

Reading Fictional Worlds of Technology with Ursula Franklin: *Fail Safe* and Constructed Realities

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Abstract

This working paper takes up Ursula Franklin's concept of *constructed reality*, mentioned in her Massey Lectures, and expands upon her engagements with themes of power and technology as represented in literature, film, and other imaginative works. We consider what Ursula Franklin might have said about the power of fiction to shape our understanding of technology as practice, and take as our case study the 1962 novel and 1964 film *Fail Safe*, a Cold War-era dramatization of technological systems that threaten to cause an accidental nuclear war between the U.S.A. and the U.S.S.R. We begin by analyzing Franklin's (mostly passing) references to works of fiction, then turn to a close reading of *Fail Safe* through the lens of Franklin's ideas, and conclude with a discussion of Cold War (techno)science-fiction as it relates to Franklin's concerns about technology and militarism.

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Nuclear weaponry depends, more than any weaponry in the past, it seems, upon structures of information and communication, structures of language, including non-vocalizable language, structures of codes and graphic decoding. But the phenomenon is fabulously textual also to the extent that, for the moment, a nuclear war has not taken place: one can only talk and write about it. (Derrida, 1984, p. 23)

What would Ursula Franklin, an avowed pacifist and antiwar activist who lived through the Cold War, have said to Jacques Derrida's paradoxical description of nuclear conflict? Franklin was primarily concerned with technology in the real world, not the "fabulously textual" world of imagined technologies and their effects, where Derrida places the as-yet unreal experience of full-scale nuclear conflict—an example of what Gabriele Schwab (2020) has called the "trope of unrepresentability" (p. 48). In this article we revisit one of Franklin's long-standing concerns, the threat of nuclear war, in relation to her writing and through the lens of one of the Cold War's most pointed and resonant fictions: Eugene Burdick and Harvey Wheeler's 1962 bestselling novel *Fail Safe* and its 1964 film adaptation, directed by Sydney Lumet, which explores a scenario for accidental nuclear war between the United States and the Soviet Union.¹ *Fail Safe* is intensely concerned with the dependencies Derrida mentions above—structures of "information and communication, ... language, ... codes and graphic decoding"—and also provides a venue for developing ideas that Franklin explored in her work on technology and its social effects.

However, our approach here also departs from Franklin's, in the spirit of this collection, by emphasizing what she tended to mention only in passing: the power of fictional and imaginative works to shape our relationships with technology, and the potential for creative works to think through the kinds of problems Franklin cared about. In other words, we consider fictions such as *Fail Safe* not primarily as entertainment or escape, nor as the mythologizing of technology (i.e. mystification), but as a constitutive element of what Franklin (2004) broadly conceptualized as "technology as practice" (p. 2 and *passim*).

Franklin was a scientist and activist, not a literary scholar, and unlike Derrida she tended not to use analysis of fiction as a vehicle for philosophical thought or social commentary. Her 1989 Massey Lectures were called *The Real World of Technology* for a reason; her

¹ The novel includes a hyphen in its title, but the 1964 film does not, nor does the 2000 remake for television. We have regularized the title as *Fail Safe* throughout to avoid confusion, and mention in context when we are referring to the novel or film specifically. We have omitted discussion of the 2000 television remake in the present working paper, but plan to address it in a future article-length version.

goal was to dispel myths about technology, not to explore their fictionalization in popular culture. Unsurprisingly, then, fiction and the arts tend to receive passing mention at most in her Massey Lectures (2004): lines from a Kenneth Boulding poem close out the first lecture to cap off a point about models (p. 26); Dostoevsky and Dickens appear fleetingly in the definition of constructed reality (p. 29); a Ben Wicks cartoon briefly illustrates a point about reciprocity (pp. 42–43); William Gibson’s landmark cyberpunk novel *Neuromancer* (1984) shows up in an endnote as the origin of the term *cyberspace* (p. 194, n. 8); and chapter 8 quotes a 1960’s Christmas song, giving a lyrical turn to a point about global time zones (p. 149).² More substantially, feminist poet Helen Potrebenko’s “Another Silly Typing Error” closes out the fifth chapter, quoted in full (Franklin, 2004, pp. 111–112).³

Even though Franklin’s oeuvre may not seem the most obvious place to discuss fictional representations of technology, our aim here is to develop the concept of what she termed *constructed reality* in relation to nuclear culture and its fictions. With a nod to her predecessor C.B. MacPherson’s 1964 lectures on democracy, Franklin (2004) began her own first Massey Lecture with the point that “technology, like democracy, includes ideas *and* practices; it includes myths *and* various models of reality” (p. 2, emphasis added). In her second chapter Franklin (2004) goes on to nuance her understanding of the real with a description of four “levels of reality,” which creates space for fiction (pp. 28–30):

- *vernacular reality* (“immediate experience ... bread and butter, soup, work, clothing and shelter, the reality of everyday life”);
- *extended reality* (“that body of knowledge ... which is based on the experience of others” as well as artifacts from other places and times);
- *constructed (or reconstructed) reality* (“what comes to us through works of fiction [and] advertising and propaganda”);
- and *projected reality* (“the vernacular reality of the future”).

The third term in this set, *constructed reality*, is particularly interesting because it brings Franklin into near orbit with the humanities, as the group of disciplines that study the imaginative and creative dimensions of human life. Constructed reality is also the level where Derrida places nuclear discourse, considering that full-scale nuclear war can only be imagined, not understood as “immediate experience” (Franklin, 2004, p. 28); or, as

² The latter two examples appear in chapters Franklin added for the 1999 revised and expanded edition, cited in this article as Franklin, 2004.

³ The poem appears to have been an addition of Franklin’s when she prepared her Massey lectures for publication; she did not read or mention the poem in the lectures themselves (audio recordings are available at <https://www.cbc.ca/radio/ideas/the-1989-cbc-massey-lectures-the-real-world-of-technology-1.2946845>).

Derrida (1984) puts it, nuclear war “can only be the signified referent, never the real referent (present or past) of a discourse or text” (p. 23).

What, then, might Franklin have said if she had expanded upon the concept of constructed reality, and upon the power of fiction, advertising, and propaganda to shape our relationships with technology? As her use of the Potrebenco poem suggests, she was anything but hostile or indifferent to literature, art, metaphor, and works of the imagination as means for thinking through questions about technology. For example, in her 1993 “Letter to a Graduate Student,” Franklin (2006) speaks of “science fiction and utopian writing” as providing “a space where the social and scientific imagination [can] meet and play” (p. 341).⁴

Fail Safe (novel and film) may not evoke science fiction as readily as, say, the works of Isaac Asimov or Charlie Jane Anders, but scholarship on it and other contemporary works about nuclear conflict demonstrates the importance of fiction for both explaining and questioning the logic of nuclear weapons (Dukes, 2015; Seed, 2013 & 1994; Weart, 2012; Maus, 2011; Hunter, 2003; Cunningham, 2001; Mannix, 1992). The 1964 film version of *Fail Safe* was motivated in part by the disarmament movement of the early 1960s (Weart, 2012, p. 160), which aligns it with much of Franklin’s writing on Cold War militarism. As Franklin argued in her 1984 talk “What of the Citizen?” (2006), it would be a mistake to accept the inevitability of nuclear weapons, or what she calls the “virgin birth” metaphor, which holds “that the 50,000 or so that exist around the world were catapulted onto the land by some evil force that is now threatening the universe” (p. 93); rather, as Franklin and *Fail Safe* both emphasize, “Each and every one of these weapons was designed, ordered, tested, paid for, commissioned, and deployed” (p. 93). In what follows, we consider the role of *Fail Safe* as a fictional work in shaping the kind of awareness that Franklin is calling for here. Using Franklin’s works, we are able to see her ideas reflected in *Fail Safe* and expand on her conception of agency and pseudorealities as they manifest in the fictional and real worlds of technology.

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Fail Safe revolves around the imminent threat of nuclear war, as a computer error at the U.S. Strategic Air Command (SAC) headquarters in Omaha accidentally sends a group of American bombers past their Fail Safe point and toward the Soviet Union to attack. The plot follows the American response to their own accidental attack mission, as the

⁴ Franklin (2006) references a chapter by her friend Margaret Lowe Benston (1989), which opens its discussion of gender and neutrality in technological systems by describing Marge Piercy’s 1976 feminist utopian novel, *Woman on the Edge of Time*. Franklin notes that Benston “had a great deal of interest in science fiction and in utopias, particularly the feminist ones,” and taught several courses on them (p. 341).

consequences unfold and the options narrow for characters in bunkers and war rooms in Omaha, the Pentagon, and the White House. Khrushchev and Soviet military officers are present only as (translated) voices on telephone lines as the Americans try to reverse the error and persuade the Soviets not to retaliate with a full nuclear counter-strike.

The mediation of events, social structures, and personal relationships is a central motif in both the novel and 1962 film, as characters communicate anxiously with each other via telephone lines (including an early depiction of the hotline between the Kremlin and the White House), human translators, intercoms in aircraft cockpits, and (mentioned repeatedly in the novel) through body language around conference tables and eye contact over oxygen masks. The human characters also communicate with each other and with computer systems via screens that show a real-time tactical display, with planes and missiles as glowing dots on abstract maps (Figure 1), in an early example of what Franklin (2004) would later identify as new media's capacity to construct and reconstruct new realities—or pseudorealities—that provide spectators a sense of “being there” (p. 34).



Figure 1. Knapp and Raskob in the SAC war room (Lumet, 1964, 1:24:28).

The film version in particular, by virtue of its medium, maintains a persistent sense of fear throughout, heightened and intensified through harsh lighting, contrasted shadows, and absence of musical score. The depiction of the principal characters, ranging from the men in the SAC to the American president and his translator in his private bunker, immerses

audiences in a stressful situation that results from a technological failure.⁵ As an audience watching the film on our screens, which in turn depict the characters peering anxiously at tactical screens of their own, we view the possibility of nuclear annihilation along with the men in the SAC as they watch graphical representations of aircraft flying, shooting, and exploding. Unlike many action films and Cold War thrillers of the present, *Fail Safe's* action is painfully calm and mechanical. The bombing of planes and the threat of a third world war take place in a bureaucratic setting with closed doors, worried faces, and an abundance of screens. The actual violence of warfare, such as the deaths of airmen and the bombing of cities, happens offscreen for the audiences and principal characters alike—it cannot be seen, so it must be imagined (Figure 2).



Figure 2. The American President (right) and his translator on the hotline (Lumet, 1964, 1:00:00).

In her Massey lectures, Franklin discusses how the real world of technology involves an inherent trust in machines and systems. *Fail Safe* depicts this trust—and the forms of its resulting crisis and breakdown—with remarkable variety and nuance. The central plot of *Fail Safe* is essentially a straight line linking causes and effects, structured by the Vindicator (a fictional aircraft) bomber group's inexorable flight toward its target, Moscow. But as an essay on the real world of Cold War technology, *Fail Safe's* most telling

⁵ All of the principal characters are men, and the film does not come close to passing the Bechdel Test. People of colour are also absent from the film, even though the U.S. armed forces had officially desegregated in 1948. Nonetheless *Fail Safe* presents some interesting subtexts about race and gender, which we plan to discuss in an expanded version of this paper.

moments happen in its digressions, in (seemingly) non-essential scenes where (seemingly) peripheral characters comment on the systems and worlds they occupy (Figure 3).



Figure 3. The Pentagon war room. Note the symmetry, with all eyes on the Secretary of Defense at the apex of the table except for the dissenter, General Black, standing at the far right of the frame (Lumet, 1964, 0:50:49).

For example, consider one of the film's early scenes, where Congressman Raskob tours the war room at SAC headquarters in Omaha with the commander, General Bogan, his second, Colonel Cascio, and the civilian industrialist, Knapp, who built the war room's computer systems. Raskob functions as avatar for the audience for much of the scene, taking in exposition as the other characters explain the war room's surveillance and tactical systems, but he then pointedly questions the nature of the system, specifically the minimizing of human agency. Bogan, whose own judgment becomes crucial later in the plot, defends the system by saying "we have checks on everything, Mister Raskob, checks and counter-checks." When Raskob responds with the natural question "But who checks the checker? Where's the end of the line, General? Who's got the responsibility?", the film gives us perhaps its only comic moment, as General Bogan and the civilian contractor Knapp respond simultaneously with contradictory answers—"the President" (Bogan) and "no-one" (Knapp)—and then glance disconcertedly at each other (Figure 4).



Figure 4. Bogan and Knapp after giving contradictory answers to Raskob's question, "Who checks the checkers? Who is responsible?" (Lumet, 1964, 0:22:13).

If Bogan and Knapp each represent the first two terms in what Eisenhower famously called the "military-industrial complex" in his 1961 farewell address, *Fail Safe* also dramatizes the third term, "academic," which supposedly appeared in the speech's original formulation of a "military-industrial-academic complex" which was overtaking American policy.⁶ The academic role is supplied by the character Walter Grotteschele (played by Walter Matthau at his least comedic), a political scientist turned military advisor who voices the doctrine that nuclear war against the Soviets is justifiable and winnable via pre-emptive strike. The film in particular, which focuses much less than the book on Grotteschele's interiority and personal history, constructs his character more visually and symbolically: a dark suit in dark rooms, looming over conference tables and spinning out his own constructed reality of pre-emptive war, acceptable losses, and post-apocalyptic survivability. Grotteschele is the spectre at modernity's banquet, personifying death and its bureaucratization.

⁶ Eisenhower's full farewell address can be viewed here: <https://www.youtube.com/watch?v=OyBNmecVtdU>. The significance of the word "academic," which supposedly appeared in a draft of Eisenhower's address but was dropped from the final version, is discussed at length by Henry Giroux (2007, pp. 13–16 and *passim*). Giroux does not cite archival evidence for this claim, only a book review by Anatol Lieven (2005) which itself does not give a citation, though this does not necessarily invalidate their larger points.



Figure 5. Groteschele (center foreground, played by Walter Matthau) ponders some consequences. (Lumet, 1964, 1:32:00).

One could imagine Franklin herself as a character in some of these scenes with debates over technology, responsibility, and the morality of war. Indeed, her analogy of the nuclear arms race as a neighbourhood street made unlivable by too many guard dogs (2006, pp. 104–5) would have been a fitting challenge to Groteschele’s rhetoric of escalation. In any case, Franklin’s persistent attention to the roles of human agents within technological systems prompts us to regard characters in *Fail Safe* not merely as stand-ins for historical figures (such as Herman Kahn) or mouthpieces for philosophical positions. Despite their differing attitudes, the characters nonetheless comply with technological systems and accept them, whether regretfully, willingly, or otherwise. Do they comply for the sake of progressing the plot of the story, or do they comply because they maintain trust in the technologies? Whether it is trust or fear, or just plain unthinking acceptance, the diverse range of attitudes toward technology has more to do with power and less to do with actual machinery.

Just as Franklin (2004) emphasizes that “technology is not the sum of the artifacts, of the wheels and gears, of the rails and electronic transmitters” (p. 2), so does *Fail Safe* resist the fictional and cinematic convention of embodying technology in a single device or human advocate. Unlike *Fail Safe*’s spiritual sequel *WarGames* (1983), there is no single mainframe computer which can occupy the screen, be given a name, or personified with a voice, like *WarGames*’s WOPR computer (War Operation Plan Response, pronounced

like the hamburger). *Fail Safe* has no antagonist in the conventional sense; as Congressman Raskob puts it in his Cassandra-like moment of clarity, “no one’s responsible” (Lumet, 1964, 0:23:25). The namelessness of *Fail Safe*’s computer system(s) makes it (or them) all the more visible as systems, and as technologies of practices in Franklin’s (2004) sense of the concept, as not only material components but also “organization, procedures, symbols, new words, equations, and most of all, a mindset” (p. 3). *Fail Safe* enables us to explore what Ursula Franklin would say about constructed reality in relation to power, war, and fiction.

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The question that nearly all of the principal characters in *Fail Safe* ask themselves and each other, as they come to understand the systemic nature of their tragedy, is *how could all this have happened differently?* The power of fiction, as distinct from science, is not so much to discover answers as to discover questions we didn’t know we needed to ask. Science fiction is one of the genres most often associated with a literary mode of social questioning that leads outward from its constructed realities and back into vernacular reality, to use Franklin’s categories.⁷

As we have seen in our application of Franklin’s ideas to *Fail Safe*, the novel and film can reasonably be called works of technoscience fiction, or fictions of the military-industrial(-academic) complex, along with *Dr. Strangelove*, *WarGames*, and much of the James Bond and *Mission: Impossible* franchises.⁸ Perhaps the most apt term for *Fail Safe* in this context would be *speculative fiction*, especially as it has been used by Margaret Atwood (2011) and others to denote imagined sociotechnical scenarios that are just within reach, or in whose grasp we may soon find ourselves—less *Star Trek* and more *Black Mirror*. Fictions set in future centuries or galaxies far, far away can sometimes seem comfortably distant, as allegories meant for other people, but *Fail Safe* was uncomfortably close to reality for audiences in the 1960s. If it feels uncomfortably close today it is because *Fail Safe* taps into the same enduring dynamics of power, technology, and humanity that Franklin identified so clearly in her work.⁹

⁷ We see examples of such social questioning in the science fiction and science fantasy works of authors such as Ursula K. Le Guin, Octavia Butler, Judith Merril, Charlie Jane Anders, N.K. Jemisin, and Cory Doctorow. Science-based fiction is often a valuable source of social commentary and questioning, and looking back on older works can often lead to interesting insights into our present day (Anderson, 2020; Jameson, 2005).

⁸ On the subgenre of fiction and film dealing with accidental nuclear war, see Dukes, 2015; Weart, 2012, pp. 158–162; and Seed, 1994.

⁹ On *Fail Safe*’s continuing relevance, see K. Austin Collins’s *Vanity Fair* article (2020) on rewatching the film during the COVID-19 pandemic.

One important aspect of Franklin's ideas that *Fail Safe* brings into focus is that Franklin's concept of constructed (and reconstructed) realities *interacts* with the vernacular, altering our sense of what is real and imaginable. It is the interaction between the categories that matters, and this is particularly true when looking at examples of science fiction narratives that focus on what seems so real and immediate in our social and political lives. As Blackford (2017) points out, "the power of the atomic bomb forced the public to take science more seriously, [and] contributed to a growing pessimism about the directions science was taking [which] fed back into the content of science fiction" (p. 31), setting up an ongoing cycle of mutual interaction between vernacular and constructed reality. The fear of nuclear war has often been represented through the civilians who are helpless to control it (e.g. films such as *The Day After* and *Threads*), but *Fail Safe* works in a different fictional mode, showing the men—only men—in secure rooms who decide the fate of those civilians and their own pilots.

Although the technology depicted in the film is real enough to classify it as hard science fiction, that technology was either very new or yet to be developed in 1964, which places it in the category of the hypothetical or "unreal" machine, as described in Rebecca Lemov's paper "Hypothetical Machines': The Science Fiction Dreams of Cold War Social Science" (2010):

The unreal machine needed to combine a transparent reality (activated via viewing techniques), a qualified objectivity (holding subjective data within a putatively known situation), and a capacity to trigger and capture something called *flow* (that experiential matrix between subject and situation, called life). (p. 407, italics in original)

In *Fail Safe*, we see the threat of nuclear war increased by an error made by an "unreal machine," seen only through "viewing techniques" by men who only think they understand the situation affecting others who have no understanding of the situation. The resulting situation places men in rooms looking at screens making decisions for their subjects—their pilots who are under their control and have to follow their orders no matter what—that ultimately end lives, culminating in the nuclear bombing of Moscow and New York City. *Fail Safe*, in this context, is a hard science fiction narrative that imagines the potential destruction possible when advancing military technologies fail, but like Franklin it asks its audience to reconsider what (and who) comprises any given technology.

Fail Safe's central motif of military commanders anxiously watching their screens, making life-and-death decisions about people represented as glowing dots and symbols, points to larger ideas about fiction's relation to the real, and to the ethics of constructed realities.

For example, in one of the film's most telling moments (at 1:07), in terms of its own reflections on mediation, General Bogan reprimands the men in the SAC war room who cheer when the tactical display shows Soviet fighters managing to down some of the American bombers. As Bogan reminds both his men and the film's audience, both of whom have been staring at symbols converging on the tactical screen, "this isn't some damned football game—remember that!" (Lumet, 1964, 1:07:10). It is a moment where a pseudoreality—the tactical screen—obscures the real-world consequences of what is happening. What happens to the men's sense of reality and ethics in this moment could itself be considered a kind of invasion, as Franklin (2004) suggests in her discussion of pseudorealities,

Life and work have been restaged by external forces. The literature of television and advertising is testimony to that, but more so is the practice of both. The reconstructed world of images has taken over much of our vernacular reality, like an occupation force of immense power. (p. 37)

In this light, it is all the more notable that at least one character, General Bogan, does not forget himself in this moment, and remembers what the glowing dots actually represent.



Figure 6. The men in the SAC war room cheer the downing of their own plane before General Bogan chastises them (Lumet, 1964, 1:07:08).

The relationship between vernacular and constructed reality need not always be seen in such militaristic terms, as though each were competing for the same territory in human consciousness. We might instead regard Cold War fictions as the *means* by which civilians channel their fear and engage with the idea of nuclear war. Whether it is the authors, actors, or artists creating works of science fiction to express their fear—and their power

over that fear—or readers and viewers consuming creative works to escape or process their feelings, *Fail Safe* and stories like it restage civilian life in the context of military and political systems where the nature of agency is open to question.

Science fiction as a genre has commonly been associated with futuristic ideas (and, in some cases, ideals) about where humanity will be in ten, twenty, or hundreds of years. As noted above, science fiction became possible only once humanity had discovered the idea of a future that differs from the past, for better or for worse (Blackford, 2017, p. 8). But that act of discovery happens in our present, as do its consequences; as Abbot (2007) claims, science fiction is primarily “a format for serious and sometimes outrageous reflections about the past and present” (p. 122). After all, how else can we predict the future but by reflecting on our past and present constructions of reality? The way constructed and vernacular realities interact—even compete—with each other is what matters most when discussing fiction in the context of science and technology studies, media studies, antiwar activism, and the other fields that Franklin cared about.

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