission from Agnieszka Dutkowska-Zuk,

Jade Li, Maria Pantsidou, and Petter Terenius). [Video available here.]

These slippages demonstrate how, in engaging with futures through a fictional

character, workshop participants embody and experience hybrid subjectivities, a process that

resembles what happens when we engage with literature. During these anticipatory

performances, an intersubjective encounter occurs on at least three levels: 1) Between the participant and their character; 2) Between the observer and the hybrid participant/character; and 3) Between the participant/characters engaged in the collaborative act of storytelling.

Like engaging with a piece of literature, an encounter with an other's consciousness in the practice of the character-led performance generates a continual and fluid process of self-reflexive assessment, reconsideration and self-adjustment on the part of the creator and observer. Confronted with another entity reflecting upon the familiar tangled complexity of lived experience, the creator/observer undertakes a chain of creative extrapolations grounded in cognitive and affective comparisons with themselves, characterized by moments of identification but also difference. This encounter allows an augmentation of the self, as the creator/observer steps into the shoes of the fictional character even for a moment (identification). Alternatively, if the creator/observer confronts alterity, it produces a dissolution of the contours of the self in the sense that the other may present an aspect of experience, reflection or affect which exists outside their understanding.

At this point, the creator/observer is compelled to step outside the boundaries of the "self-up-to-this-point". So even dissolution can be considered an augmentation of self as the boundaries re-knit around the new imagined experience or reflection, which is known as "empathic identification" (Spiers, 2018, p. 39). However, some encounters might prove so incomprehensible that the creator/observer confronts a boundary of self that appears intractable. Anticipating Judith Butler (2005), this experience means that the "uniqueness of the other" (p. 34) becomes exposed to the creator/observer. The ethics of the intersubjective moment rest upon "permitting other kinds of knowledge, and other experience, to exist alongside mine, and exposing myself to the risk that it will challenge me, or perhaps even demand that I change my life" (Colvin, 2013, p. 12). Character-led performative futures, like narrative fiction, provides the creator/observer the opportunity to reflect upon their own

subjectivity, testing the boundaries of self against those of another, permitting those boundaries to be transformed through exposure to critique, and remaining critically and empathically engaged when they encounter intractable alterity. This fictional role-play generates a critical sensibility within the creator/observer that can be applied to the extra-diegetic world, viz. the "real" world outside of the narrative.

This critical sensibility could (and, we would argue, *should*) become a key component of FL when applied to anticipatory futures practice. This is because the question of identification and encountering difference in intersubjective terms echoes the difficulty, outlined in the previous section and taken up in the next, of imaging the future as discontinuous from what we know in the present. So, the potential, common to engagements with narrative fiction, to permit other kinds of knowledge to exist alongside one's own and thereby to experience an expansion of the self in this encounter with intractable difference – the future by any other name – may constitute a useful tool in the FL kit. This is because it opens up a space for thinking the future differently, more pluralistically, and may therefore improve our capacity for imagining alterity.

3. Speculative Futures

Given what has been discussed so far in this essay – the relevance of interpretative narrative tools and the importance of performative world-building to understanding subjective positions – the final area that requires discussion is also perhaps "the unspoken problem in the possibility space": sf. Of all narrative forms connected with the future, perhaps the most obvious – at least in principle – is sf, because whether this is taken to mean "speculative fiction" or "science fiction", sf narratives are concerned with representations of the future through the worlds they build, distant both temporally and spatially, and replete with fantastic technologies. There is, across the history of sf narratives, a plethora of ready-

made scenarios about the future that the futures community is somewhat reticent to engage with.

Ironically, it is sf's apparent focus on the future that is precisely why it is so difficult to reconcile with FL. Despite some research on the relationship between sf and futures (see Livingstone, 1970; Livingstone, 1974; Milburn, 2010; Gibbons & Kupferman, 2019, for instance), the general perception of sf is that it is "all made up" and so cannot help to understand the future as it will "really" be. This is not so much an explicit rejection of sf as it is an omission of something that could be cited as a "weak link" in a discipline already having to justify itself to hard-nosed pragmatists. Although Toffler's seminal *Future Shock* acknowledges sf's "immense value as a mind stretching force for the creation of the habit of anticipation" (1970, p. 425), for example, other elements of Toffler's work have been built upon by futures practitioners, rather than his appropriation of sf as "a kind of sociology of the future" (1970, p. 425). As such, science-based disciplines and evidence-based policy-making tend to dismiss sf as a form of narrative antithetical to their methods and aims: it does not represent reality, and it fails to sufficiently hypothesize (let alone test those hypotheses) in preference of wilful speculations about things that do not currently and may never exist. The logic is impeccable: because sf is about the future, it is not written from a position of knowledge or in any way real, and as it is not real, it cannot help us to understand the future. Sf's common focus – its engagement with the future – thus becomes its fundamental weakness. This argument exercises significant weight in terms of both public perceptions of the genre and its take-up in the policy arena, and "futures work" is not exempt from this.

Much of this dismissal comes from a misunderstanding about what sf is and does. The most significant misapprehension of sf is that it fails to consistently predict the future and thus cannot work as a method congruent with other futures methods in a broader package of FL. Aside from the issue of what would happen if this were a standard test to be applied to

other methods (how often are Delphic futures accurate?), the problem is that sf is neither prophecy nor prediction. It might seem to wear such garb at times, and some narratives even manage to "predict" novel technologies, such as William Gibson's *Neuromancer* (1984) being credited as the originator of "cyberspace", but that does not mean that other sf productions are predictive failures. One might question whether this act of fore-telling is a "prediction" or a "pre-emption", however, and more importantly we should query whether the predictive successes are in fact successes.

Such so-called predictions actually demonstrate that something in a given narrative later becomes recognized as a progenitor to a given development. One might assert that a technological or social innovation only looks like that "sf-imagined thing", and *vice versa*, because it is easier to interpret both through that connection, rather than attempt to consider their contexts. This is arguably an inflection of the "expectation informing interpretation" logic of PMD, where the familiarity with the sf trope and an instantiated use of a technology aligns two otherwise discrete objects. Given this potential for conceptual slippage, the issue of causation is difficult to discern in relation to sf narratives and technology development, as such "predictions" often prove startlingly prescient only in retrospect; the worst of all futures tools are surely those that enable a "told you so" moment after something has already happened.

Yet it seems counter-intuitive to assert sf to not be about prediction, when it has historically been associated with the genre. For example, early editors of sf magazines like Hugo Gernsback and John W. Campbell Jr – those most responsible for initially defining the field – asserted that science fiction "not only *predicted* the future, but actually *created* it – by providing scientists and inventors with imaginative ideas that they could proceed to transform into reality" (Westfahl, 2007a, pp. 1-2). Whilst inspiration is a recognizable function of sf, in that instance sf would be neither an analytical tool nor a methodology, and certainly not a

form of literacy.

This is not to say that sf cannot provide useful insights into futurity, however. For instance, Westfahl proposes a method for using sf as a predictive tool, although admittedly this involves highlighting its past inaccuracies about the present:

> First, one can examine the past predictions of science fiction regarding our own era and detect the underlying logical fallacies that made most of them wildly inaccurate. Then, having identified the erroneous patterns of thought that led writers astray, one can consider some current science fiction predictions about our future, identify them as additional illustrations of these proven fallacies, and conclude that they are almost certainly wrong. Finally, one might logically assume that predictions radically different from the rejected predictions are probably correct. (2007b, pp. 9-10)

Westfahl's tongue-in-cheek procedure points to various "assumptions" of sf narratives that he calls "the Fallacies of Prediction": Universal Wealth (governments and individuals can afford anything they wish); Replacement (once a new scientific approach or technology is developed, former methods are abandoned); Inevitable Technology (new technologies are invariably adopted), Extrapolation (an "identified trend will always continue in the same manner, indefinitely into the future" (2007b, p. 12)); Analogy (new technology will be adopted and employed in the same manner as a prior technology); Universal Stupidity (people will lead themselves to catastrophe); and Drama (major changes occur noticeably, and as the direct results of one event or individual). Westfahl thus posits sf to be useful as a counterfactual balance: sf says something will happen, likely based upon one of the Fallacies of Prediction, and thus it will not happen, ergo something else is likely to happen instead.

Westfahl's "procedure" may provide a use for sf but this use is limited to its being a tool for working out outliers in a Cone of Possibility.

Potentially counterfactual speculations nonetheless have relevance beyond sf narratives as "What if…?" thought experiments. A writer like Frederick Pohl suggests a salient role for sf narratives when he wrote, "A good science fiction story should be able to predict not the automobile but the traffic jam" (Quoted in Lambourne et al, 1990, p. 27). The value judgement on "good" aside, the focus of sf *is* on prediction for Pohl, although not on technology – a fetish sf is too often guilty of – but on the (social) effects of the technology, and second- or third-order effects at that (assuming one also has to predict roads and traffic lights or junctions too). In fact, by the time a story is edited, the technology itself should perhaps barely register to the reader, as it is the social consequences and contexts that are more important. In a discussion of Darko Suvin's concept of a "novum", the new idea or technology at the heart of an sf narrative that can prompt "cognitive estrangement" (Suvin, 1979), for example, Steinmüller asserts: "[One] should not mix up cognitive value with prediction. The principle question "What if…" does not aim at predictions, but implications of a presupposed novum. SF, from that point of view comes close to speculative technology assessment" (2003, p. 356). Immediately after making this point, he concludes with Pohl's adage. That is, if sf presents a fictive "novum" that provokes "cognitive estrangement" in the audience, the value of sf is not that it predicts anything, but that it "thinks through" the future and populates it with people and events that instantiate the effects of a given difference to today's society. This is a value of sf akin to the performative worlds discussed in the section above: narrating a future in order to focus attention upon the method or "thinking through" of the future being narrated, where it is the process, as much as the product, that is of importance.

The move away from sf as a (ghettoized) genre of failed predictions to a discursive indicator of today's society is reflected in Hollinger's perception of sf as a "mode". In an important overview of sf's relationship to the future, and its social function, Hollinger defines sf as "a way of speaking and thinking about contemporary reality" (2014, p. 139). This goes beyond Bruner's assertion that "possible worlds […] are worlds extrapolated from the world we know" (2002, p. 94); a given sf narrative is obviously rooted in the present in which it is created, qua Bruner, but it remains nonetheless at odds with that present through its very foregrounding of (speculative) possibilities. Thus sf sits tenuously between the present and the future, and remains important to thinking about futurity precisely because "It is SF's capacity metaphorically to distance us from the present that is now its most significant feature, its capacity as discourse to estrange the present" (Hollinger, 2014, p. 146). So sf narratives simultaneously provide a filter to perceive contemporary reality's attitudes towards the future (being rooted in the present) whilst also potentially disrupting established mind-sets and paradigms (by attempting to re-cast contemporary attitudes into new contexts). Sf is not only the "body of stories about [our] lives, but also the discursive imaginary that constructs these stories" (Hollinger, 2014, p. 149).

For FL, it is these latter effects of sf that are most relevant (and most closely aligned to the framing and shaping techniques discussed above): as an interpretative and creative tool to aid a critical awareness of the situatedness in the present. The "reality" of sf futures is not in their reality-to-come – their predictive accuracy – but in their contextualization of both the possible effects of a given idea and where (and when) one is standing in order to see them. Steinmüller's "speculation" thus stands in an important contrast to "extrapolation", that other assumed mode of futures work. Extrapolation tends to work by identifying trends and projecting them into the future: the dotted lines on rising CO2 emissions or population growth. This is not wrong, but it is limited: extrapolations rely upon the same contexts

remaining true in order for its their predictive power to work. The ultimate limitation of many futures methods is this in-built assumption that the ground will not shift from under them.

In contrast, speculations can consider the other side of the horizon being scanned; we cannot confirm what a "weak signal" of a given future is until that future materializes, but a well-wrought speculation can help to foreground the contexts within which an extrapolation is made, and create a preparedness for a set of multiple *possible* outcomes, rather than a prediction of one *probable* outcome. Speculation, etymologically at least, is always looking *from* somewhere, and an awareness of that situatedness: the future that is observed (and codified and represented, whether through data or narrative) depends upon who is looking, from which perspective, and in relation to what parameters. Sf, and an awareness of the narration of the future, brings with it an in-built attempt to question its own axioms. As Elkins (1979) concludes: "An understanding of the ideological basis upon which the future is being created is absolutely essential if we are to exercise any control over our own destiny. SF can contribute to that understanding". The very challenge of understanding sf – as both the production and interpretation of future worlds – demonstrates its value to FL: although one cannot step outside one's own context, it is important to recognize that such a context exists, and sf techniques can help to mitigate cognitive biases about the possibility space one is analysing.

Conclusion

In this paper, we have laid out the importance of narrative in (1) framing, (2) shaping, and (3) critiquing the world-building techniques that underpin futures thinking and FL. Each of the approaches herein illuminates the critical reflexivity that emerges in the storytelling

dynamics and phenomena that are fundamental to FL, and has offered new insights into how narrative can be used to unpack assumptions and imaginations concerning the future(s).

The first section, "Narratology and Narrative Frames", set out the argument for including a "toolkit" of skills and competencies taken from the world of narrative and literary theory in order to explore the heuristics that inform the ways in which we think about possible future worlds. This is especially important if we are to avoid re-presenting (that is, continuing or making "present" again) the priorities and concerns of the present. The second section, "Narrative World-Building", offered an overview of how collaborative, character-led storytelling can activate an agentic relationship with an uncertain and complex future on the part of those participating in performative anticipatory practice. It also showed how such embodied and situated modes of "storyknowing" can provide possible futures that illuminate messy but important ontological perspectives, and revealed how narrative identification or dis-identification not only echoes the difficulty of encountering the future's alterity but also provides a tool for overcoming that challenge. The final section, "Speculative Futures", showed how speculative narratives can help to foreground the contexts within which any extrapolation is made. This section emphasized how speculation always occurs *from* somewhere and someone, and made clear the importance of being aware of that situatedness. While sf and an awareness of the narration of the future clearly do not represent the only requirements of FL, they can provide new perspectives on how we set about dealing with the challenge of contextual bias when imagining possible futures.

Across the three sections, we have argued for a heightened recognition of the centrality of narrative in futures thinking and shown how insights from the domain of narrative theory and literary studies can supplement the existing range of FL capabilities. In particular, we have demonstrated that a more nuanced appreciation of the narrative foundations to futures thinking can help to shed more light on the cognitive, cultural,

ontological, and contextual specificities that configure this imaginative space – by helping to query the frames and operating axioms, the conceptual lock-ins and cognitive biases involved. If one of the core concerns within and about FL is the content and scope for the full suite of capabilities a futures-literate team requires, we suggest that higher-level FL involves not only looking at the future but also looking at how we look at the future. And this higher mode of FL, we propose, is uniquely realized through narrative.

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