Concept White Paper

Infinite Games for Infinite Teams

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Infinite Games for Infinite Teams

Infinite Games for Infinite Teams was published by and in response to the DARPA Polyplexus Citizen Incubator: “Inventing a Remote Culture to Deal with Pandemics”, and was done so with the intent of discussing the questions outlined below.

Driving and Inspiring Questions

- How are global online narratives constructed and received in 2020? Why are the processes of narrative design and culture production so important for security and governance? What is possible now or soon that was not possible before?
- What approaches could catalyze assessment, design, and deployment of online narratives in real-time? Why is it so important to have meme-detection systems that are culturally-aware, interlingual, intermodal, and human-in-the-loop?
- What does it look like to take a Complex Adaptive Systems (CAS) approach to the neuromemetics of narrative co-construction and agenda-setting? How could a CAS approach be used to support specifically-defined cultural/institutional/national/global interests? How do we find, formalize, and quantify goals or outcomes within a CAS framework?
- How can we diagnose, perturb, and create narratives through gameplay? What might a “design science for memes” look like?
- How is this present work continuous with and contrasting with previous work in innovation, generative games, and LARPing? How can music, sound, art, and other techniques amplify narrative impact?

Introduction

Today there are disturbing and destabilizing online narratives that present a complex threat surface encompassing the entire world. Quite simply, the “Internet is real life”, which means that cybercrime, peer-to-peer abuse via social media, and sophisticated propaganda have real-world implications. To grasp the heterogeneity and incompatibility of online narratives available today, we can consider the user experience of a web-searcher with an honest inquiry into the biological basis and origins of SARS-CoV-2 (the virus associated with the disease of COVID-19 [1]). Depending on which search terms are used, media are followed, or friends are asked, this seeker might conclude that the origins and spread of SARS-CoV-2 were due to some wild animal [2,3], natural genomic mutations [4,5] (or not [6,7]), the spread of millimeter-wave “5G” technology [8–10], long-running vaccine research programs funded by Bill Gates-related international organizations [11,12], or Bioterrorism from China, the USA, or some non-State actors [13]. Disinformation and “fake news” aside, the ability to make sense of legitimate information streams online has become untenable.

Where in the past, organizations tasked with knowledge management and sense-making often had the problem of getting data and analyses, now the problem is parsing it. Novel online-native frameworks (with theoretical models and deliverable tools) are required to deal with this complex situation [14]. Here we use “meme” and “narrative” interchangeably to refer to a broad set of cultural products that “influencers” or “content creators” might make: image macros as well as videos, songs, hashtags, copypasta, songs, stories, posts, pages, themes, styles, etc. These viral videos and movements can contribute to the failure of states and institutions, and such directions can be expected to increase in frequency in the near future. Large and legacy institutions find themselves challenged in the modern narrative ecosystem, in part due to the novel non-linear dynamics of global techno-memetics and narratives. The modern memetic ecosystem calls for unconventional, non-linear, and online-native strategies [15–19]. A large portion of the current memeplex is invisible (e.g. on the Dark Web, or on the clear net fragmented across social media platforms and languages). Individual people may see many examples of a meme before sharing one (nature of social media), and the one they share is likely the one which is most communicable and timely – in other words, not necessarily representative of the memeplex underneath. In order to infer and act appropriately

online, agents and organizations need to adhere to holistic, yet nuanced, and adaptive policies, in order to cope with the actual implications of action [20,21].

The human memory system is characterized by its ability to self-organize and reorganize, allowing for spontaneous expertise, even when dealing with novel phenomena [22]. This capability allows humans to succeed in grasping extant and emergent links between memetic materials that might be entirely missed by Artificial Intelligence (AI) [23]. The reason for this is that even when documents and memetic objects are fully indexed by an ideal and complete data architecture, it can be difficult for AI to understand content and impute context, let alone recommend effective interventions. It is challenging to design a "perfect AI" to stop such objects in the public space, as it is a game of whack-a-mole that often has collateral damage (an example for you, delivered via the traditional footnote headline citation clickbait styling: [24][1] [25][2]). In areas of national security, public health information, and questions of social justice, unintentional consequences of AI-based curation can be devastating [26,27]. Fundamentally, this arises because modern AI systems are having trouble detecting links between memetic material, other datasets (big data), all the metadata (big metadata), causal models of the world (big mechanisms) [28,29].The reason why we need curated knowledge networks rather than co-occurrence matrices here, is analogous to why we need curated path discovery (via Geocaching, Ingress, Niantic, bloggers) rather than just total movement data.

With the information ecosystem in this current condition, what directions for platform design and Remote Team research might be beneficial? Here we draw upon the applied and theoretical framework of Complex Adaptive Systems (CAS) to explore how the power of the Games played by Remote Teams can be harnessed by sage platform design choices. CAS are systems that are composed of many interacting subunits, leading to various properties such as anti-fragility, multiscale chaotic patterns, non-linear responses to stimuli, and evolvability [30–32]. Media ecosystems and collective processes of narrative generation are also CAS [33,34]. Today there are unprecedented opportunities for narrative-shaping interventions in

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[1] 6/8/2020: "Twitter puts fact-checking label on tweets linking 5G with coronavirus"

[2] 6/29/2020: "Twitter Decided To Tone Down Its Criteria To Flag Tweets Related To Covid-19 And 5G, As It Was Taking Down The Genuine Tweets That Had Nothing To Do With Fake Information"

the digital context, and an unmet need for a creative and generative culture amidst the bittersweet milieu of hyperconsumption.

Instantaneous Remote Teams

Culture production and agenda-setting are effective, and even magical, within communities composed of small teams (e.g. music scenes made of multiple bands, academic disciplines composed of labs, book subcultures reflected by separate reading groups). Communities of small teams are the “last mile” of culture production and consumption. Nowadays, such teams and communities are increasingly all-online or online-native. We refer to online-native teams as Remote Teams, whatever their form or function. In cases where Remote Team formation is rapid or instantaneous (as opposed to Remote Teams with low turnover), we introduce the term Instantaneous Remote Teams (IRT). Instantaneous Remote Teams (IRT) are essential for function, adaptability, and resilience in conventional as well as non-conventional institutions [35].

Collective attitudinal states and beliefs can propagate themselves through time during Fiction generation, role-playing, and other kinds of Games [36,37]. Examples of this mode of narrative creation can be found in moderated and unmoderated role-playing games [38–41]. Games can be used as a device for therapy and serve as a basis for abstract task transfer in and out of game. Games can affect users off the platform in very real ways (weight loss, psychology, voting). Generative games (e.g. Minecraft, D&D) are often played via placing individuals in a (cyber) environment with tools, threats, and constraints and can result in creative or practical collaboration and organization even when there are no obvious directions or objectives given to the participants. Collaborative Games can lead to a playful and flexible view of the self, team, and world.

The many iterations of the popular Massively multiplayer online role-playing game (MMORPG) World of Warcraft (WoW) offer an instructive case study in IRTs. While much of the game can be played alone, the most valuable rewards WoW has to offer its players requires the coordination of IRTs composed of both familiar actors and strangers. When a group of players commit a scenario in which adversaries are generated by the Game’s environment (“PvE Content” reflected by antagonistic Non-Player Characters), players rapidly assemble teams composed of 5, 10, 20, or 40

individuals capable of different and similar roles. These IRTs are tasked with complex challenges which cannot be done alone. These group goals cannot be completed without cooperation, communication, and trust [42]. The temporary and task-focused nature of these PvE teams meets criteria for rapid cultural transmission [15,43]. Where players committing to "PvE content" rapidly assemble teams prior to engaging with tasks, players engaging with "PvP content", or content in which adversaries are other players, may become a member of an IRT as a consequence of being in the proximity of other players (formation around shared mutual threat). The outcome of such IRT vs. IRT encounters will be influenced by the capabilities, strategy, mission and understanding of the situation by each IRT [44]. In both PvE and PvP engagements, rapid cultural transmission occurs through conversation and call-outs of bad behavior. Over hundreds of iterations, guilds and communities of WoW players learn not only tactics, strategy, in-game lore, and jargon but also narrative, transferable skills, and a sense of identity. These players are receiving gradual initiation into the moral order and praxis of a Game, despite a clear lack of distinct curriculum or even a consistent cast of characters [45].

Research and experience converge on several themes that recur in IRTs from the classroom to the operating theater to the aircraft carrier. Here we highlight several common features or best practices of IRTs that are relevant here. Resilient IRTs are able to rapidly find emergent best practices (e.g. customized solutions that are reached via improvisation). IRTs benefit from cultural competencies, transferable skills, and effective communication protocols. In many cases, the most rapid form of communication is shared mindset (instantaneous coordinated action via independent response to stimuli). High-functioning IRTs draw from a community of culturally-competent, pre-adapted, flexible agents. Increasingly not just humans are involved in IRTs – in online settings, augmented and artificial agents are common. The study and practice of IRTs can involve both qualitative & quantitative approaches, so diverse team perspectives and transdisciplinary approaches are crucial for maximal impact [32,46].

Communities of IRTs, almost as a rule, cannot escape disintegration by "returning to the good ol' days", nor by utopianism alone. Rather, community disintegration is averted when novel approaches to IRT reassembly and renewal are implemented [41]. The Hero's Journey is a common model of Self-renewal used both in product user experience as well as game design [47,48]. Similar renewal processes can be seen in other complex systems such as cultures, insect colonies, and

economies [49–51]. Individuals, IRTs, and communities may find paradigms of renewal to be of special importance during moments of uncertainty and rapid change.

Infinite Games in the Gray Zone

Infinite Games are those that can be played forever. Infinite Games have many possible outcomes, an air of possibility, and a balance of tradition and novelty. The term “Infinite Game” has been used by Simon Sinek to describe the modern paradigm of management and leadership [52]: open-ended, endlessly-challenging, and more like a marathon than a sprint. Sinek highlights that Infinite Games succeed when the team has a just cause, a worthy adversary, a vulnerable team, courageous leadership, and an open playbook [53]. Albeit with slightly different terminology, Biology has long focused on “Infinite Games” in nature, such as Red Queen coevolution and winnerless competitions (on a tangent, Evolution can be seen as the “Transfinite Game” in that it is open-ended how open-ended it is [54–56].). Infinite Games are also a useful framework for considering other innovation spaces such as culture creation, agenda-setting, research & design, improvisation, LARPing, SciFi, etc.

By analogy to Infinite Games, “Infinite Teams” are those with open-ended and evolving composition. The turnover rate of Infinite Teams can be rapid (e.g. improv games, IRT’s), or slow (Academia, Church). The process by which Infinite Teams evolve are system-specific (e.g. a rapidly-assembling World of Warcraft team vs. a slowly-changing corporate bureaucracy). To convey the space where Infinite Teams play Infinite Games, we use the gestalt term “Gray Zone” to refer to the archetype of ambiguity, uncertainty, stochasticity, and chaos. To persist over multiple timescales of Gray Zone, communities and governments in 2020 need to be adaptive and responsive at the local level, while also being aware in some ways of the global situation.

Infinite Games can be, and often must be, played in the Gray Zone. Infinite Games, like Life itself, may or may not feature ambiguous goals, partially-understood scenarios, and emotional engagement. Games have demonstrable value in facilitating users in the learning of history, soft skills, and technical ability [57–61], and in many cases present real opportunities for citizens to contribute directly or indirectly to society and science [62]. Infinite Games, like the world as seen from the CAS perspective, are fundamentally transdisciplinary [63,64]. This is because when Games

(or conversations and research paradigms) are Infinite, there is no final limit to the type of topics that enter the fray. Few theoretical or applied studies have considered the unique improvisational dynamics of “Infinite Games for Infinite Teams”. Work in this area could draw from fields as disparate as wearable neurofeedback devices [65,66], video game strategy [67], and military science [35,68,69]. Perhaps in the future, Infinite Games could draw the large player-bases that Eve Online or World of Warcraft have, and be designed to facilitate solutions to emergent problems which require crowd-effort or rapid cultural transmission.

Two Visions of Infinite Games for Infinite Teams

Polyplexus could be a Platform for Infinite Games of all kinds (culture creation, narrative evolution, research & development, etc). How can we harness the power of Infinite Games for Groups? Here we build off of previous collective and improvisational approaches such as Cadavre Exquis, LARPing [70,71], and PPPiP [64]. While most historical work on the improvisational dynamics of culture production by in-person teams, much of the work transfers naturally to IRTs. Here we will explore how a Polyplexus-like platform might be able to host Infinite Games for Infinite Teams. These two independent visions stem from the intersection of culture creation (“memestreams”) and online-native Instantaneous Remote Teams (“teamstreams”).

Idea I

Formal Memetics (e.g. ontology, controlled vocabulary, systematics, pipelines, taxonomies for memes and narratives).

- A Formal-Informal interface allows for the co-evolution of narrative and formal aspects of a SciFi story through the use of an API/metadata/ontology/structure, A Polyplexus-specific format could be used, or it could be more general [72,73]). The more technically-minded people on the platform can focus on the formal yet also creative aspects of "world building" – not by writing in art/captions/prose, but by proposing values for parameters about the world/culture/individual in the

narrative (i.e. "Planet $planet.name orbits $sun.name, so the temperature there changes there according to the Temperature(space,time) distribution annually, leading to a social regime phase space described by Government(space,time) dynamics").

- Prose-, caption-, sound-, and art-oriented participants on the platform can co-evolve narratives along with this programmatic specification of the world/culture/individual. There is a Division of cognitive Labor in the co-construction of the total world model. This formal-informal hybrid approach to world building also allows the introduction of "story seeds" or constraints/opportunities for the world, for Plexors to explore within. Also this approach allows hierarchical recognition of stories yet unwritten, perspectives yet untold. It is a collective distributed learning process, by teams who evolve their composition, knowledge, and skills.
- By setting rules for contribution, such as those found in world-building games like Microscope, the construction of world-narratives of fictional societies faced with constraints and boons can be paired with the assignment of historical examples and scientific principles may have the potential to yield discovery and analyses of potential threats to real world societies [38]. Real-world, fictional, and simulated worlds and memes can be compared and contrasted through “phylomemomic” approaches drawn from evolutionary biology.

Idea II

A case-management-like system for knowledge mapping, enabling a cooperative “Cadavre Exquis” role-playing game played by Infinite Teams.

- There are three roles in this Infinite Game: Red, Green, Blue.
  - ◊ Red proposes “sword” memes
  - ◊ Blue proposes “shield” memes
  - ◊ Green integrates sword & shield memes into communicable (deliverable, comprehensible, accessible, enjoyable, meaningful) narratives or paths.
- Whereas Red and Blue focus on evidence and logic (logos, ethos, authority), Green focuses on evocation of emotion, anecdotes, and narrative (pathos and ethos, appeals and authority). Green introduces kairos in the system, that is an understanding, sense, and sequence to the memes in a space. The Green role might also be able to eventually access in-field or Mechanical Turk-like experiments to test the relative efficacy of different approaches.

- One or many individuals are assigned to each role. Individuals are all roles then enact a “checks & balances”-type Infinite Game, related to some scenario or seed idea. It is a decentralized Hegelian Memetics, an Internet-native Glass Bead Game, an endless conversation that is waiting for your input. People who are familiar with the Game could generate authentic and just-in-time modifications to the game, as well as, supplements, variants, and subcultures.
- Teams are composed of stable or rotating casts of Plexors acting under different identities. A user can create any number of identities. These identities are characters with some background, field, political leaning, subject matter of projects, titles, callsign, and a set of symbols to use in lieu of an avatar. Users agree to make great effort to approach subject matter in a way that is appropriate to this identity. A user can sign into any identity they wish and enter a “workspace”. A “Workspace” is a saved “project” of sorts. A new workspace is initialized with a “Seed-Meme”. This might be the central argument of a paper they are writing or a hypothesis they are trying to investigate. E.g. “We have opened a cryptographic connection with an extra-dimensional being and only have 24 hours to determine what questions to ask” or “We are writing a sitcom about wedding planners who live on the Moon and have a limited budget”. Once a Seed-meme is chosen (along with the constraints of the space), it becomes the “meme in focus”. The goal of the Game is then to participate in a process of memestreaming / weltanschauung / argument narrative co-evolution. Primary perspectives and supporting material can be added by players, and extant information can be linked, mutated, contextualized, refuted, supported, communicated, and subjected to feedback loops. Roles can be rotated among players, augmented via AI systems, and even filled by a software-only player.
- In Explore mode, all team members can see all information, to maximally catalyze research and collaboration.
- In Exploit mode, each team member is assigned to only one role. This encourages them to embody the role entirely, and to play whole-heartedly

Red Role guiding questions

- What would be the most true and accurate phrasing of what I want to say?
- What would be an effective approach to changing people’s mind, not just informing them or “raising awareness”?
- How can messages be designed or hardened to survive the inevitable political/informational attacks against them?

- What is the most direct and devastating attack on the ignorance surrounding this topic?
- What is the most interesting thing about the topic, or least-understood?
- How can this topic be tied to other cultural touchpoints?

Blue Role guiding questions

- What ambiguities or subtleties might be imagined by a skeptical viewer?
- How might the meme or narrative be instantly and transparently debunked?
- How might someone from a different perspective/identity perceive the Meme?
- What might the intentional and unintentional influences on this meme be?
- How can this meme or approach be smeared, countered, disproven, or tested?
- What is a socially-acceptable or unacceptable response to this meme?
- What is a "Yes, and…", a "Yes, but….", and "No, because…" response here?
- What have previous thinkers/movements/stories done to counter this meme?
- How can the response to a meme be tied to action, identity, and mindset?

Green Role guiding questions

- How can ideas be communicated to multiple audiences?
- How might the same messaging be effective across audiences & media formats?
- How can narratives be accessible, productive, inclusive, comprehensible, and powerful?
- How can the discourse be sharpened as to be unambiguous and shareable?
- How will emergently-generated narratives, deliverables, and IRTs be influenced by variation within/among countries in technical capacity, internet connectivity, and cultural backgrounds? (See Figure 1).
- How can the effect of this specific meme be quantifiably measured or assessed?
- How can we model a hypothetical meme's potential ability to penetrate or propagate bias, ignorance, hate, or fear?
- What is the role of passive vs. action modes of narrative engagement in this domain?
- How can national and global goals be quantified and achieved? (See Figure 2).

Closing

Hermann Hesse, in his 1943 book The Glass Bead Game (Das Glasperlenspiel), characterized a dismal "Age of the Feuilleton", one in which "the life of the mind [was like] a degenerate plant which was squandering its strength in

excessive vegetative growth". In the book, the unhealthy mental experiences characteristic to the "Age of the Feuilleton" were inflamed by a media ecosystem of "scandal" [3] and "passive" infotainment [4]. Today in 2020, we find ourselves in an Internet-based "Age of the Feuilleton", full of (in modern terms) disinfo, conspiracies, psyops, fake news, echo chambers, funnels, and silos. Rather than the fanciful terminology of Feuilleton, we might refer to this scenario as the Gray Zone, 4th generational warfare [74,75], or informational/cognitive security [76,77].

In Hesse's work as in our current world, the path out of an "Age of the Feuilleton" is challenging, though not all is lost. In the grand tapestry that is human history, the recognition of the depths of an "Age of the Feuilleton" is also the spark, the seed, the impetus of something new. Hesse wrote that the recognition of an "Age of the Feuilleton" occurred at the moment when a society was "....already on the verge of that dreadful devaluation of the Word...". In The Glass Bead Game, what eventually leads to the visionary place of Castalia, is when "at first in secret and within the narrowest circles, that ascetically heroic countermovement [began] to flow visibly and powerfully, and ushered in the new self-discipline and dignity of the human intellect.". Perhaps our current Age of the Feuilleton could be collectively ameliorated by global Infinite Teams, playing Infinite Games for the benefit of all.

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[3] "If the bearer of an aristocratic name was involved in a scandal, the readers of many thousands of feature articles at once learned the facts. What is more, on that same day or by the next day at the latest they received an additional dose of anecdotal, historical, psychological, erotic, and other stuff on the catchword of the moment. A torrent of zealous scribbling poured out over every ephemeral incident, and in quality, assortment, and phraseology all this material bore the mark of mass goods rapidly and irresponsibly turned out."

[4] "In those days the citizen of a medium-sized town or his wife could at least once a week (in big cities pretty much every night) attend lectures offering theoretical instruction on some subject or other: on works of art, poets, scholars, researchers, world tours. The members of the audience at these lectures remained purely passive…..People heard lectures on writers whose works they had never read and never meant to, sometimes accompanied by pictures projected on a screen. At these lectures, as in the feature articles in the newspapers, they struggled through a deluge of isolated cultural facts and fragments of knowledge robbed of all meaning."

Figures

Figure 1. Multidimensional Framework for Teams and on two main axes: extent of team remoteness/distribution (X-axis) and rate of team turnover (Y). Other axes of team variability are shown as accessory dimensions to the primary two.

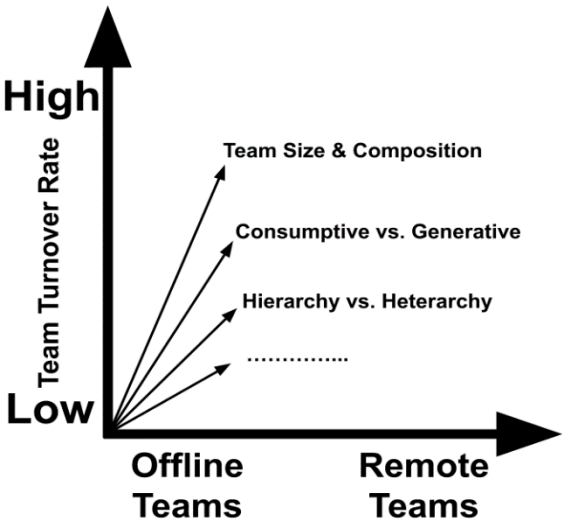
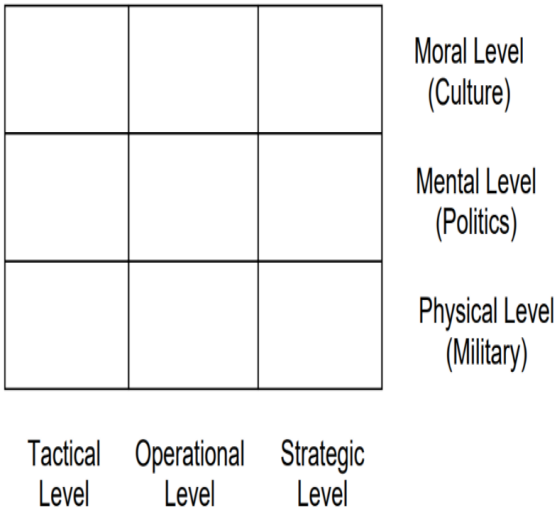


Figure 2. From [74]. According to the authors, "This figure was drawn by William S. Lind during the interview on 27 January 2005". Lind was one of the most important figures in modern military theory [68,78], and it is interesting to note that he placed the Moral (Culture) above the Mental (Politics) and the Physical (Military). A"Infinite Games for Infinite Teams" approach might be relevant to the Tactical, Operational, and Strategic levels, in the arenas of Politics and Culture (the top 6 boxes).



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