

Games, Minds, and Sci-Fi

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Abstract

Sci-Fi, probably more than other popular literature, directly deals with the deep sociological and philosophical problems of the age. Dealing with the problem or implications of other minds is at the heart of the work of some of the most influential theorists of the 20th century, and understanding interactions between agents who are aware of each other as conscious and thinking beings has perhaps been the major challenge and accomplishment of of 20th century philosophy and social science. The paper is an attempt to determine the extent to which just this question has also been a concern in an admittedly partial selection of Sci-Fi stories and novels, with specific reference to certain works of Rob Sawyer.

1. Question: Did Sci-Fi notice the Revolution?

Sci-Fi stories are essentially simulations that let us think about the implications of scientific insights and technologies. The question for this paper is whether Sci-Fi has been providing simulations - i.e. stories - that help us understand one of the least understood general scientific advances of the 20th Century. My tentative conclusion is that Sci-Fi has not done this particular job, and I suggest a reason why that may be the case.

In three very different fields, economics, linguistic philosophy, and psychology, pathbreaking works adopted the notion of a game as a ruling metaphor. For John von Neumann and Oskar Morgenstern the word game provided new model of economic behaviour. Ludwig Wittgenstein used the notion of a "language game" in *Philosophical Investigations*. Eric Berne used the term 'game' to describe a key features of his generalization of psychotherapy.

The use of the word game marked similar solutions to eerily similar problems in the three fields. Each of these works provided a solution to the local variant of a general theoretical problem. The concept of a game was particularly suited to serve as a carrier for the common solution.

1.1 Game Theory

The Theory of Games and Economic Behavior introduced a set of formal

techniques for describing situations in which the payoff for rational agents are interdependent, and each rational agent needs to predict the actions of the others. To predict what you will do, I need to know, not just what you are thinking, but also what you think I am thinking and what you think I think you are thinking, and so on. For the first time there was room in the parsimonious models of the economist for minds that are aware of other minds.

The Theory of Games and Economic Behavior was almost instantly recognized as a landmark in both mathematics and social theory. The effect of the book spread far beyond economics or even the social sciences. Ethics, political science, and evolutionary biology have been deeply influenced by game theory, and there are significant pockets of game-theoretic analysis developing in sociology and psychology. Any social scientist not familiar with the work is still living and working in the 19th century.

There is probably room for a book on the use of game theory in Sci-Fi. My impression is that most Sci-Fi stories referring to game theory exploit the same association with strategy, Machiavellian deception, hidden motives, power and outsmarting a competitor that 'Game of Thrones' draws on. Games and gaming in this general sense are key conceits and devices in 'Ender's Game,' for example.

A game theorist is the villain in Sawyer's Neanderthal Parallax trilogy. In that series Sawyer gives us the cold-war version of game theory: the theorist sees

social situations as zero-sum competition in which maximizing one's payoff means minimizing the opponent's payoff. The mini-max solution is to wipe out the cooperative neanderthals. Non-zero-sum games can have cooperative solutions. In the Webmind trilogy, the mother of the main character is a game theorist with a more humane nature and a more humane view of what game theory tells us.

1.2 Language Games

Wittgenstein's *Philosophical Investigations* is one of the essential works of 20th century philosophy, and one that has arguably reshaped the way we think and talk about language, mind, and philosophy in general. In *Philosophical Investigations*, Wittgenstein argued against his own earlier view that that language is strictly rule-determined (every sentence is striving toward its perfect expression with all meaning contained within language). He used the notion of a language game to elucidate his new view that meanings are found in the mutually understood intentions of the speakers in conversation. Similar shifts were happening elsewhere. In a heavily quoted passage Bakhtin writes

“... the word does not exist in a neutral and impersonal language (it is not, after all, out of a dictionary that the speaker gets his words)), but rather it exists in other people's mouths, in other people's contexts, serving other people's purposes.”

“Language ... is populated -- over populated -- with the intentions of others.”

Bakhtin 1981 293-294

Like *The Theory of Games and Economic Behaviour*, the impact of the *Philosophical Investigations* has been felt in many disciplines. Paul Johnson (1993), for example credits *Philosophical Investigations* with first exploring the new view of category structure underlying his own work, as well as that of George Lakoff (1980, 1987). Randall Collins (1988) treats Wittgenstein as a precursor to Irving Goffman.

1.3 Psychological Games

Eric Berne's *Games People Play* went through 40 printings in seven years and may have been the most influential popular psychology book of the last half of the century. It was third on the non-fiction best-sellers list for the USA in 1965 and 1967, and fourth in 1966. Berne's principle innovation was to extend Freudian analysis to focus on transactions between individuals. The basic unit of analysis in Berne's *Transactional Analysis* is a pair of human beings, each with three essentially social positions, the Child, Adult and Parent.

2. Three Definitions

Each of the three works grew out of deep problems in a specific field. The definitions of 'game' in the three streams are, on the surface at least, very

different. In Game Theory proper, a game is a mathematical object consisting of lists of players, lists of actions available to players in every possible situation (rules), lists of payoffs for players for every possible outcome, and lists describing the information that players have in every situation.

In Berne's theory, a game is a name for a specific class of complex transactions between rational agents. Berne actually gives a variety of definitions of a game. A game is variously "repetitive set of social maneuvers" combining "both defensive and gratificatory functions" (Berne, 1961, TAIp p23), "a series of ulterior transactions leading progressively to a well-defined climax; a set of operations with a gimmick" (Berne 1963), or "a series of transactions with a con, a gimmick, a switch, and a cross-up, leading to a payoff" (Berne, 1976). The specific inclusion of payoff in the latest of these definitions suggests that the growing popularity of game theory in the economic and political literature was beginning to influence his perception of his own model.

For Wittgenstein a "game" is any activity that shares sufficient features with the collection of activities that we already choose to call games.

Does the word game, as used by von Neumann and Morgenstern, Wittgenstein, and Berne have any important shared meaning? There are in fact, a number of threads that the three works have in common. These similarities seem much more important than the accident of their mid-20th century appearance or

the use of the word game.

1. In each a problem previously formulated in terms of individual action is reformulated as an interpersonal process.
2. In each the reformulation postulates an active and equal other.
3. In each the other is a rational agent
4. In each the introduction of the other represents an essential change in the model rather than a simple extension.
5. In each the introduction of other minds represents a sharp break with the analytic paradigm of the field. In Kuhn's terms the change represents a paradigm shift.
6. In each the introduction of other mind dissolved apparently insolvable problems with the prior paradigm .

Despite the different uses of the word, in each case the notion of a game is used to make interacting minds the basic unit of analysis where previously single minds were the unit of analysis. The concept of a game is not a necessary vehicle for introducing these elements, but it is a natural one.

There are other fields in which a similar paradigm shift has occurred and mutual understanding of each other's presence moves to centre stage. The presence of the other becomes a central theme in phenomenology and in rhetorical and linguistic studies. Husserl then Heidegger eliminates the possibility of solipsism by situating the "being" of a human being as "Being-in-the-world" in relation to others. For phenomenologists the idea that we are radically separate from others is based on a misconception. Sartre goes farther in *Being and Nothingness*, a work that stands as landmark both in the

phenomenological tradition and in the third major school of 20th century philosophy, the existentialist movement.

What I aim at in the Other is nothing more than what I find in myself.
B&N 226)

What I constantly aim at across my experiences are the Other's feelings, the Other's ideas, the Other's volitions, the Other's character. (B&N 228)

This is because the Other is not only the one whom I see but the one who sees me. (B&N 228)

The last quotation would fit well a game theory text! The “gaze” of the other, which is central to Sartre's analysis, has gained general currency, becoming, for example a crucial conceptual tool for some parts of the feminist movement. It is startling that at exactly the moment that von Neumann and Morgenstern published their approach to the multi-agent problem, Sartre was publishing his.

3. Finding Sci-Fi that fits in the New Space

If we want to map the concerns of Sci-Fi writers onto the philosophical and technical revolution described above, there are at least two dimensions to consider. The first is the move from the separate mind to interconnected minds. In Figure 1 this is the vertical direction. This was the direction taken in Theodore Sturgeon's 1953 novel 'More than Human' and Paul Melko's 2008 “Singularity's Ring.” The second dimension, horizontal in Figure 1, is the move from one to

many. Even without interconnected minds, movement in this direction bring us face to face with laws of motion for society on a large scale that are distinct from any intentions of the individual members. The classic example is Asimov's Foundation Trilogy in which mathematician Hari Seldon develops a branch of mathematics, known as psychohistory, capable of predicting the movement of a mass society.

Movement in both directions at once leads to the concept of the super organism and other versions of the mass mind. David Alex Lamb, a computer scientist at Queens's University, has compiled a Wikipedia list of works exploring the group mind that show this type of intersubjectivity has long been a major concern in Sci-Fi. Psychologically it is at the other end of a continuum from the lower left, where individuals discover their identities, the primary hook for most Sci-Fi for juveniles.

Authors have considered two types of mass mind, suggested by a third dimension suggested at the top of Figure. In one, exemplified by the Star Trek Borg, individuality is subordinated as the mind becomes part of a super computer running on distributed processors. In the Borg individuals give up their identities or have their identities forcibly subordinated. Resistance is Futile. This model raises the fear of the loss of self. It appears to serve as an emblem of mass society or socialism as well as a vessel for the fear of computers. It is

reminiscent of the Invasion of the Body Snatchers, and what the communists would do to the individualistic American. The dominant biological image is from the insect world.

A completely different case occurs when a mind emerges running on individuals but the individual personalities freedoms are conserved. Olaf Stapledon explored this possibility in his 1930 novel 'Last and First Men'. A sub-species of the Second Men, the Martians, achieve telepathy and an unsuccessful kind of group consciousness. Eons later Stapledon's Fifth Men enjoy highly developed telepathy, so that "the species constituted at any moment, if not strictly a community of friends, at least a vast club or college." (Australian Gutenberg Project edition). This was also a failure. Finally, inconceivably far into the future, Stapledon's Last (Eighteenth) Men achieve a successful group mind:

... each of us is mentally a distinct individual, though his ordinary means of communication with others is "telepathic." But frequently he wakes up to be a group-mind. Apart from this "waking of individuals together," if I may so call it, the group-mind has no existence; for its being is solely the being of the individuals comprehended together.

A recent treatment that confronts the issue just as directly also has Martians. It is the webcomic, Miracle of Science written by Jon Kilgannon and drawn by Mark Sachs that ran from 2002 to 2007. Stapledon and Kilgannon offer a view of the collective as an enhancement of self, and to some extent move beyond simple individualism .

Paul Melko's *Singularity's Ring*, in which children (and other animals) are bioengineered so that they can share thoughts chemically with pod-members does not use telepathy. It does explore the relationship of individual and group, with members separating from the collective and rejoining it and deals with identity development at the individual as well as the group level. The book also includes a group mind that includes much of humanity made possible by quantum computing. This variant resembles the group mind at the end of Sawyer's "Triggers" and perhaps Clarke's "Childhood's End." With the enormous power of multiple minds operating and quantum-speed connections the 'Community' evolves its technological capacity, quickly reaches the 'singularity,' and disappears. Intriguingly, a psychopathic remainder of the Community uses the same technology to control others.

There are a few examples of an emergent phenomenon in which an entity comes into being that is not made up of people. Sawyer's Webmind is such a creature operating on linked computers rather than on human minds. Webmind is an alternative to its more familiar and much more malevolent cousin Skynet. Neither is a computer and the computers they run on are not conscious of their existence. They think without reducing the ability of the individual computers to do their own tasks. Removing individual computers has no noticeable effect, although removing a large section of the network reduces Webmind's

intelligence.

Webmind and Skynet are both emergent individuals and strictly separate consciousness. A significant detail about Sawyer's emergent consciousness in the context of this paper is that Webmind becomes self aware through its encounter with another mind. Sawyer then has Webmind develop into a particularly brilliant and benevolent individual with a Kantian ethical system. The future author of *Webmind and Philosophy* will have no trouble filling chapters on Webmind and Phenomenology, Webmind and ethics, reading and mental development, fear of the other, and a dozen other philosophical topics.

It is much harder to imagine a creature that runs on a network of human being rather than on a network of computers. Ryan Oakley imagined something like this in "Ghost in the Meme." In that story language itself becomes self aware and eventually decides to get rid of people. Unlike Skynet and Webmind, Language as Oakley has imagined it is something ancient that runs in the background on humans. Like Skynet, however, Language turns out to be malevolent.

There are also examples of something like hive minds without consciousness. Peter Watts' *Blindsight* provides a fascinating example, as well as the possibility of an individual intelligence that is not self-conscious in the familiar sense. The short story *Solitaire*, by Karl Schroeder presents a similar case.

Final comments

Other minds have always been with us -- it is the explicit presence of these others as a necessary part of theory in many fields that seems to be new in the 20th century. Since Sci-Fi is a literature in which science and philosophy are naturalized for an audience with a taste for speculative understanding, I expected to find numerous Sci-Fi stories exploring the implications of making interacting minds the basic unit of analysis. I found no shortage of stories that explore telepathy and group minds, but I have found very few that that work in just this area.

One possible explanation for the apparent absence of this theme in Sci-Fi is that narrative supports simulation by allowing us to build complex simulations out of essentially standard components. The standard components are individuals as we know them. In much Sci-Fi as in much juvenile literature, many readers are engaged in a background projects of individuation, separation, or self creation. The underlying, and mythic, problem is separating the individual from the community (often so that the individual can return later as hero and receive the appreciation that the individual needs while taking up his or her role in maintaining the community). Our literature has a deep structure built around creating and liberating the individual. It may be difficult to build a

salable narrative around a view of individuation that is rooted in immersion in rather than flight from community.

An alternative explanation is that Sci-Fi stories deal with the themes, not as theory, but as elements of story. Butte and Zunshine have demonstrated in different ways that the conventional novel began to grapple with radical intersubjectivity and Theory of Mind even before social or cognitive science did. This raises the possibility that the themes I have been looking for are in fact present, not as story devices, but as elements of characterization. Mary Shelly's monster, for example, suffers because he is denied ordinary human contact. Ideas that seem new to economists and psychologists may have long been common currency for writers and readers.

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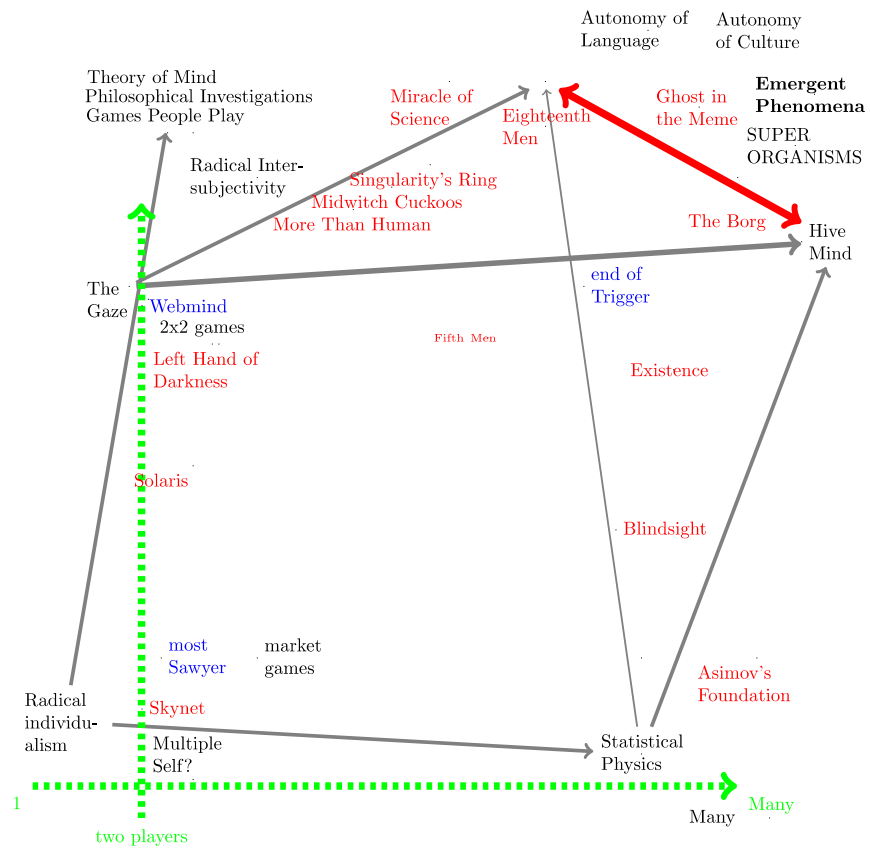


Figure 1: Consciousness Space with Sci-Fi Landmarks