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Anticipation in the 21st Century

Edited by Riel Miller

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6 Gaming Futures Literacy

The Thing from the Future

Stuart Candy

Amid pervasive uncertainty and accelerating change, one of our great challenges, and opportunities, is to make high quality engagement with the yet-to-be more widespread.

Futures Literacy (Miller, 2007) is lacking from most people's experience, even in core social institutions where we might hope to find it well established, such as education, politics, and the media. So the foresight field finds itself with much room for improving public uptake towards the fulfilment of what I consider to be its most important promise: the development of a distributed, society-wide capacity for anticipation.

Richard Slaughter has described such a collective capacity as 'foresight culture' or 'social foresight' (Slaughter, 1996, 2002), echoing Alvin Toffler's outline of 'social futurism' and 'anticipatory democracy' a generation earlier (Toffler, 1970), and amplifying an argument made decades before that by none other than H. G. Wells, calling for professors, and indeed a profession, of foresight: "All these new things, these new inventions and new powers, come crowding along; every one is fraught with consequences, and yet it is only after something has hit us hard that we set about dealing with it" (Wells, 1989, pp. 3–4).

The stakes could hardly be higher. Without adequate means to visualise and apprehend the large-scale and long-term systems where the spectres of peak oil, climate change, and economic collapse reside, the civilisation-scale, existential risks humanity has to face are mounting, underimagined and under-addressed (Dator, 2009b; Candy, 2010, p. 70).

On the other hand, as Riel Miller observes (p. 9) in introducing this volume, "changing the way the future is used holds out a promise of changing the future".

To echo Stewart Brand (1999, p. 2), how then may we take strategic foresight from difficult and rare to automatic and common?

This question confronts a tension between introducing ways of thought and perception that are unfamiliar – and that can therefore be quite challenging at first – and the hope of increasing popular accessibility.

The good news is that our repertoire of uses of the future, the set of available ways to map and manifest possible paths or waypoints ahead, is far from exhausted. Exciting vistas have recently opened up with foresight's 'experiential

turn' towards fuller exploration of design, media and games (Candy, 2010; Li, 2013; Haldenby and Candy, 2014; Selin, 2015; Candy and Dunagan, 2017). Such exploration may help us reconfigure the playing field – or reshuffle the deck – to make it easier to engage people in the relatively novel modes of thought that increasing Futures Literacy entails.

This chapter presents a case study of an experiential futures card game called The Thing from the Future (Candy and Watson, 2014; Situation Lab, 2015b), reflecting on it as a method for popularising and demystifying futures, and explaining the design mechanisms that make it tick. While undoubtedly a limited tool (like all tools), its potential significance as part of a wave of efforts to spread Futures Literacy which are actually enjoyable to use may give heart to those in search of new ways towards distributed anticipation and social foresight.

Let us briefly situate the project in relation to currents in games and futures

Surveying a rapidly changing field, game designer and educator Traci Fullerton observes: "There has been an explosion in new platforms of play and an emergence of exciting new markets and genres of games. . . Game design is everywhere" (Fullerton, 2008, p. xv). Increasingly ubiquitous, it seems, and in some quarters increasingly aspirational. Games scholar Mary Flanagan wonders:

> What if some games, and the more general concept of 'play' not only provide outlets for entertainment but also function as means for creative expression, as instruments for conceptual thinking, or as tools to help examine or work through social issues?
>
> (Flanagan, 2009, p. 1)

Meanwhile designer and futurist Jane McGonigal asks: "What if we decided to use everything we know about game design to fix what's wrong with reality?" (McGonigal, 2011, p. 7). Not merely rhetorical questions, these represent far-reaching agendas for research and creation, as well as key entryways into a rich, fast developing bibliography – and ludography – that takes games seriously as a way to accomplish real change.

And, just as games are venturing into serious territory, the at times overwhelmingly serious practice of futures has been learning to be more playful. Games have of course long been used for foresight-related purposes, in the context of military strategy for example: at the U.S. Naval War College, war games have been played since 1866 (Bell, 2017, p. 287). The past decade or so however, has seen a surge of experimentation in participatory games, using the web's recently possible 'massively multiplayer' gameplay environment. Some key projects in the futures domain have included *World*

Without Oil: "the first massively scaled effort to engage ordinary individuals in creating an immersive forecast of the future" (McGonigal, 2011, p. 303), *Superstruct* (McGonigal, 2011, p. 317), the U.S. federal CDC-funded 'emergent reality game' *Coral Cross* (Pescovitz, 2009) and the *Foresight Engine* (Dunagan, 2012).

This game design strand represents one important part of a broader pattern.

I began working in and writing regularly about the intersections of futures with design and media in 2006, eventually completing a doctoral dissertation on the topic (Candy, 2010). Through a combination of theory and extensive collaborative practice, 'experiential futures' emerged as an overarching frame to denote "the gamut of approaches involving the design of situations and stuff from the future to catalyse insight and change" (Candy, 2015), a literally vast design space of foresight activity encompassing

> all manner of other things that one might create in order to manifest, evoke and make available thoughts, feelings and insights about the whole gamut of possible futures . . . Tangible, immersive, interactive, live, and playable modes are all in scope.
>
> (Candy and Dunagan, 2017)

Here we will comprehensively survey neither the fast-moving arena of games designed for futures purposes, nor the wider territory of experiential futures, but we can explore one particular project which happens to exemplify both currents, and which points up their potential for contributing to advancement of Futures Literacy and, beyond that, social foresight. Our focus will be on how the game provides a structure of participation (Jeremijenko, 2002) for helping people imagine, probe, and therefore navigate change more effectively.

The Thing from the Future is a foresight tool and imagination exercise in the form of a deck of cards. Part scenario generator, part design method, and part party game it invites players to collaborate and compete in describing, telling stories about, and sketching or physically prototyping artefacts that could exist in alternative futures. Co-designed by the author, a futurist and design professor at Carnegie Mellon University, with Jeff Watson, a games professor at the University of Southern California's School of Cinematic Arts, the first edition was published in early 2014 by a research unit we jointly run, Situation Lab.

To date it has been played by thousands of people around the world, in settings ranging from the United Nations Development Programme's annual strategy gathering in New York to Nesta's Futurefest in London; academic programmes from Stanford d.School to MIT Media Lab and the National University of Singapore; and countless conferences, workshops and loungerooms. It has been an Official Selection of the international games festival IndieCade, and winner of a Most Significant Futures Work award from the Association of Professional Futurists. It has received international media coverage and been translated

into other languages; a Portuguese/English edition produced for the Museum of Tomorrow in Rio de Janeiro, and a French/English edition for delegates at UNESCO's Youth Forum in Paris. For a perspective on where The Thing from the Future fits into the design community's recently flourishing interest in speculative and futures-oriented practice, see Lupton (2017, pp. 50–51).

Gameplay is simple. In a small group, usually three to five people, players co-create a prompt and are each challenged to describe an artefact from the future which meets the parameters. Any prompt offers the necessary constraints for one to describe a specific cultural fragment from a possible future. In competitive mode, it is the 'best' response (which could mean the funniest, or most thought-provoking, disturbing, resonant, etc.), as determined by those at the table, that wins the round.

In the original design, the deck of cards contains four suits or categories of card to kindle and guide imaginations. *Arc* is the applicable time horizon and type of future, building on Jim Dator's four generic futures (sometimes also called archetypes) framework (Dator, 2009a). *Terrain* is the context for the object, either a physical location or a domain of human activity. The *Object* is the category of hypothetical 'future thing' for which players will generate a description (not always a physical artefact), ranging from Device, to Headline, to Monument. Finally, *Mood* says how it feels to interact with that thing, lending an 'interior' inflection to the other three more 'external' elements.[1]

A creative prompt comprises any set of four cards, one from each suit (ATOM). For example see Figure 6.1.

This combination challenges us to describe an artefact from just a few years into the future; a *beverage* relating somehow to a *zoo*, that evokes a *continued growth trajectory* in the wider society, and that imparts a sense of *disgust*. In response one player proposed a product called ZooShooters, a hypothetical product from animal rights activist group PETA. This drink, when imbibed, gives one the experience of the suffering of a caged animal.

For another example see Figure 6.2. And a sort of vignette in response: "With mobile devices increasingly distracting from religious leaders' sermons, to enter

Figure 6.1 An example prompt (no. 1) from The Thing from the Future's original four-card design: Arc, Terrain, Object, and Mood (first edition, revised 2015). Image courtesy of Situation Lab

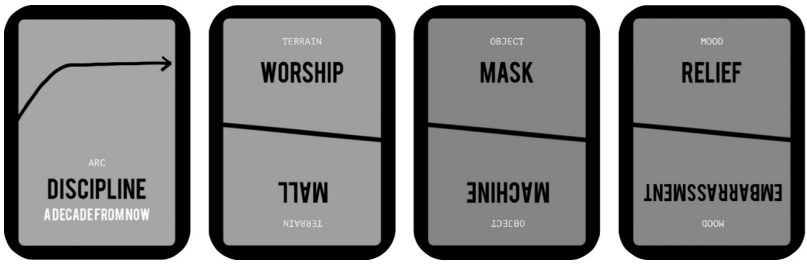

Figure 6.2 An example prompt (no. 2) from The Thing from the Future's original four-card design. Image courtesy of Situation Lab

a place of faith one must wear a mask that prevents interaction with mobile electronic devices, allowing only polarised light from the speaker's podium."[2]

There's often a humorous or eccentric quality to players' creations, which is due in part to the playful tone which the medium of the card game invites, but which also seems typical of a randomising combinatorial structure (see also Weidinger, 2014). The design question becomes: how to make a structure more reliably generative of useful outcomes? For recent thinking in this area see Compton (2016).

A later iteration of the design, first released in August 2017 at the Singularity Summit in San Francisco, uses a simplified structure with just three suits: *Future, Thing* and *Theme* (Candy and Watson, 2017; 2018). Also included is a 'phrasal template' on the cards themselves, to make clear to players at a glance how to sequence, understand and synthesise the three elements. This design element emerged from Situation Lab projects developed between the original and revised editions of The Thing from the Future: Rilao (Watson, 2015) and Futureschool (Stein, Watson and Candy, 2015).

Some example prompts from the three-suit deck design can be seen in Figures 6.3–6.5:[3]

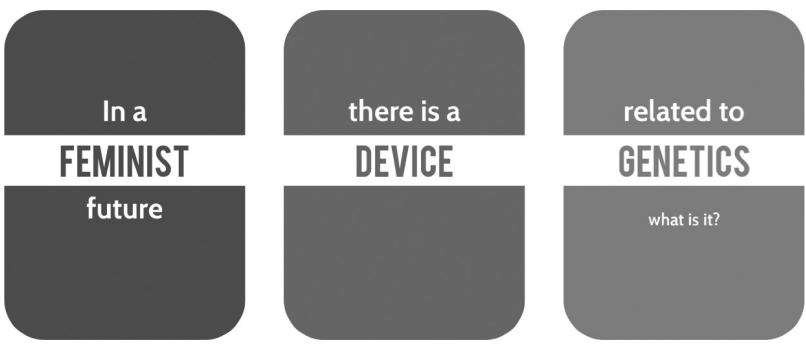

Figure 6.3 An example prompt (no. 1) from The Thing from the Future's simplified three-card design: Future, Thing, and Theme (Singularity University edition, 2017). Image courtesy of Situation Lab

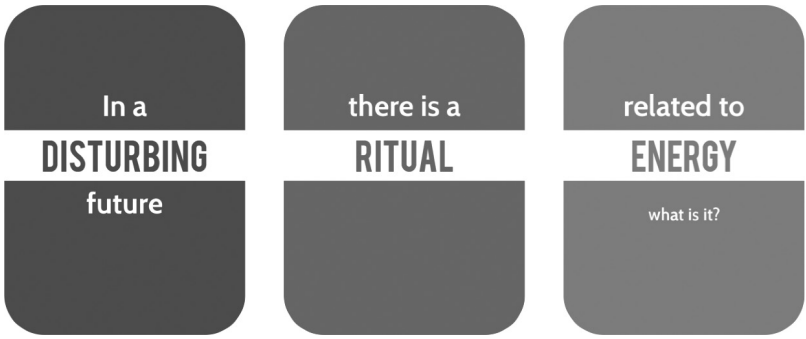

Figure 6.4 An example prompt (no. 2) from The Thing from the Future's three-card design. Image courtesy of Situation Lab

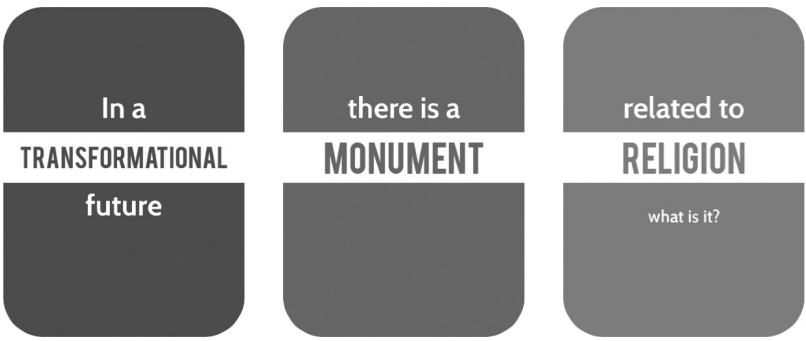

Figure 6.5 An example prompt (no. 3) from The Thing from the Future's three-card design. Image courtesy of Situation Lab

While recognisably the same game, it should be readily apparent how these design changes (the reduced cognitive load of three elements instead of five,[4] one idea per card instead of two, and the syntactic 'connective tissue' of the phrasal template) make it more playable.

Watson has described The Thing from the Future as a "combinatorial creative prompting system" (personal communication; see also Watson, 2012 for discussion of a "card-based procedural creative prompting system" devised to help aspiring filmmakers create more diverse student films). Indeed, its possibilities are practically inexhaustible: the several dozen options in each of the suits multiply out to yield close to 40,000 unique permutations in the redux edition (and over 3.7 million in the more complex, multivariate earlier version), any of which could in principle give rise to innumerable artefact ideas.

Duly scaffolded into thinking and feeling out a particular corner of this rich possibility space, players often generate thoughts genuinely new to them. The Indian cultural commentator and sometime futurist Ashis Nandy has proposed that the futures field is "basically a game of dissenting visions" (Nandy, 1996); The Thing from the Future is at its core literally that. If Dator's 'Second law of the future' – any useful statement about the future should at first appear to be ridiculous (Dator, 1995) – is true, then the cards demonstrate high potential for yielding useful ideas. A corresponding downside is of course that playful thinking is not always valued, especially in more conservative organisational settings.

Still, a game format or framing can be helpful in and of itself for the futurist facilitator seeking to trigger a hypothetical, exploratory mindset, affording players not only permission to think along heterodox lines, but offering the specific materials of imagination with which to do so. The cultural norm associated with card games of literally 'playing the hand you are dealt', rather than rejecting the terms of the hypothetical – a common problem when working with future scenarios in more prosaic formats – also may help players grant permission *to themselves* to range into previously uncharted imaginative territory.[5]

There is flexibility in the game's uses – from group icebreaker to imagination gym, tool for structured exploration of a design space[6] or, more ambitiously, ideation engine for tangible outcomes. Several design jams have been held by Situation Lab, where players turned their game-enabled artefact ideas into popup design fiction shows (see The Extrapolation Factory, 2014 and Situation Lab, 2017 for more details).[7]

This process of artefact-idea generation could be thought of as a sort of 'reverse archaeology'. Whereas from a found artefact, an archaeologist infers the world that produced it, here one creatively devises a specific artefact based on a skeletal description of 'the world' (Candy, 2013). Just as history leaves behind innumerable traces – in attics, museums, and other treasure troves – and these can speak volumes about what has happened in the past, the card deck is intended to help players to imagine evidence from the countless scenarios that *could* happen.

The game's 'artefact from the future' premise dates back at least as far as *Wired* magazine's long-running back-page feature *Found* (Wired, 2002–2013), but also finds counterparts in work by Jason Tester and colleagues (Institute for the Future, 2017); in Dunagan and Candy's 'guerrilla futures' collaboration, *FoundFuture*s (Candy and Dunagan, 2007); and not least, in the rapid, recent spread of popular futures-inflected design practices such as design fiction (Bleecker, 2009; Sterling, 2009, 2013) and speculative design (DiSalvo and Lukens, 2009; Auger, 2012; Dunne and Raby, 2013).

Naturally there are also numerous antecedents, ancient and modern, to the generative card deck, ranging from tarot and playing cards to a parade of more recent creations with similar procreative intent, including IDEO's Method Cards (IDEO, 2003), ArtCenter College of Design's Mobility VIP (Walker *et al*., 2008) and Near Future Laboratory's Design Fiction Kit (Near Future Laboratory, 2014).

Still, what The Thing from the Future tackles is something that has previously tended to be a specialist activity of futurists and designers – taking relatively

abstract ideas about future narratives and distilling concrete ideas for future artefacts – and it makes that task easier.[8]

The typology or structure underpinning each prompt splits the attributes of a future thing into three complementary levels of abstraction, which offers players disparate elements to synthesise: the macro (type of scenario; *Future*, formerly Arc), meso (geographic or thematic area of interest; *Theme*; formerly Terrain), and micro (the unit of cultural output, and focal point of the description you create; *Thing*; formerly Object). The original design (Candy and Watson, 2014) used a separate card to bring an interior state (Mood) into play, while the three-card second edition (Candy and Watson, 2017; 2018) seeks to integrate these key emotional cues into the Future suit. Either way, this emotional spin on the prompt integrates a dimension often neglected in the cognition-heavy thought experimentation that is standard in foresight practice. In this sense, as pointed out in a recent overview of experiential futures, this move lets us *enact* some of the vital interior-exterior bridging work suggested by Integral Futures literature, rather than mainly talking about how valuable it would be to do so (Candy and Dunagan, 2017).

Each round of gameplay asks the player to scale a sort of 'ladder of abstraction' (Hayakawa, 1947) – a notion we have elsewhere used to develop a design tool for experiential futures projects called the Experiential Futures Ladder (Candy and Dunagan, 2017). While formal scenarios can take an enormous amount of time and effort to prepare, here is a rapid descent from abstract, high-level descriptors of possible future worlds – whether Grow or Discipline (original); Feminist or Disturbing (second edition) – to numerous ground-level ideas for artefacts that evoke this larger narrative premise.[9]

This power to generate coherent prompts in large numbers, 'automatically' as it were, and also the key to helping players pull off responses, lies in the relationship between the suits. There is a built-in typological complementarity such that all members of each card category are logically compatible with all the others. A pioneering project in this combinatorial cards-for-future-imagining design space, Mobility VIP, has eleven categories per prompt; see Walker *et al*. (2008).[10] Put another way, The Thing from the Future provides an approach to exploring a combinatorial possibility space that is structurally similar to morphological analysis (Ritchey, 2009) – one of the richest approaches to scenario generation, but perhaps also, in its usual form, most intimidating, and therefore not often used.

Happily, a player need not know or worry about such details at all in order to play The Thing from the Future, much as one need not understand precisely how an internal combustion engine works in order to drive a car safely to any number of destinations. The playful interface of a card game renders a certain complexity as simple and approachable, which is a large part of why it works. What The Thing from the Future offers as a futures method might be said to consist in the way its design and storytelling engine operates mostly unseen 'under the hood', with the effect that without great effort, players can engage in a quite sophisticated form of integrative, imaginative thinking, embedding abstract future-narrative notions in particular concepts for future things, all while actually enjoying themselves.

None of this is to suggest that the game replaces proper scenario generation processes, but it might be a way to make some of the distinctive modes of thinking involved less intimidating and therefore more common.

What 'distinctive modes of thinking' do I have in mind? It seems to me to be, for starters, a matter of *thinking divergently* (in terms of multiple alternatives) as well as *concretely* (as opposed to vaguely or abstractly) about possible futures. We could call these dimensions respectively diversity (or breadth) and depth (Candy, 2010, p. 17). We might also hypothesise that the game makes the future psychologically less remote to players (see Candy, 2010, p. 83). It renders not only the particular ideas that one generates while playing, but in a sense the whole futures possibility space, and the endless array of situations and stuff that make it up, available to be explored, thought and felt, by anyone so inclined.

To highlight the flexibility of the method encoded in this simple deck of cards is not to imply some kind of universal applicability: the selection, adaptation, and skilled deployment of appropriate foresight tools in context looks set to remain among the futurist's dark arts for a while yet. But with this addition the toolkit expands, becoming incrementally more flexible, participatory and diversified. It has shown a way to tie the high-level abstractions of scenario types (Arc/Future) to the specifics that those futures might disclose, leaving but a short step to countless design fictions and other experiential futures creations. And bringing futures closer, mediating people's relationship to them so they become more playfully open and less opaque, seems a useful step on the road to more widespread foresight literacy.

Experience so far shows that it does not take long for players and facilitators to understand how the game's suits work, from which point it is straightforward to augment or adjust the contents, leading exploration into specific sub-territories in the future's vast cone of possibilities. When using the original edition in workshops we would sometimes provide blank Terrain or Object cards to let players customise the constraints to workshop themes. The new edition, we hope enabled by its more self-explanatory structure, includes several blanks of each category in every deck. Ultimately a grasp of the underlying structure amounts to an infinitely extensible, customisable, layered way of using the imagination, with or without cards in hand.

Let us be clear that this systematic use of limitations or guidelines to elicit imaginative engagement with possibility is not new. Arguably it is a core to any kind of useful foresight or anticipatory thought. The Dutch sociologist Fred Polak, pioneer of the concept of "images of the future", observed:

> The domain of the future, however, is without boundaries. Yet it is only by drawing boundaries in the thought-realm that man can produce a problem that can be grasped and worked with, and it is only by redrawing the boundaries of the unknown that man can increase his knowledge. No problem so persistently defies our skill at drawing boundaries as the problem of the future, and no problem presses quite so hard on our intellectual horizons.
>
> (Polak, 1973, p. 4)

From this perspective any story or scenario about a future, and indeed, the next level of abstraction up, any technique for scenario generation (and there are dozens; see for example Bishop, Hines and Collins, 2007), can be thought of as simply a different way of 'drawing boundaries in the thought-realm' in order to make futures psychologically tractable.

In a sense, what The Thing from the Future attempts is to make a kind of generative 'source code' for boundary-drawing in futures available to more people. Each prompt is a different set of "enabling constraints" (Hayles, 2001), and the limits that confine and challenge the imagination in each round of gameplay present a pathway disclosing potentially brand-new vistas unimaginable until one ventures along it.

As the game's co-designer has observed, "Limitations don't just inspire creative solutions to problems: rather, they are necessary to them" (Watson, 2012, p. 54). To recognise the importance of limitations on creativity and imagination, and deliberately crafted prompts for them, helps move our inquiry forward. This chapter began with the question of how to take strategic foresight from being rare and difficult to being easier and more common. It seems this is one way: to invite gameplay with the boundaries and parameters (assumptions, causal chains, narrative premises, themes, etc.) that frame particular conceptions of times to come.

As a recent overview and case study of experiential futures suggested:

> [P]erhaps *the* central challenge for the next generation of foresight practitioners will have less to do with generating and broadcasting ideas about the future, than it will have to do with *designing circumstances or situations in which the collective intelligence and imagination of a community can come forth*. To design and stage an experience of the future is one class of activity. To attend to the design of processes whereby such experiences are designed – making structures of participation – is another.
>
> (Candy and Dunagan, 2017, emphasis in original)

This peek at the inner workings of a futures card game highlights the potential of continuing to develop structures of participation for manifesting futures in story, materiality, and performance (see Situation Lab, 2015a),[11] in turn to enrich our collective vocabulary of anticipation (see Meadows, 2009).[12]

This project is necessarily a work in progress. Designing playful systems is – or should be – iterative, so they improve over time as lessons are learned via encounters with different player populations (Situation Lab, 2017). And wherever it might go from here, the larger possibility to which it points, the promotion of distributed anticipation or social foresight, continues to inspire and beckon.

It has been observed that humans' native, everyday foresight capacity serves as the basis, duly ramified and amplified, for the professional and pedagogical activity of futurists (Slaughter, 1996; Hayward, 2003). The development of a social capacity for foresight is perhaps the ultimate promise of a futures practice that does not hoard or guard its insights and tools as the preserve of a class of experts, but one that closes the circle by handing user-friendly tools back to a wider population. I suggest that experiential futures generally, and games especially, can help make good on this democratic promise.

A little further along that path, now, we are beginning to make out a not too distant future in which futures thinking enjoys far greater currency and impact, by becoming not only more accessible – but also more fun.

Notes

1 The introduction of the Mood card in the first edition of the game owes some inspiration to the Systems Mythology Toolkit created by Dylan Hendricks from the Institute for the Future (IFTF).

2 These examples both come from gameplay with a class in 'Science Fiction-Inspired Prototyping' at MIT Media Lab. My thanks to Dan Novy and Joost Bonsen, and to their students.

3 In this later version, two most concrete elements of the original four-card prompt have been retained; the artefact or Thing, and a context for it or Theme (corresponding to the original edition's Object and Terrain suits). However, the Arc and Mood cards have been unified under a single macro-category, the Future suit, describing the kind of world or scenario in which a player's imagination is invited to roam. In the later edition, instead of focusing on a small set of four primary Arcs that all describe an external shift in the state of the system (Grow, Collapse, Discipline, Transform), the Future card provides a larger container for possibilities with various inflections; towards externally observable conditions (including variations on the generic futures; Exponential, Slow, Regimented, Transformational, Spiritual), or more specific external states (Digital, Postnational, Handmade), or aesthetic conditions (Steampunk, Poetic, Grotesque) or feelings (Dark, Funny, Thrilling) more closely resembling the role of the Mood card.

4 Arc cards also included a time horizon, which represents a fifth piece of information for players to incorporate – on top of the generic future type, plus the other three cards. Reducing cognitive load for players was one of the design aims of The Thing from the Future second edition.

5 Thanks to Riel Miller for sharing this insight.

6 For example, holding a certain parameter steady, say a particular Theme/Terrain, while pivoting other variables around it to challenge and reframe how that domain could evolve.

7 One design jam that we ran with the game as an ideation engine resulted in a collection of street vendor merchandise from the future, produced on campus at New York University, then put on sale at the corner of Canal St and Broadway in Manhattan. Another generated an exhibition about future live music performances, created by Stanford d.School students and mounted at the Tech Museum of Innovation in San Jose. Another yielded a series of short films from the future, created by young filmmakers at Hot Docs International Documentary Film Festival in Toronto. Note that generating ideas for physical things is by no means the only way to use the deck. In the very first edition, the Object suit had focused on small-scale, tangible items, such as Wallet, Postcard, and Toy, reflecting the game's origins as an ideation engine for the first Futurematic design jam, where participants filled a vending machine with future artefacts produced in a single day. Subsequent revisions have incorporated more diverse cultural outputs in the Object/Thing category, including intangible, performative or larger-scale fragments such as Headline, Festival, and Building.

8 Having been involved in these hybrid design/futures practices for some years before design fiction (and then speculative design, a more recently popular term) caught on, one hope that I have for this game is that it may help accelerate the process of people getting over the flimsy novelty value of artworks, exhibits and various other 'things from the future', so that these practices can proceed sooner to higher-value questions around discerning what makes particular ideas and works of this kind more or less effective, interesting and worthwhile.

9 This is not to suggest that every single combination yielded by the deck is as valuable or evocative as any other. The question I find interesting goes to the results yielded by players as a result of design choices made at the structure level: some are more consistently or fruitfully generative than others. The importance of typological complementarity across

the suits (a design dimension that appears often to be overlooked) was highlighted after several creators let us know about having made their own combinatorial card sets inspired by The Thing from the Future. When categories jostle at the same level of abstraction (e.g. at a meso-level, 'user', 'location', 'theme') they seem apt to lead to more eccentric or simply confusingly contradictory prompts. Of course, there is a certain potential creative generativity in almost any prompt. As co-designer Jeff Watson has pointed out in personal communication during our design process, even reading names out of the phone book is mildly generative.

10 There are challenges of working with such complexity; a mix of cognitive load on players and typological complementarity among suits in the deck, I would think. So even one of the lead examples of excellent, ingenious responses in the project Gallery de-emphasises (greys out) three of the eleven. Similarly, in the original version of The Thing from the Future, players would regularly forget about one or other of the prompt elements, which was part of the reason we simplified the second edition. A deeper investigation of 'generativity', looking more closely at design choices in the structure (e.g. number and framing of categories or 'suits') and content (e.g. cards included in each category), and what kinds of results these yield from players encountering them, awaits another time.

11 In 2015, Situation Lab created a specifically performance-oriented adaptation of The Thing from the Future for arts/activist group US Department of Arts and Culture, populating the Object/Thing suit with a set of future scenes or interaction types (instead of artefacts), such as Interview, Reunion, and Announcement.

12 Environmental scientist Donella Meadows, lead author of the seminal *Limits to Growth* report to the Club of Rome, once proposed a hierarchical list of 'places to intervene in a system', which we might use to pose two key questions relating to the generativity and potency of a framework for foresight literacy (whether in game form or not): where does it intervene, and how does it orient and enable participants within the system?

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