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GAMES OF COLLABORATION: AN ETHNOGRAPHIC EXAMINATION OF EXPERTS ACTING SERIOUSLY

ABSTRACT

This paper looks at the theme of collaboration through the prism of game design, and especially the example of serious games. At its heart, this is a consideration of two collaborative projects between experts. The first is a current collaboration between computer scientists, game designers, and a theatre company in Scotland, in which the author is also a collaborator and the project's ethnographer. The second is perhaps the largest and most high-profile collaborative project recently led and documented by anthropologists, Meridian 180, which aims to experiment with the norms of collaboration itself, and which has already been theorised and extensively reflected upon by one of its founders, Annelise Riles. The paper aims to put these two collaborations into some kind of conversation in order to throw each into productive relief and to ask some new questions about how we think about both the exercise of collaboration and the deliberate subversion of its norms.

Keywords: collaboration, serious games, co-operation, experts, rules, friendship

INTRODUCTION: A SERIOUS EXPERIENCE

Across this essay, I explore the distinction between two forms of collaboration: a 'normative' kind familiarly found in cross-university interdisciplinary academic endeavours, and an example of a 'nonnormative' kind deliberately set-up to run counter to the rationale and expectations of conventional collaborations between experts. In doing so, I seek to instantiate a third kind of collaboration, borne of putting those two forms side by side and of acting as if each one asks questions of or provides commentary upon the other. But that juxtaposition is further underpinned and complicated by another move: I make the subject or dominant concern in my chosen example of a normative form of collaboration (i.e., 'serious games') the inspiration behind or basis for that imaginative exercise. In what follows, both normative and nonnormative forms are diversely considered as games of collaboration.

This exploration is not entirely a conceit of my own making. Indeed, in the two ethnographic examples that I take to exemplify contrasting forms of collaboration I find a consistent willingness to either conceive of interaction as a form of gameplay or to posit collaborative action in a subjunctive mode. And, just as importantly, I find a desire to consistently foreground the concept of seriousness and in various ways place it in conjunction with the concept of play or games.

In terms of a normative collaboration, my example is drawn from a UK-based Engineering and Physical Sciences Research Council (EPSRC)–funded project, which brought experts from two fields within computer science (i.e., software engineering and security and human–computer interactions) together with experts from game design and from anthropology (i.e., myself), alongside an 'artistic partner' from a digital theatre company. Our collaboration aimed to develop the potential of using games and the methodology of serious game design for engaging professionals and 'code-citizens' in secure coding practices. As well as sometimes assessing the collaborative nature of games, the project, led by its game designers, concerned itself with making a small number of short digital games to provoke participants into considering the issues of code security. This included a digital game designed around the theme of collaboration itself (poor collaboration between programmers, developers, their bosses, and other staff within software development companies was seen as one among many causes of insecure coding practice). In addition, the game design workshops created by the project team were conceived to involve participants in collaborative exercises, deliberately placing individuals with different skills sets (i.e., in coding, software development, and security) together to co-design a serious game. These could be digital games, but just as likely boardgames, too, a few of which were eventually selected and turned into actual game prototypes by our game designers. Of particular interest in this serious game approach is the consistent emphasis placed upon the cultivation of a 'serious experience' (Mekler et al. 2018), as opposed to an experience grounded in entertainment or just having fun, for instance, and the accompanying question of how to integrate moments of critical reflection and learning into the design

and playing of games. This collaboration took place across three universities in Scotland and ran from June 2020 to January 2024.

By contrast, in terms of the nonnormative form of collaboration, I highlight the much larger and higher-profile example of Meridian 180. In this second case, we have a self-consciously unconventional collaboration between scholars, policymakers, and professionals, significantly informed by ethnographic practice and extensively documented by Annelise Riles (2017, 2022a, 2022b), one of the collaboration's chief instigators. Begun in 2011 and currently hosted at Northwestern University (Meridian 180 2024), at certain points Meridian 180 has counted as many as 1200 members from 39 countries (by comparison, our Scottish-based EPSRC-funded project had a fluctuating team of between 10–12 members). But, rather than size or scale, what especially intrigues me are the ways in which Meridian 180 simultaneously accepts and challenges the form and expectations of collaboration. At one level, Meridian 180 is a clearly recognisable community of experts. However, it is also a community that assumes that members will not solely collaborate based on their expertise. Indeed, part of the self-definition of Meridian 180 is that it is a collaboration borne out of a perceived crisis of expertise (Riles 2017: 186). As a result, one of the core principles of the collaboration is that members bring 'their professional backgrounds and expertise but explicitly shed their professional responsibility in order to speak only for themselves' (Riles 2017: 184). Meridian 180 is deliberately nonnormative in other ways. For instance, the collaboration eschews demonstrable outputs, and actively resists the expectation that members are working towards tangible goals (Riles 2017: 187). Furthermore, there is an equivocation about purpose and an embrace of the principle of play.

In Meridian 180 we acted 'as if' we are seriously collaborating towards some other end—some output, such as... legal reform proposals, consultation among policymakers or book publications. And yet, the ultimate purpose remained curiously undefined with explicit and implicit cues communicating 'this is only play' at certain moments… (Riles 2022b: 41)

As the quote above illustrates, within this nonnormative collaboration seriousness is a bracketed concept. Riles tells us that at times project members acted as if they were 'seriously collaborating' towards fixed ends, while at the same time regularly sending out signals to each other that 'this is only play'. In fact, like much recent social scientific literature on collaboration which calls for participants to leave a space for playfulness and humour as well as for non-purposeful experimentation (see Calvert and Schyfter 2017), play is marked as something creative to introduce into the collaborative process, an innovation of sorts. Elsewhere, Riles (2022a: 37) invokes the long-established notion of 'serious play' as one possible way of figuring activities within Meridian 180, alongside the legacy of Gregory Bateson's communicative theory of play. Like most other commentators drawing on those sources, Riles (ibid) makes the point that such play should not be held apart from the concepts of 'work or seriousness'. However, and this is the tension that interests me, play remains either essentially communicative in nature or somewhat whimsically rendered, as well as assumed to be against the grain, especially of conventional instrumentalist forms of collaboration.

By contrast, play as an assumed quality of all games was a rather mundane concept in our ESPRC-funded project. Game designers did not need to be told that play was a form of work, for they could automatically see the labour involved in making games, whether for education or entertainment, just as they presumed that games (and play) were inevitably the result of design. There was then nothing innovative about the introduction of playfulness. But there was also no presumption that play was noninstrumental in spirit. For instance, their expertise was grounded in the identification of the whole mechanics of game play. As the title 'serious games' might suggest, reward as well as purposefulness were central to their ambitions. The game designers regularly reminded us that while serious games can be fun, that is not their primary rationale; in a joint publication, they stressed that 'games can be *rewarding*, whether or not they are also *enjoyable* [original stress]' (Abbott et al. 2022: 2). As we will see, the seriousness of serious games can include ambitions to problem-solve, but also to provoke and raise awareness; its purpose as an educational tool is often broadly moral in tone. Moreover, the crucial communicative question was also different from Meridian 180, for the design of serious games was all about communicating or sending cues to its players that 'this is serious' (and not just fun or enjoyable). Seen from that perspective, there was a different purchase to the notion of serious play. If all games necessarily involved play, the issue was not whether play was distinguishable from seriousness, but when it was so and how the serious potential of play might be better developed or harnessed.

The game designers in our project saw games everywhere. They certainly would have had no trouble considering Meridian 180 a type of game or assessing its forms of gameplay, although I never invited them to do so. For them, the more important question was always what kind of game it was. Not only how it was made or designed and what playing experience

it delivered, but whether it was a good or bad game (i.e., as a serious game, whether it produced the serious experience desired). Although Riles never identifies Meridian 180 as a game (the most consistent reference is to the collaboration as an 'experiment'), those sort of questions do sometimes crop up. In fact, Riles directly addresses the issue of the collaboration's success or failure, and specifically the success or failure of one of its core principles: the conceit that the collaboration has no outputs (Riles 2017: 187). Although I was a member of Meridian 180, admired its scope and ambition, and participated in a few of its online forums (initiating and curating one of them), my engagement was comparatively marginal. Thus, I do not feel qualified to speak about the practice of Meridian 180 in any first-hand sense. Instead, I want to rely on the descriptions provided by Riles to help throw the terms of collaboration within our serious games project into productive relief, and vice versa. Across this essay, I also occasionally engage with some of Riles' wider work, especially where it helps develop the sense of collaboration as an historical and relational artifact of cultures of expertise.

SERIOUS GAMES, TWICE

'Games are especially good at showing us what they are made of,' Ian Bogost (2016: 19) observes. As such, 'a ball and two goals, no hands' neatly describes the game of football, and 'four squares stuck together, falling over time' succinctly captures the action of the classic video game *Tetris*. 'But it's not only games; everything has borders and contents, edges and materials,' Bogost advises. It's just that the 'artificial, deliberately limited structures [of games] teach us how to appreciate *everything else* that has a specific, limited structure. Which is just to say, *anything whatsoever*' (Bogost

2016: 12). A much-quoted game designer and public intellectual, and a favourite author for at least one of the game designers in our EPSRC collaborative project, Bogost here captures something of the disposition and outlook of his discipline and profession. That is, a tendency to appreciate games through the artificial limited structures and associated mechanics or procedures taken to define them and a willingness to consider game-like structures of interaction everywhere.

Of more immediate relevance, Bogost also provides a helpful account of what serious games are and how they emerged within traditions of game design. 'Interrogating the relationship between seriousness and play is nothing new,' Bogost (2010: 54) states, citing the early influence of arguments made by Johan Huizinga (1955), for instance. However, the category of serious games seems to have emerged somewhat independently of those discussions about serious play and to offer what Bogost (2010: 55) terms a 'new collusion of seriousness and gameplay'. Indeed, Bogost identifies Clark. C. Abt's book, entitled *Serious Games* (1970), as the most obvious origin point for the category. Here, serious games are put forward in the sense now familiar to us—that is, as games with 'an explicit and carefully thought-out educational purpose' (Abt 1970: 9), as opposed to, say, a purpose of entertainment or as Abt would have it, 'amusement' (ibid). These games, which in those pre-digital days were conceived to be either board games or role play games, had defined users too, already conceived as largely institutional in nature, centred not just in education but also in industry, government, and science (Bogost 2010: 55). But it appears that the category of serious games subsequently dipped in profile, to the extent that nearly 30 years after that book was published the name could be reclaimed or recoined, without

reference to the work of Abt, by those initiating the new videogame arm of the Woodrow Wilson International Centre for Scholars (ibid). Bogost (2010) explains that since then the idea and practice of serious game design has primarily arisen through the sponsorship and promotion of that Centre, whose mission statement echoes much of what Abt had to say. This included the assumption that computer-based games could be utilised to address 'key challenges' faced by society and identified by government, as well as the principle that games could be designed in the service of both 'public and private organizations' (Bogost 2010: 56). Although Bogost's narrative is almost entirely centred on the category's development in the USA, much in this account equates to how serious games were understood by the game designers I knew, even if they remained somewhat unclear about the category's origins.

But Bogost offers further observations on the rise of serious games that are worth considering, especially as they come from a place of scepticism about the category's value. First, Bogost makes the point that the defining adjective—that is, 'serious'—remains somewhat unexamined. Those engaged in crafting a serious experience have surprisingly little to say about the exact qualities of seriousness. By way of exemplification, Bogost provides a range of possible resonances. For instance, does 'serious mean *solemn*, implying emotionlessness and sobriety,' or does it 'mean *weighty*, implying consequence and demanding consideration' (Bogost 2010: 56). On the other hand, does it 'mean *grave*, implying severity and foreboding,' or '*highbrow*, implying intellectualism and profundity' (ibid). Whichever meaning or mix of meanings is intended, Bogost argues that serious game designers cannot simply deploy the adjective as an assumed opposite of entertainment. Far from convinced, Bogost

nevertheless suggests some ideas. Perhaps serious might 'imply care and attention to detail, especially as such care leads to reflection,' he proffers (Bogost 2010: 58). Perhaps it might also 'imply substance, a window onto the underlying structure of a thing' or the procedures that define it (ibid).

In fact, Bogost's rationale for discussing the validity of the category serious games is prompted by a desire to promote an alternative, the category of 'persuasive games.' The suggestion for a new name is informed by a wider interest in better exploring the potential of the procedural rhetoric of computer gaming. However, it is also driven by a desire to distinguish the politics behind these two options. For Bogost (2010: 57), the adjective in serious games ultimately always suggests that 'seriousness is… deployed in the service of institutions,' that it is there to foster institutional goals and progress. By contrast, Bogost (ibid) states that 'persuasive games can also make claims that speak past or against the fixed worldviews of institutions like governments or corporations'. Indeed, whether designed for entertainment, education or activism, persuasive games would 'challenge our understanding of the way things in the world do or should work' (Bogost 2010: 59). The distinction is important to keep in mind, even if 'serious games' remains the dominant category. Certainly, for a research council–funded collaboration like ours, the serious experience provided by games is expected to support UK government agendas linked to improving public and professional secure coding practices. But, at least for the game designers with whom I worked, that role does not preclude the possibility of other serious games also challenging institutional goals or speaking against structural powers and assumptions. Indeed, the project's game designers regularly cited examples of such games as an inspiration,

held at least in part responsible for a developing commitment to what they still do term serious game design.

One of the most interesting aspects of the origin story for serious games that Bogost presents is the observation that the category keeps resurfacing in different domains, appearing each time as it were *sui generis*. This is perhaps most starkly exemplified by the fact that the category has also arisen within anthropology; I am talking of course about Sherry Ortner's (1996, 2006) apparently independent coining of the term as part of an attempt by that author to further develop insights drawn from models and theories of practice. In this iteration, the idea of serious games stands for the following characteristics of 'social life':

> … that [it] is culturally organised and constructed, in terms of defining categories of actors, rules and goals of the game…; that social life is precisely social, consisting of webs of relationship and interaction between multiple, shifting interrelated subject positions, none of which can be extracted as autonomous 'agents'; and yet at the same time there is 'agency,' that is, actors play with skill, intention, wit, knowledge, intelligence. The idea that the game is 'serious' is meant to add into the equation the idea that power and inequality pervade the games of life in multiple ways, and that, while there may be playfulness and pleasure in the process, the stakes of these games are often very high.' (Ortner 1996: 12)

Ortner tells us that she modified the category to include the adjective serious 'because the idea of the game in English connotes something relatively light and playful' (ibid). But, in addition, a sense of seriousness comes from the fact that social life or the 'games of life' are inevitably power-ridden and unequal. Although Ortner (2006: 130) is careful to insist that this deployment of serious games had 'nothing to do with formalistic game theory', and indeed it came before the more recent wave of interest in serious games within game design, there are some interesting resonances to the kinds of emphasis drawn out by later figures such as Bogost (2010, 2016). For instance, the idea that the artificial, deliberately limited structure of games can be understood as a template for considering the limited structures of interaction generally available to us, and the accompanying assumption that we need to learn how to best play the rules of those games.

Nevertheless, it is important to recognise that Bogost does not cite Ortner, and that none of the game designers with whom I collaborated had ever heard of Ortner's version of serious games. Indeed, the two definitions are in many ways incommensurate with quite distinctive trajectories. In the case of Ortner, the idea of serious games operates first and foremost as a metaphor for social life; Ortner (1996: 13) does consider several other possible options, such as 'projects,' 'dramas,' 'stories' or 'narratives'. Here, attending to the *games of life* means attending to 'a model of practice that embodies agency but does not begin with, or pivot upon, the agent, actor or individual' (Ortner 1996: 12). For Ortner, this is precisely what makes the 'image' of games useful; it helps draw out that analytical emphasis. However, the serious games that Ortner does go on to describe or use as examples are in essence made up of the same stuff that anthropologists conventionally work with, such as webs of relationship, gender, subject positions, and interaction. That is, the kinds of forms that anthropologists conventionally take seriously. Or, returning to Ortner's own rationale for the idea of these games being serious, the kinds of

things, such as issues of power and inequality, that anthropologists get serious about because they are recognised matters of concern. But, in all these reflections, Ortner proceeds without really understanding how games are made or designed.

By contrast, the serious game designers I knew begin with the vocabulary and processes of game design. This is, after all, what they are most serious about. Then, by extension, they proceed to make comparisons to matters of serious concern elsewhere, such as identified problems in society or organisational culture. But, they do so without really understanding how social life—at least in the anthropological sense described by Ortner—gets instantiated or reproduced. That is, they are, ultimately speaking of or driven by the ambition to design or make serious games.

Despite these obvious differences, and the complete absence of reference to Ortner's categorisation amongst game designers, I am interested in sustaining the conceit of seeing serious games twice. That is, as a category embraced (and occasionally contested) by game designers and as a category historically deployed in anthropology by Ortner. Indeed, across the rest of this paper, I offer that double perspective when considering my two examples (i.e., our EPSRC-funded project and Meridian 180) as games of collaboration. Whilst I cannot claim any previous familiarity or special affinity with the readings of social life offered through Ortner's metaphor of serious games, I can recognise the project and its exhibitions of seriousness as classically anthropological. It can, in that sense, stand as indicative of some of the ways anthropologists might approach such a study; indeed, it would be possible to employ Ortner's model of serious games—that is, to treat and analyse each form of collaboration as exemplifications of certain games of life. I do not

take such a literal approach to my engagement with Ortner, but her model of serious games does provide me with an opportunity to ask anthropological questions of the collaborations, whilst retaining the frame of serious games as well as to reflect upon the seriousness of doing so.

GAMIFICATION?

In the early project meetings of our EPSRC-funded collaboration, much time was spent negotiating expert positions and outlooks, both with a view to clarifying distinctive contributions to project goals and to simply ensuring that we each understood where the others were coming from. The conversations were helpful and led to concrete actions. For instance, one of our artistic partners (i.e., a member of the digital theatre group) proposed that we create a project dictionary with translated disciplinary concepts as part of a process to 'develop a common vocabulary on software security.' The same person recommended that we construct a key series of working metaphors for the challenges of secure coding. But, those meetings also sometimes raised tension point between expert positions. Indeed, here I want to focus on one such tension point most keenly felt by the project's game designers, which centred around perceived misunderstandings of the differences between serious games and gamification. My interest in raising this specific example is twofold. Firstly, I believe that the contrast further develops a sense of what distinguishes serious games, at least from the perspective of these game designers; and, secondly, I believe that the contrast between gamification and serious games provides one productive avenue for exploring our two collaborations as games.

With all this in mind, I begin by offering an illustrative extract from the transcript of

one early project meeting. Please note, I use pseudonyms to help the reader retain a sense of who is speaking throughout the conversation and in the reflections that follow. After each initial name, I also give the speaker's abbreviated role within the collaboration (i.e., Principal Investigator or P-I, Co-Investigator or Co-I, Research Assistants or RAs, & Artistic Partner or AP) as well as their field of expertise.

> *Màiri* [P-I & human–computer interactions]: I want to ask the global question. What is it we are wanting to discover through this pilot forum?
> [Màiri invites the three RAs to respond first]
> *Christos* [RA & human–computer interactions]: I want us to identify how participants prioritise security and its components. How they communicate that knowledge, and how we can use this knowledge in designing games that will feature in the workshops.
> *Eleni* [RA & game design]: And, we want to see how they will combine secure coding issues with the gamification practices that we invite them to participate in.
> *Màiri*: Ok, the pilot forum should also help identify the secure code snippets that we want to use.
> *Xiaoyang* [RA & software engineering/security]: And, it should help us understand the relevant learning process around particular security issues, to assist in the gamification process.
> *Màiri*: So, I would recommend we look at how we used gamification in the health rehabilitation process [a focus in a previous research council–funded project led by Màiri].
> *Alice* [AP & theatre director]: What's going to be useful to me is to understand

the top vision of the project. And how our participants understand security issues and how they communicate those things. I will need to dig into some of the language and then have another discussion.
> *Màiri*: I was hoping that you will help with the first part of the pilot forum. You know, in dramatising the news story [about a security breach] that we want to present to kick discussion off…
> *Claude* [Co-I & game design]: Sorry, can I ask what is the rationale for gamification? I'm confused as to why we are considering it.
> *Christos*: It's about engagement in the learning process around security issues. We want to gamify that process so people will engage more with the chosen issue.
> *Claude*: Ok, but we are concerned with serious games. Can I remind everyone that gamification and serious games are very different things. Gamification has a focus on performance, whereas serious games have a focus on learning and teaching. We need to be careful here. We need to target participants through a serious games approach rather than a gamification approach.

This meeting was called to discuss plans for a pilot forum. Forums were conceived as the first stage of the collaborative project, designed to gather material and initial feedback on the main security concerns of our participating code-citizens or software development professionals. However, because of Claude's intervention, the conversation swerved to, once again, address the question of what distinguished a serious games approach. First prompted by the RAs' slippage into the language of gamification, the issue—from Claude's perspective—became especially concerning after the suggestion made

by Màiri, our P-I, to borrow an approach from a previous human–computer interactions-led project. Focused on assisting older people after major surgery, this collaboration sought to keep its participants better motivated by gamifying the rehabilitation process, specifically through visualising performing rehabilitative physical exercises in the form of simple digital games. As Màiri explained to us, the rationale was to make these otherwise boring and highly repetitive exercises so enjoyable that participants forgot what they were doing, resulting in their adherence to the rehabilitation programme and hence greatly improved recovery rates.

Claude's objection to this approach as a model for our project was partly based on a sense that the suggestion somewhat encroached upon the expertise of the collaboration's game designers. However, the more pressing concern was that it misconstrued the point of serious games. As became clear in a much later conversation I had with Claude, this was a recurring and wider problem, regularly encountered by serious game designers, so much so that Claude felt the need to explain the essential basis of the distinction again. 'Gamification is focused on performance—that is, on enhancing some level of performance,' Claude elaborated. 'In fact, it's really more about carrying out actions outside of the game…', with these actions 'fed through to the game, either via reporting or via tracking, in order to progress your game state.' Claude offered the example of fitness trackers. 'But, again, all this is linked to the activity you do in real life, right? It's about enhancing or motivating those activities.' Claude paused here to let the emphasis sink in. 'The serious game doesn't work that way,' he continued, 'for a serious game is its own entity.' I looked confused, so Claude sought a way to help me understand. 'If tomorrow we designed a beautiful serious game through which [players]

learn how to be great secure coders, well the game is never going to know it, right?' I nod. 'You might be using the game to transmit that knowledge, to communicate and maybe raise awareness, but, then, after the game is finished, it's up to the player to do what they want.' I nod again. 'You know to take away something from the game or not.' Claude relaxes somewhat as he can see my comprehension growing. 'So, to me, there's a big difference there. And it's quite frustrating when people talk about gamification when you're trying to design a serious game.'

Part of the reason that Claude was so resistant to collapsing the boundary between serious games and gamification was due to the knowledge of other well-known uses of a gamified approach, including as a popular incentivising tool in marketing or gambling. But, as a game designer, he was also fully invested in the distinction as a matter of design principle. Whilst serious games clearly had an external context for their targeted learning or educational purpose (such as secure coding), they did not interact with that context during gameplay. Instead, as Claude put it, these serious games are their own entity, the interaction is all internal to the game. By contrast, with gamification, the game serves that external context directly. Indeed, the game only works because it is in interaction with a selected purpose or activity outside the game. If learning takes place, as Claude admits it can, that too occurs during the gamified process of doing the thing at which you want to improve, hence, the emphasis on performance. With serious games, however, the application of learning is not a matter for the game, but for the player after the game has finished.

From a game designer perspective then, there is a way in which gamification is not truly about the quality of the game or the playing experience with its artificial, deliberately

limited structures. There is also a way in which gamification collapses the distinction between the inside and outside of the serious game, and the temporal distinction between play and its rewards. Although it might be possible to reconceive the combination of 'real life' activities (such as rehabilitative exercises or fitness training), tracking features, and certain game mechanics as the game itself, Claude chooses to place the emphasis elsewhere. For him, gamification is crucially about carrying out actions or improving performance *outside* of the game.

With such distinctions in mind, I am interested in returning to our games of normative and nonnormative collaboration and asking how such concerns might be relevant. For instance, is it more productive to consider the experiments of Meridian 180 as a serious game or as an example of an attempt to gamify collaboration between experts? In both kinds of collaboration, what is the relationship between the perceived inside and outside of collaboration? And, how are the principles of play connected to the experience or anticipation of a reward?

'In the common understanding,' Riles (2022b: 31) tells us, 'collaboration is collective activity among differently situated social actors directed towards a well-defined purpose' (see also Thrift 2006). This description is offered to throw the original and experimental nature of Meridian 180 into sharper relief. Riles (2022b: 31) continues, 'Every partner to the [normative] collaboration must understand their own relationship to this purpose, and a focus on this purpose gives the collaboration energy and form'. In this regard, the goals or purpose of collaboration drives interaction between experts and, therefore, also structures the gameplay of collaboration. But, as already discussed, the central principle of Meridian 180 involved an active eschewing of demonstrable outputs.

Indeed, its other minor 'rules of engagement' were also designed as antithetical to the norm. Rule 1 was as follows: 'to encourage risk-taking and discourage public posturing, conversations [between experts] happened in private and were not permitted to be quoted or disseminated' (Riles 2022a: 6). Rule 2: 'to break the aesthetics and politics of academic scholarship, we limited posts [on Meridian's website forums] to a given number of characters equivalent to a few paragraphs; citation of oneself or others, or promotion of one's research, were forbidden.' Rule 3: 'to escape some of the pitfalls of English dominance and to explore ways in which… meaning is transformed and flourishes through translation, we supported the costly and logistically complex translation of all posts into four languages: Chinese, Japanese, Korean, and English' (Riles 2022a: 6–7). In short, as Riles (2017: 187) clearly states, participants in this nonnormative collaboration were invited to deliberately resist the expectation that they were working towards tangible goals.

Thus, from the perspective of Meridian 180, if there was a gamified approach to collaboration, then it belonged to normative collaborations such as our ESPRC project— that is, to collaborations organised around the enhancement or performance of identified project goals. Alongside concrete outputs such as academic publications or policy proposals (or, as in our case, forums or design workshops or serious games), this typically included the active tracking and reporting of those goals as part of the evaluation of collaboration. Here, any interaction between experts appeared entirely subservient to the project's well-defined purpose, which itself appeared beyond that of gameplay. By contrast, the nonnormative collaboration of Meridian 180 was very serious about playing that interaction as if outputs, goals or purpose were absent or did not matter. In fact, its rules

of engagement or artificial, deliberately limited structures defined the experiment very much in the manner expressed by Claude when describing the distinctive approach of serious games. Like a serious game, Meridian 180 was played as though it was its own entity. Scholars, policymakers, and professionals might go on to do many different things because of participating in the collaboration, but knowledge of those activities was not built into the game's rules or terms of engagement.

Of course, one could also interpret this slightly differently. For instance, the principle of eschewing outputs or of collaborating without purpose might be read as a deferral of tangible goals. That is, the principle might be interpreted as an action or set of rules that does not exactly cancel purpose, but rather places it temporarily beyond collaboration. Indeed, as Riles (2017: 187) goes on to relay, the principle of no goals or of no purpose soon encountered semiregular resistance from some of the collaboration's participants. This came from those who needed outputs such as academic publications or policy proposals to justify their participation in the project externally. Additionally, such resistance came from those who found the lack of outputs ultimately uncomfortable or perplexing. In the end, the organisational team at Meridian 180 had to compromise, midgame so to speak, and introduce at least some conventionally recognised outputs.

However, Claude's distinction between serious games and gamification drew other sets of reflections from me. First and foremost, these reflections centred around the status of both collaborations as certain kinds of role-playing games (between experts). Secondly, it inspired me to more closely consider the question of who or what was in collaboration and which relations were reproduced or obscured through

such collaborations. The latter inquiry draws us somewhat back to the kinds of deployment and analysis of serious games described by Ortner.

As well as highlighting the assumption of purpose, Riles (2022b: 32) is keen to stress that normative collaboration typically 'turns on an aesthetic of difference (see also Reddy 2008: 58). 'One does not collaborate with others who are just like oneself,' Riles (2022b: 31–32) advises, 'since by definition the purpose of the collaboration is to enrol different skill sets… and different points of view in the service of the goal'. This understanding emerges quite clearly, I think, from the transcript of our EPSRC project meeting above. Indeed, the tensions revealed in Claude's reaction to the conversation about gamification speak to the expectations that professional differences will form the basis for any interaction focused upon project goals and that the integrity of those differences, therefore, ought to be respected. However, it quickly became apparent to me that our collaboration was not simply a role-playing game between independent experts or that some forms of expertise within the project contained further familiar bases for interaction.

Most obviously, these revolved around the institutionalised conditions for expertise. In the case of the project's six computer scientists, for instance, a relationship as colleagues at the same university in Edinburgh—albeit at varying stages of career development and, thus, occupying different positions within the local hierarchy—was evidently important. To the rest of us, there was an immediate sense of an orienting collegiality that preceded the collaboration, or that these project members already had a history of collaboration. As well as working together as teaching and research colleagues, a few had previously worked together on other funded collaborations (Màiri had previously employed Christos as a RA on

the health rehabilitation project, for instance). But, any sense of that relationship as computer science colleagues straightforwardly prefiguring the terms of interaction or gameplay within our collaboration was itself complicated by other realisations. Most notably, as everyone knew or soon discovered one of the three Glasgow-based game designers (i.e., Claude) had previously worked in the same university and school as the computer scientists. In this respect, Claude had once been their colleague. In fact, as I later learnt, that relationship had strongly informed the development of our collaboration's funding application. This document was put together by Màiri and another colleague, Erik, who had an expertise in the field of software engineering and security, but also had previously collaborated with Claude on a series of smaller funded projects.

In many ways, these collegial, intra- and interinstitutional relationships were entirely normative and recognised features of collaboration. Similar origin stories can be found for a whole raft of other collaborations. Beyond the simple observation that such relationships matter and that being colleagues necessarily impacts the role-playing between experts, there might not be much more to say. But, I am struck by the fact that these relations can also be configured in another way, which does appear to place them beyond the form of normative collaboration. That is, they can also appear as sets of personal relationships.

For example, the history of collegiality and collaboration between Claude and Erik was obviously underpinned by friendship (both French nationals living and working in Scotland, they shared the same first language as well as a love of playing games). But, as I came to realise, there were a whole set of other ties between project members. Erik and two other Co-Is with different kinds of expertise in software engineering and security also knew each other

through a history of playing board games together after work. Likewise, the links to the collaboration's artistic partner arose out of a prior acquaintance between Erik and Alice, the director of the digital theatre company, who had met and become friends because their children were already friends through primary school. Similarly, it turned out that Ruby, one of the other game designers from the school of art in Glasgow, had previously collaborated with Erik's partner on a funded project within the field of education at another university in Edinburgh. In fact, I could not claim to be entirely innocent of these personal relations before joining the project, since my own involvement in the collaboration emerged in an equivalent fashion. Erik and I were friends through our partners, who were colleagues in the same school of education. It was through that connection that the idea of adding an anthropologist to a collaboration between computer scientists and game designers first developed.

The point here is that, unlike institutional relationships of collegiality, these kinds of relations were not regarded as appropriate to highlight. Whilst the funding application for the collaboration required us to list fields of expertise and institutional affiliations, there was no space to list relationships based on friendship, on playing board games socially or on acquaintanceship through marriage or through the schoolyard friendships of our children. Indeed, it was not appropriate to highlight these ties through any rationale or justification for the planned collaboration of experts. This was partly because they could be conceived as a negative instance of connection. In fact, when I shared an early draft of this essay with a colleague in anthropology, they raised the possibility that the revelation of personal relations could be read as a commentary on inequalities of access to participation in normative collaborations between experts. Thus, even though a strong

collaborative logic existed for bringing these fields of expertise and these specific experts together in service to this project goal (for instance, Alice was not just a friend of Erik through their kids, but was also the director of the only digital theatre company in Scotland), it was almost impossible to present these personal relations as a positive contribution. Such relations, it appeared, might emerge as a natural consequence of collaboration, but they should not precede or overtly inform that collaboration. The emphasis is important to observe, I argue, because it laid the groundwork for gameplay within the collaboration. Whilst admittedly rather differently set up and conceived from Meridian 180, the EPSRC collaboration also worked in a certain subjunctive mode. We proceeded as if these personal relations were not there or did not matter; this was an essential part of our serious play.

As previously noted, Meridian 180 took a very different approach to acting seriously, one on the face of it considerably more accommodating to alternative bases for considering interactions between experts. For instance, this is reflected in the already cited invitation for participants to bring 'their professional backgrounds and expertise but explicitly shed their professional responsibility in order to speak only for themselves' (Riles 2017: 184). Indeed, Riles (2017: 184) states that participations in this nonnormative collaboration experienced that invitation as both 'refreshing' and 'hopeful'. Yet, we might ask, what does learning to speak for oneself (as an expert) actually mean? The description provided by Riles seems to imply that the hopeful moment achieved through shedding professional responsibility is wrapped up in a sensation of providing new bases for interaction between individual scholars, policymakers, and professionals from diverse transnational backgrounds. It does not suggest a surfacing or acknowledgement of those personal

relations that appear to precede or already coexist alongside relationships of expertise. In this regard, Meridian 180 appears quite normative. Serious play is about establishing new relations as a consequence of acting as if outputs and professional responsibilities do not matter rather than about admitting old friendships or acquaintanceships or ties through kinship or through longstanding social activities such as playing games together.

To be fair, Riles is acutely aware of the ways in which the form of collaboration can exclude or obviate the form of personal relations. Indeed, the description of Meridian 180 as an experiment in nonnormative collaboration rests not just upon a contrast with normative practices of collaboration, but also upon a strong sense of shifts in dominant tropes of transnational organisation between experts as well as other actors. Riles (2022a: 9) suggests that our current era of collaboration was closely preceded by an era of the 'network,' and that any account of Meridian 180 needed to appreciate 'the difference between seeing and creating networks everywhere and seeing and creating collaborations.' As that earlier work on the organisational trope of the network illustrates (see Riles 2001), networks were until quite recently 'held out as engines to solve the most intractable global problems by bypassing traditional forms of organization, such as the nation-state, and allowing ordinary people [including experts] to communicate and organize directly' (Riles 2022a: 9). The crucial difference, however, is that the network did include an acknowledgement of the importance of personal relations. In fact, Riles highlights that the form of the network worked through an internal tension between the 'personal' and the 'professional,' almost as though each was a necessary side of the other and both were an essential quality of networks (Riles 2001: 58–60). This historical contrast helps us

to see, once again, the distinctiveness of games of collaboration.

COLLABORATIVE OR COOPERATIVE GAMES

Of course, the language and design practice of serious games are full of important genre distinctions, most of which closely mirror the distinctions or typologies used in wider game design. Indeed, in our EPSRC-funded project the question of which games might serve as prototypes for our serious games about secure coding cropped up all the time. Project members drew on their diverse gaming knowledge and gameplay experience when discussing these choices, as well as relying on the expertise of our game designers. In this section, I want to explore a little further one kind of highlighted

distinction: that between collaborative games and cooperative games. The selection is, in many ways, obvious, since across this essay I have speculated about treating both our EPSRC project and Meridian 180 as games of collaboration. One might, therefore, expect some attention to what game designers say about collaborative games. And, since their definition seems in large part to rely upon a distinction with cooperative games, one might also expect some reflection upon the fluctuating relationship between these two types of game. (As we will see, in game design the two terms can sometimes be conceived as oppositional, while at other times used quite interchangeably.) More broadly, I am interested in how this typological distinction might help us ask new or further questions about the relationship between normative and nonnormative forms of collaboration.

Figure 1. scare City
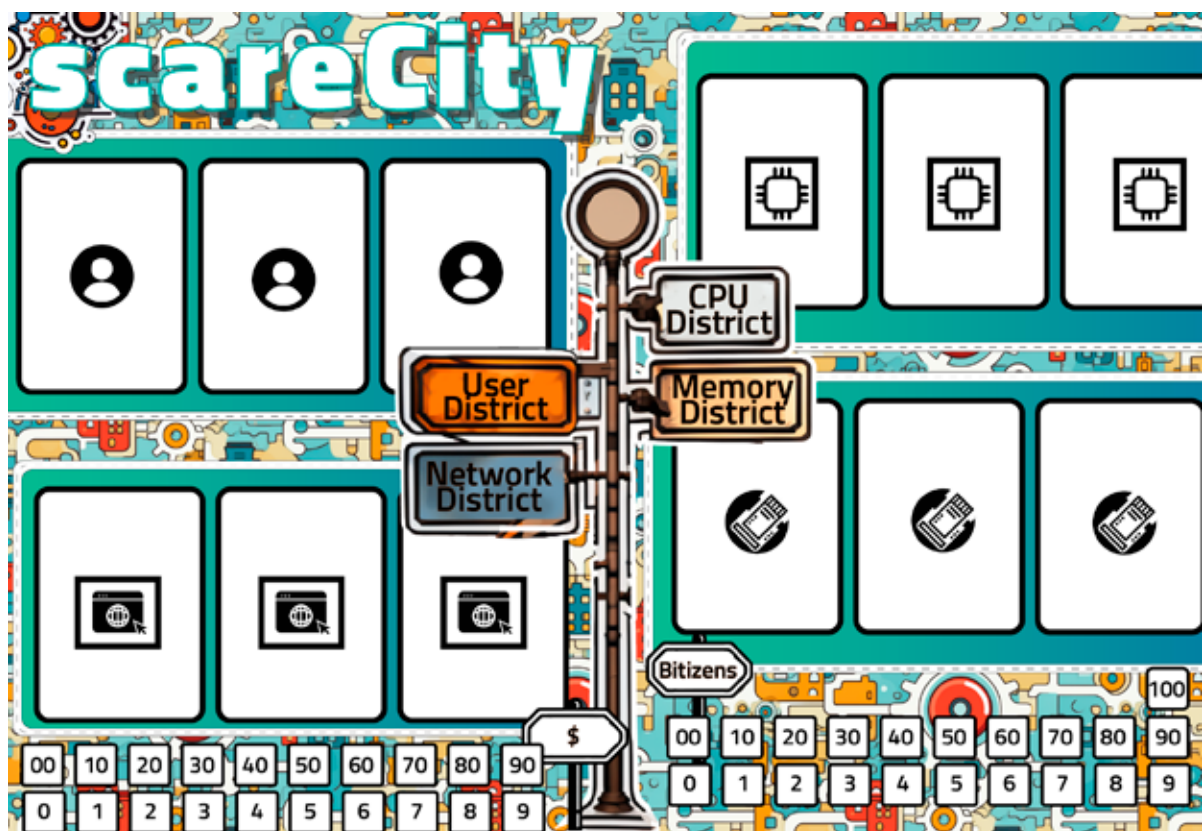
To begin, let me take you to a later stage of the EPSRC project programme, the game design workshops. As I mentioned right at the beginning of the essay, these were planned as exercises that brought participants together into small teams to co-design a serious game. I want to quote from the transcript of one design team as they discussed how to develop their serious game idea. This included a detailed discussion about how the conceived boardgame might speak to the many challenges of coding securely. However, it also included a discussion about examples of games that might inform the design. Although these workshops were intended for our volunteer code-citizens or software professionals, in this instance the design team participants were a selection of project members: that is, Claude; another software engineering and security expert on the project who I call Dave; and Oliver, a technology journalist, but also a core member of our artistic partner (AP), the digital theatre company. The participation of project members was unplanned, a consequence of working through several lockdown periods during the COVID-19 pandemic. Yet, I believe for our purposes, it was fortuitous, since it allowed a continuing sense of the collaboration between experts.

> *Claude* [Co-I & game design]: So, to recap, I think we are talking about a city builder game, in which players manage a development resource budget and they have to balance growth and security.
>
> *Dave* [Co-I & software engineering/ security]: Yes, but we decided that this is a city that lives in a computer. So, we will have 'bitizens' rather than citizens [everyone chuckles]….
>
> *Oliver* [AP & technology consultant for theatre company]: Could one of the resources be 'data'? Bitizens have personal

data and corporations in the city also have data. If bitizens lose privacy, their data gets taken away, so they feel bad. Players need to preserve data to prosper…

Dave: Yes, but the key learning outcome would be that coding securely should be a first-class priority or at least go hand-in-hand with writing software. I wouldn't want a learning outcome to encourage the idea of taking a risk with that…. If the point of the game is happy bitizens that also needs to be quantified. [Players] need to know how near the end goal of the game they are.

Claude: And we need to think about the balance of the game. Perhaps it's about putting other strategies in place or generating enough data. Has anyone played *Catan* [a multiplayer boardgame where players take on the role of settlers attempting to develop smallholdings]? There, the end goal is about attaining a certain number of main resources and the balance is between spending resources to generate more resources or spending money to build a base on the board…

Oliver: I think we need a heuristic of bitizen happiness to speed things up.

Claude: We could use randomisation and odds, like roll some dice…. But I am wondering if we should make it a cooperative game. Ideally, in terms of learning, we want players to be able to talk to each other.

Dave: What about that game…? You know, the one where in the end there is only one person left, but you need to build teams along the way?

Claude: Don't know it. But what about *Forbidden Island* [a multiplayer boardgame where players assume the roles of adventurers looking for hidden treasure;

all players win if they find the treasure and escape the island, but everyone loses if they cannot]? We can do that, but it's not necessarily easy to design as it requires a lot of balancing. It will generate a lot of quality discussions between players in the same team. But there are risks there. If the system or the game wins, as it often does, that can leave a bitter taste. And if we design a cooperative game with a collective task there is far more chance of someone sitting back and letting the rest of their team make the decisions. Or you get the risk of having a dominant player.

Dave: There was a game we once played [i.e., Dave and Erik plus the third software engineering and security expert on the project]. It's a card-based game. You play as a team versus the game, but no one can speak. Even if you know [because of the cards held] what your teammates should be doing, you can't tell them. So, you have to rely on the competence of your colleagues, which is just what it's like in software development teams. I am wondering if we made it a two-player game if that could be more cooperative. You know, you have a verification person and a developer, each needs to do their role in silence and takes action without help.

For me, it was exciting to witness a conversation between project members about the design of a serious game. Indeed, participating in and observing this process of codesign was the closest I came to really feeling part of a collaboration in the normative sense. That is, the sensation that our combined forms of expertise (mine far less than the others!) dynamically and effectively worked in tandem to produce a concrete output: specifically, a prototype for an actual boardgame entitled *scare City*. But,

the experience also drew my attention to the category of cooperative games, which in the extract quoted above appears as a type of game with properties relevant to the ambitions of serious game design. As mentioned previously, I also subsequently learnt that these games were usually discussed through comparison with another kind of games, collaborative games.

Whilst my interest was immediately sparked by the thought of putting the form of collaboration in contrast with the form of cooperation, it soon became clear that at least from the perspective of our project's game designers this was not such a straightforward proposition. Ruby, for example, explained to me that both collaborative and cooperative games required players to work together toward a common goal, just with 'variations in the level of competition and decision-making.' In the case of cooperative games, the joint objective of players made them join forces to overcome challenges set by the game and the game's mechanics. As already noted, a win or loss was usually shared. By contrast, with collaborative games, some elements of competition were 'integrated into the cooperative framework,' with players often setting individuals goals or scores alongside the shared objective. As Ruby clarified, here 'collaborative means that everyone is still working together but you can't fully trust *everything* [original emphasis] another player says because they might have a hidden agenda.' Thus, collaborative games leave space for more individual player agency or tactics. However, it is notable that in this distinction both cooperation and collaboration also feature as mechanics of gameplay present in both kinds of game. Ruby told me, for instance, that in cooperative games the 'main focus is upon teamwork and collaboration to gain that collective win,' whereas in collaborative games 'the degree of collaboration and competition can

vary, enabling a much more flexible structure of cooperation.' Ruby further added that other designers and gaming communities might deploy the two terms slightly differently and even sometimes collapse the distinction entirely.

That caveat aside, I was intrigued by Ruby's definitions and how they might be used to recalibrate what I have so far observed about the EPSRC project and Meridian 180. First and foremost, the idea that a collaborative game might be distinguished on the basis of the unreliability of fellow players, their hidden agendas, and, ultimately, by a lack of trust between collaborators throws our settled understanding of collaboration into some relief. While it is true that Meridian 180 does operate on the presumption that expertise is in crisis and that normative collaborations between experts suffer from strategic imperatives as well as individual ambitions or the expectations borne of institutional evaluation of individual performance, those suspicions are not equivalent to the way game designers consider the attributes of collaborative games. Most obviously, this is because collaborative games are not being judged negatively. Those properties of unreliability or a lack of trust and of individual ambition or tactics simply define the nature of gameplay and, hence, the potential for that type of game. Of course, the wider implication is that both collaborative and cooperative games are designed and those designs have a purpose. In this respect, the experience of either is quite different from the quality of serious play to which Meridian 180 aspires. As such, it is largely assumed that the rules of engagement free participating experts from the constraints of predetermined and, thus, normative interactions and experiences of collaboration.

Turning our attention to the EPSRC project, the questions associated with the choice between modelling a serious game upon collaborative or cooperative game principles might be productive in other ways. Whilst one might gain much by reflecting upon whether our normative collaboration was more like a collaborative or cooperative game in practice, I am interested in probing the supplementary questions that, for our game designers, always inform this choice. That is, the assessment of the respective pros and cons related to the quality of serious experience. For instance, as Claude observed, cooperative games require teamwork and, thus, by their very nature can enable or facilitate forms of reflective discussion between players. This was an obvious utility or benefit to a serious game. But, Claude also recognises some of the risks for the serious experience of deploying cooperative game models. For instance, cooperation, which is driven by the necessity of winning or losing together, can result in one player from a team dominating decision-making. This can allow other players to disengage from the serious experience; and, if the system wins, as it often does with cooperative games, the experience can act as a disincentive to learning. Claude also mentions the wider design challenge of balancing such games: 'balance' is a perennial problem in game design (see Becker and Görlich 2020), but cooperative games apparently raise peculiar concerns.

Thinking about normative and nonnormative forms of collaboration as serious games might then result in a productive and timely flattening of value judgements. This could enable redirecting attention towards an exploration of the status of collaborations as games with a potential to help players (including experts) act seriously in different ways. In fact, the very confusion about the distinction between collaborative and cooperative games, which includes the possibility of the interchangeability of the terms, means that such reflections contain their own dynamism. The comparison between

normative or nonnormative collaboration and the kinds of questions such comparative work engenders can, thus, always be slightly reframed.

For instance, during our conversation in the design team, I also quickly googled an explanation for cooperative games and arrived at a set of comments posted to the site BoardGameGeek.com. 'Cooperation is a behaviour that benefits the shared goal,' I read. But, since, in this scenario, 'you are entirely replaceable there is always one decision that is perfect, and it can always be figured out which one that is.' Cooperation, then, is 'deterministic.' By contrast, I read on, 'collaboration is an act of will within a shared context, usually to the effect of getting closer to a shared goal.' But, this time with the proviso that the 'perfect decision' or ultimate solution 'cannot always be figured out.' In this regard, collaboration is properly regarded as 'nondeterministic' (BoardGameGeek.com 2017). The post thread later clarifies that point by returning to the definition of collaboration. 'The core idea is that collaborative games allow you to make decisions ON YOUR OWN… Never can someone else make a better decision than you for yourself.' In both types of games, players strive towards shared goals and to align themselves in some fashion with other players, but wilful decision-making is only a required component in collaborative games.

This explanation in many ways resonates with that provided by Ruby, but there is a subtle shift in emphasis. Here, the issue is about replaceability. As the author of the forum post emphasises, the origin of the word cooperation suggests an 'obligatory act of being part of a process, as a gear is part of a machine.' You as a player may be indifferent or even adverse to that operation, whose goal is 'set from the outside,' but the game nevertheless requires you to follow along (whether you do so or not, the game continues in the direction

determined). In this sense, the post states, 'You are forced to cooperate.' It is important to stress, once again, that there is no value judgement in this observation. The author is absolutely not suggesting that collaborative games are better because they 'allow you to make decisions on your own;' indeed, shortly after making these statements, the forum praises the popular cooperative game *Pandemic* (a shared solitaire multiplayer game in which players work together as a team to manage infections around the world, while preparing resources to find cures). Rather, the point is about quality of playability and the different possibilities for stimulation or entertainment that each type of game offers. Thus, we might ask, do we want a form of collaboration where individual experts are entirely replaceable or one where they are allowed to make decisions on their own? Should cooperation be forced? Should the goals be shared and set from the outset? Or is there some benefit to cultivating a sense that collaboration is an act of individual will within a shared context, and to promoting the idea that there is no ultimate solution to be figured out through the action of collaboration?

CONCLUSIONS: THE RULES

At one point in the team conversation quoted above, Dave suggests that any players of our codesigned serious game will 'need to know how near the end of the game they are.' His observations were principally informed by a concern that gameplay must deliver on its key learning outcome, the important message that coding securely should always be a top priority when writing software. It was clear, however, that Dave was also drawing upon his own gaming experience as well as a growing understanding of how serious game design worked. Indeed, Claude interpreted Dave's

suggestion as a query about the balance of the game, which the game designer proceeded to reflect upon by drawing our attention to how the end goal was recognised in another very popular boardgame. This closely reflected the dynamic of our codesign process.

But, one of the aspects of that process that surprised me most was the fact that a discussion about the rules of the game was often held back. As someone with only a cursory appreciation of gaming, I had expected that we would need to pin these down first (because everyone knows that you must read the rules of the game before your start playing it). This was a rooky mistake. As Claude and the other game designers on our project often highlighted, setting the rules was first and foremost about reflecting upon what still needs to be explained or about the action of identifying and responding to a perception of gaps in a game's design. This did not mean that our game designers had relaxed attitudes towards rules. Far from it. Rules were strongly enforced, and designers were often incensed when discussing examples of games they felt had poor rules. For instance, I remember with a great deal of affection a lively conversation about the rules of Quidditch, the central game of the *Harry Potter* novel series and universe, which seemed to be held up as an exemplar of a bad or improperly balanced game. (The chief problem lay with the rule that the game will end when the golden snitch is caught, which renders the other rules and principles of scoring in the game of Quidditch entirely redundant. Ruby stated that she read somewhere that playing Quidditch was like investing in 'one game, say chequers or backgammon, and, then, after a period, being told to just roll a dice and declare that whoever got the highest number was the winner.') This meant, however, that the game designers thought about the role of rules and the time to consider them quite differently.

Thinking back to Meridian 180, for example, our game designers might have observed that this serious game was also imbalanced. Indeed, they might have pointed to the fact that the organisers of the nonnormative collaboration themselves felt the need to adjust the rules of engagement mid-game as evidence of that imbalance. (If you recall, some members of Meridian 180 expressed dissatisfaction, mounting frustration or concern at the eschewing of outputs, resulting in certain concessions around the production of academic publications and policy proposals [Riles 2017: 187].) Likewise, borrowing Dave's point, our game designers might have asked not just what the end goal of this game exactly was, but further how its participants would know that they were nearing the end of the game. In other words, they might have expressed concerns about game stakes as well. Serious game designers might query the correspondence between the learning ambitions of the collaboration (i.e., the eschewing of outputs as an exercise in reflecting upon the limits of normative collaboration and, hence, imagining alternative terms of interaction between experts) and the protocols and stages of its gameplay. Finally, they might have wondered how that game and the serious experience it aims to cultivate could have played differently if rule-setting had also been held back in the design process. That is, if those rules of engagement were viewed as rather more about plugging gaps than purposefully designing how the game of collaboration would take shape.

Such observations might be regarded as unfair or out of sympathy with the spirit of Meridian 180, which after all was never explicitly figured as a game, but instead as a kind of experiment. Perhaps. There are, however, other ways in which we can recognise that spirit of experimentation within a serious game design framework. At the beginning of this

essay, I briefly alluded to another output of our EPSRC collaboration: a small number of short digital games designed to provoke people to consider issues of software security. These were intended to be played by participants right at the beginning of the game design workshops and conceived as a way of getting them to think about the challenges of coding securely and simultaneously setting the mood for the codesign teamwork to come. Our game designers named these digital games 'Small Provoking Games' or SPGs and made it clear to us that these were quite different in design and

purpose. As the name suggests, the games were first and foremost meant as disruptors. Often subversive of player expectations, each SPG operated through 'withholding information about game rules' assuming that this 'forces players to experiment, explore, and actively construct their own meanings and mental models' (Abbott et al. 2022: 9). In this case, the spirit of experimentation was defined not so much by setting alternative or nonnormative rules of engagement, but by making the question of what the rules of the game were part of the challenge of serious play.

Figure 2: Collaboration

In fact, the second of these provoking games was designed around the theme of collaboration itself, which in the digital game was both visualised and disguised through a design metaphor of an ecosystem. *Collaboration* (as project members titled the SPG) was a single-player, turn-based, puzzle game. At each level of the puzzle, the assigned task involved

players finding the appropriate actions to sustain seven coloured lanes of a rainbow located in a rainforest. This rainforest featured other automated characters or creatures alongside the player's own and a dynamic environment with a periodic monsoon season. The broader metaphor of an ecosystem was meant to represent a publicly used software application

with specific cybersecurity requirements (in the designers' minds, the digital rainbow was conceived as putting 'rain' or data into the environment, the flow of which could be corrupted if the infrastructure was proven unsecure). However, the chief ambition behind *Collaboration*'s design was to simulate the experience of working in software development teams and, specifically, the challenges of collaborating with others in an office environment. Just as the lack of an overview or the lack of proper communication between team members in a software development company could lead to secure coding failures, players

also had to realise that the rainbow's health depended upon characters or creatures in the digital forest working together through a range of fixed combinations. In post-play discussion of the provoking game, which was also part of its design (Abbott et al. 2022: 9), participants could learn that the faces of the automated characters represented different personality types one might find in a software development team (each creature had a set of behavioural characteristics simulating those types). They could also discover that the different lanes of colour in the rainbow stood for diverse kinds of expertise or skillsets within such teams.

Figure 3. The 'faces' of Collaboration

One of the interesting things about the wider genre of provoking games is that they feature 'expected failure' alongside exploratory gameplay and techniques of distancing and

surprise (Abbott et al. 2022: 3, 9; see, also Khaled 2018). Indeed, it is rare that players complete a provoking game; completion is not necessarily the point. This was obvious from the feedback

from those who played *Collaboration*, since only a minority finished a few of the game's 15 levels. Even fewer managed to successfully interpret the range of software security issues addressed through the ecosystem metaphor, although the post-play discussion did lead to general critical reflections upon some of the challenges of coding securely.

Whilst there are obvious differences between these provoking games and the serious play of Meridian 180, I believe that the analogy holds some value. It can help us look again at what Riles (2022a: 8–9) describes as the unsustainability or 'ultimate failure' of this nonnormative collaboration and reappreciate the experiment. Retrospectively, one cannot help but wonder if expected failure was not also built into the design of Meridian 180. Riles suggests as much when proposing what we should view as the 'feat' or principle learning achievement of this nonnormative collaboration. As Riles (2022a: 9) tells us, the experiment did manage to hold 'the "ends" of collaboration in abeyance,' and it did so 'long enough to allow us to appreciate the "means"—the methods and techniques—of our professions and disciplines,' and, thereby, 'to revisit each of our expert tools by redeploying them against and alongside other's tools'. That sounds like a pretty successful serious game to me.

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