

Scenes of Writing

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This paper looks at how speculative fiction can provide a design space to explore the effects of technologies for critical interpretation. Using *Trina: A Design Fiction* as a case study, the paper builds upon Lucy Suchman's study into how technology teams design "the human" in tandem with the computer, asking can there be a model of "the human" suited to technologies for subjective judgment? Looking closely at the characters in *Trina*, we see individuals whose capacities, specificities, social histories, and individual biographies inform the degree of agency that each has with the writing technologies that define their work and worth. Accounts of writers and their inscription technologies found in recent literature from media and literary studies further demonstrate the contingent nature of textual composition. Rather than look for a generalized human-computer fit, the paper argues for the design of story-worlds in which specific humans, non-humans, and networks are designed in one and the same gesture, revealing the productive misalignments and contested boundaries that define their interactions.

design fiction; human-computer interaction; writing technologies; Digital Humanities

1 Introduction

When I set out to create a design fiction in order to imagine future technologies for critical interpretation, my choice of genre was driven by the need to design things that don't yet exist and the activities and worlds these new things might make possible. In particular, I was interested in what happens when digital tools for reading and writing are conceived to support literary interpretation informed by critical theory. I had already been working on that question for years in collaboration with literary critics and linguists through applied projects such as the electronicbookreview.com and the Austrian Academy Corpus. But I wanted to be more ambitious than current budgets and technologies would allow. I was interested in the n-dimensionality of interpretation (McGann, 2001), the design of visual epistemologies (Drucker, 2014), and the subjectivities and ambiguities central to feminist and literary theories. I wanted to provoke new thinking and questions about what might be if these theories were the starting point for the design



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of interpretative tools for the Digital Humanities. I wanted to see if one could design software for reading and writing that embodied and enabled critical thinking.

Thus I created *Trina, A Design Fiction*, a story told through sixty images plus narration that could be realized as a graphic novel or performed as a 3-part *PechaKucha* (1 part = 20 slides, 20 seconds each), co-written with author Janet Sarbanes. The design work went beyond building a new digital tool; I had to develop an entire story world, the scenes of reading and writing referred to in this paper's title. Creating a narrative-based design fiction — an actual story with words and pictures as opposed to the objects or installations — necessitated that I design situated actions *in toto*: in a specific place and time with specific humans and specific things along with a network of specific forces, all of which pushed and pulled on the action as it unfolded throughout the story. This required creating an assemblage of humans and nonhumans in an iterative, mutually-defining cycle. From a speculative design perspective, it turned out to be the borderlands — the interactions and intra-actions amongst this assemblage — that gave the story its shape.

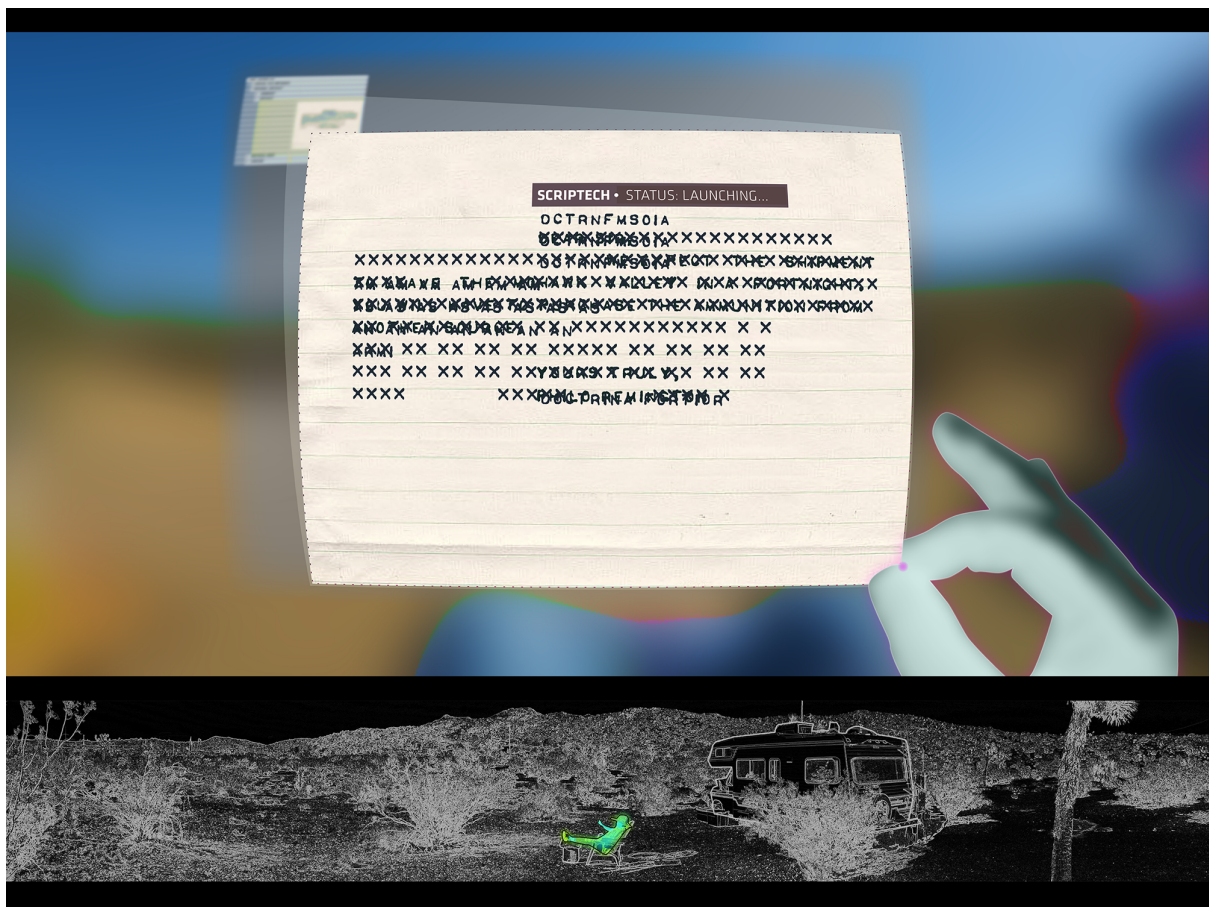


Figure 1. A screen/panel from *Trina: A Design Fiction*. Each screen/panel captures a single moment from two perspectives: *Trina's* first-person view on top and a third-person panorama on the bottom with *Trina* at the center. Shown here: *Trina* selecting the text of the “Doctrina Letter” whose elusive meaning and provenance drive the story.

The *Trina* project — particularly the research that informed my design decisions — also allowed me to investigate the fit of technology development best practices, such as user-centered design, for the creation of software for critical interpretation. It forced the question: can the act of writing be framed as a kind of use? Informed by Lucy Suchman's research into how designing human-computer interactions involves configuring the “human” in tandem with the “computer,” the project investigates what model of “the human” is best suited to the design of technologies for subjective judgment. (Suchman, 2006) Thus the *Trina* project became an experiment in prototyping a complicated, messy, and situated subject in tandem with her digital counterpart. Informed by theories of distributed agency, the story demonstrates how software design can only account for so

much. As we shall see, textual composition is contingent upon complex interactions amongst writing technologies, language, the body, and social and political forces.

2 Messy subjects: Trina, Ida, and Doctrina

Trina envisions the mixed reality world of a literary scholar who works alone in an RV in the desert, sometime in the future. Through Trina’s eyes we see the software-mediated daily reality within which she must interpret a cryptic, typewritten document (the Doctrina Letter) as part of a text analysis H.I.T. (human intelligence task) she takes on to make ends meet. But it isn’t until she gets into the gendered history of the typewriter and assumes the hands of the typist that she is able to decipher the document’s hidden meaning. And although Trina herself works with devices implanted in her eyes and her hands, it is her embodied relationship with writing that renders her a cyborg.

Trina’s implants allow her to interact with a virtual environment. Her digital eyes and fingers are committed to her employer, Humanitas Inc., a service in which analysts decipher documents mainly for military and government intelligence in the War on Terror. In the backstory for *Trina*, Humanitas Inc. is conceived as an employment agency for freelance digital humanities scholars who are recruited for their skills in computational text analysis. As a labor pool, they are cheap and abundant, due to the demise of Humanities departments in universities across the western world. One of the benefits of working for Humanitas Inc. is that Trina gets access to many other areas of the information network, access she used to get through her University.

Trina works with a few different kinds of “speculative software”—what Matthew Fuller calls “software whose work is partly to reflexively investigate itself as software. Software as science fiction, as mutant epistemology.” (Fuller, 2006, p.30) For example, Trina does her work for Humanitas Inc. within Analyssist, an enterprise software platform. Analyssist has a variety of plug-ins, tools with which to perform various computational textual forensics to determine the provenance of digital documents. Analyssist is a proprietary, utilitarian environment of categories, forms, and fields that is hostile to ambiguity. As Trina says in the story: with Analyssist, “empty boxes are better than educated guesses.” (Figure 2.)

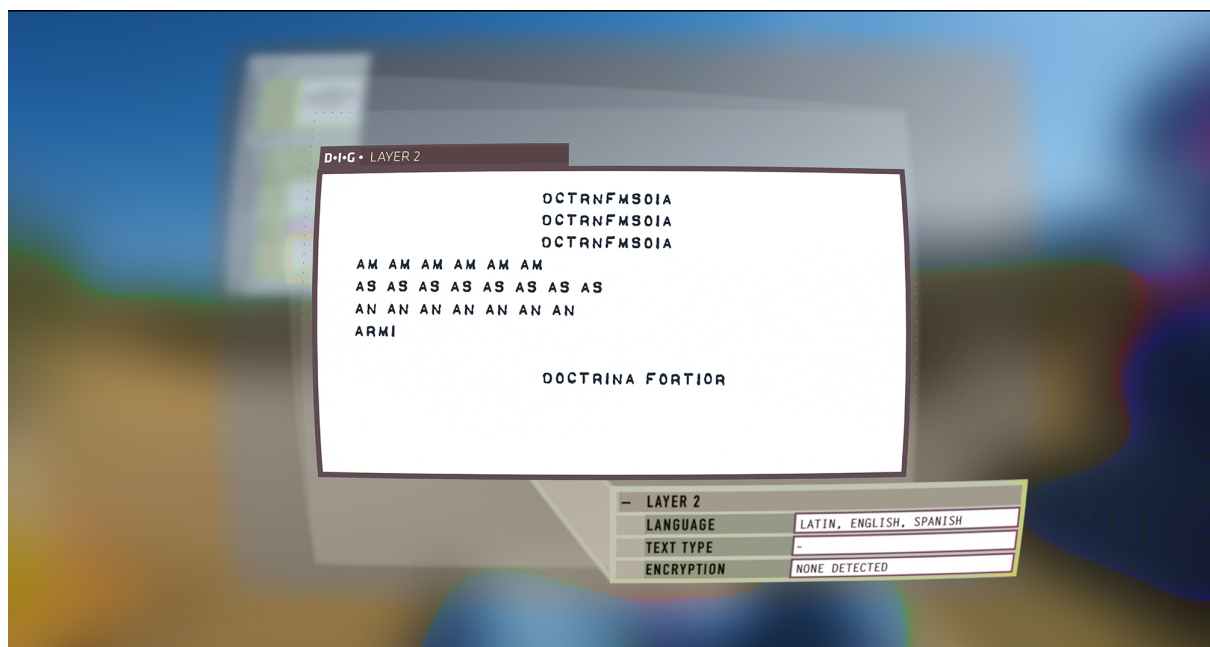


Figure 2. Detail from *Trina: A Design Fiction* showing the telescoping form fields of Analyssist as seen through Trina’s eyes.

During her free time, Trina wanders The Commons, an open access 3-dimensional landscape of documents distributed across a horizontal plane — like the library, it is a scholar’s playground. The spatial distribution of the documents is based upon a mapping of meaningful relationships between

the visible texts and the reading subject. Multiple interpretations co-exist simultaneously; a reader can follow an unending path of associations. (Figure 3.) It is in *The Commons* that Trina works with a network of hobbyists and scholars to generate potential readings of the Doctrina Letter.

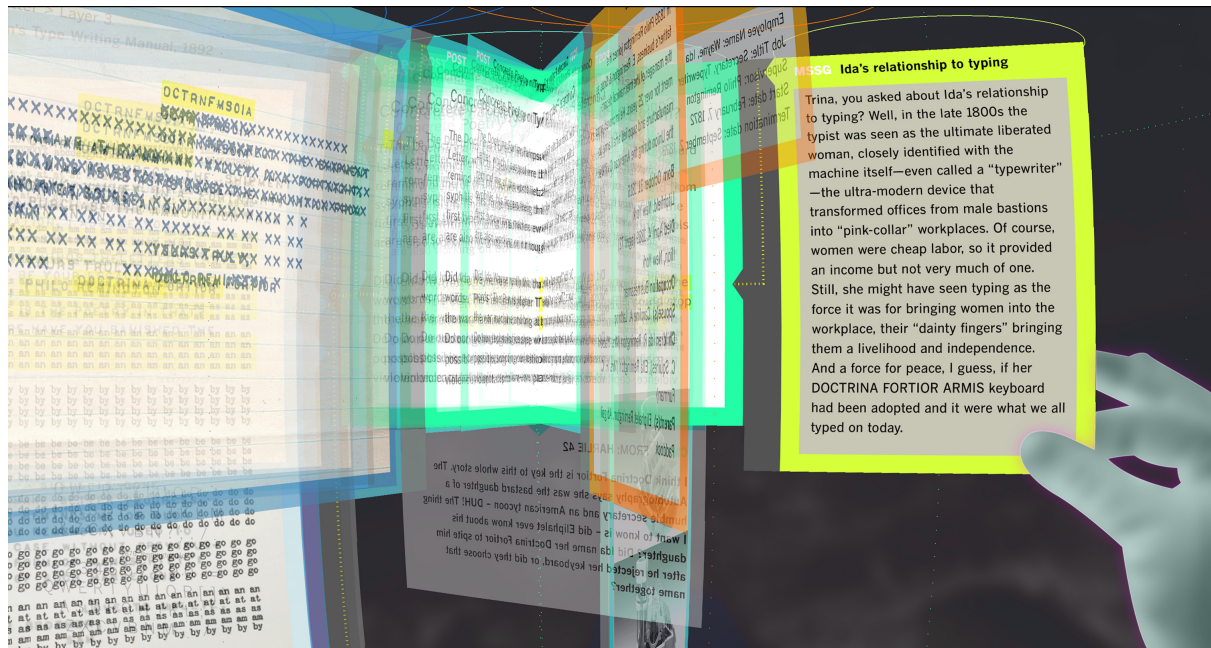


Figure 3. Detail from *Trina: A Design Fiction*. Annotations, responses, and interpretations of a document in *The Commons* as seen through Trina's eyes.

The assignment at the heart of the story is different from those that Trina usually gets: the Doctrina Letter is a historical print artifact, rather than a contemporary digital communication. It is a collector's item thought to be written on an early code-generating typewriter. (Figure 1.) Using her digital tools, Trina separates out the document's three layers and through some detective work determines that the page was composed in one of two places and times. It may have been created in 1874 by a secretary named Ida Wayne who worked for the rifle and typewriter manufacturer, E. Remington & Sons. Or it may have been typed in the 1920s by a concrete poet named Doctrina Fortior who may be Ida Wayne's bastard child. The provenance is unclear and the meaning of the document is open to numerous, conflicting, interpretations. Trina follows Ida and Doctrina's story within a story. The fictional characters are interwoven into the real history of the typewriter.

In the story, Ida Wayne is a single woman who in the late 1800s was the secretary of Philo Remington, then in charge of the firearms division of E. Remington & Sons, in upstate New York. Ida may be pregnant with the child of Elphalet, Philo's bookish younger brother who is in charge of the mechanical type writing machine, which is in the early prototyping phase and will go on to become the Remington Standard Type Writer. Christopher Sholes has just introduced what would become the QWERTY keyboard to the machinists at Remington & Sons.

Like Sholes's real life daughter, and later Mark Twain's, Ida is the young woman who works the typewriting machine for the men. She is one of the first Type Writers as such women were called. But Ida has ideas of her own and sees in the typewriter a chance to inscribe thoughts into people's minds as they press the keys. Ida believes in the aphorism "The Pen is Mightier than the Sword," and sees the keyboard as a chance to spread her pacifist ideals. Trina speculates that Ida convinced Elphalet to create a prototype typewriter with the letters from the Latin version of this aphorism as the top row of keys (DOCTRINA FORTIOR ARMIS = DCTRNFMISOIA). If so, and if Ida used the prototype to type the artifact, the question for Trina is: what do the layered texts mean? Was Ida simply practicing with the keys? Or was she composing some kind of poetry or secret message? And why does what appears to be gibberish so closely resemble typing exercises that were published later in the *Type Writing Manual* of the Christian Women's School, where Ida was next employed?

Ida's class and gender gave her a limited ability to influence the design of a new writing technology. Trina ponders: since Ida's attempt to alter the machine itself failed, did she instead try to alter its use? Did she compose typing manuals to affect the minds of the working class women whom she taught for the remainder of her life?

We know less about Doctrina Fortior, who may also be the author of the document, some thirty years later. In the story, the only thing we know about Doctrina is that she was a concrete poet who lived on the Left Bank and her poetry disappeared long ago. In *The Autobiography of Alice B. Toklas*, Gertrude Stein (in the *Trina* story) refers to her as having done "funny things with type. Everyone thought this is what writing should look like in the machine age." If Doctrina is the author of the artifact, it could be that she possessed her mother's prototype typewriter and used it to create her poetry. The text could then be read as a sly commentary on the embodied practice of learning how to type, a Modernist exploration of language. An alternative reading proposes that the piece is a literary prank that Doctrina created to comment upon her mother's predicament — "x-ing" out the secretary, the tycoon, and the typewriting manual on the same page.

As the story proceeds, Trina shifts between software environments, forced to make difficult choices that affect her ability to keep her job and her access to The Commons. She is bound, through her eyes and fingers, to her employer, much like Ida before her. Thus Trina's final act of defiance is to reprogram her fingers to Ida's keyboard, forcing herself to work only with the letters DCTRNFMSSOIA as she communicates with one of Humanitas Inc.'s AI agents. Rather than continue to interpret texts in support of the War on Terror, Trina decouples from Humanitas Inc. and in the process exiles herself from The Commons. Trina and Ida each make life-changing choices by actively resisting the efficiency-maximizing designs of their writing technologies.

3 Writers and users

In Paul Auster's novel, *Ghosts*, part of *The New York Trilogy*, Blue is hired by White to spy on Black. Blue surveils Black using old-fashioned spy techniques, tailing him through the city from time to time but mostly watching him through binoculars from an apartment across the street. For hours on end — which turn into days and then months — Blue watches as Black sits at a desk writing. Black could be composing a hit list or a sonnet or a memo to Human Resources but through direct observation, Blue gets "nothing." Blue struggles with what to write in his weekly reports. For Blue, watching someone write is not only inscrutable, it's boring.

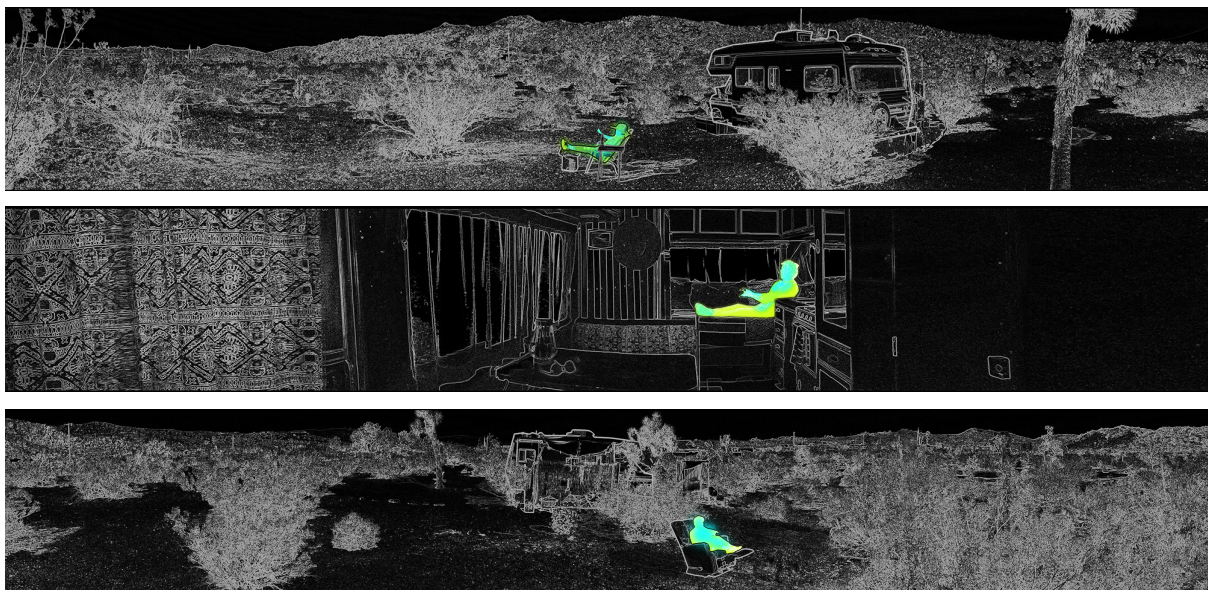


Figure 4. Details from *Trina: A Design Fiction*. Panoramas show Trina writing in her favorite spots: sitting outside her RV in the morning (top); sitting on her daybed inside the RV (middle); and in her recliner outside the RV at dusk (bottom).

But many are fascinated by how writers write, perhaps due to this inscrutability, and over the years there have been innumerable essays, columns, and interviews in which famous authors talk about how they compose their texts. For the designer of writing technologies, these stories are rich first-person accounts but they are as varied as the authors themselves. Media archeologist Matthew Kirschenbaum brings a media theoretical perspective to *Track Changes, A Literary History of Word Processing*, (Kirschenbaum, 2016) a study launched by his curiosity about the first literary work written with a word processor. Kirschenbaum compiles stories gathered through published accounts and interviews he conducted himself. Throughout, the word processor is understood as part of a medial process, one of many different writing technologies that are configured by writers as part of their own individual working processes. Kirschenbaum seeks to understand the relationship between the technologies and the writing in an attempt to get at the materiality of word processing and the impact of the writing technology on the writing itself. “The reality, of course, is that every writer’s individual habits and practices are deeply personal and idiosyncratic, and it is difficult, if not impossible, to extract patterns in support of generalizable conclusions — beyond the intense intimacy and commitment that the act of writing invariably demands.” (p.22) Nonetheless, Kirschenbaum concludes that while writing technologies do not necessarily alter the content of writing, word processing software allows the writer to gain a sense of the whole manuscript that is more fluid than that of works composed on paper.

Writing literary theory and literary fiction are specialized practices laden with institutional, cultural, and social meanings and expectations. While in literate societies most people write on a daily basis, all textual production is not created equal. In her study of job printing, Lisa Gitelman makes the distinction between utilitarian forms of writing that structure transactions and literary forms that have publishers, authors, and readers. (Gitelman, 2014) Train tickets, tax forms, and letterheads stand in contrast to the bound sheets of paper that become novels or works of non-fiction. The former is writing in/as use while the latter is writing as subjective thought.

In his review of Microsoft Word circa 2000, (Fuller, 2003) Matthew Fuller claims that “the ideal of a word processor is that it creates an enunciative framework that remains the same whether what is being written is a love letter or a tax return.” (p.146) And yet, he points out, the norms of writing embodied in Microsoft Word are geared toward the latter. Fuller uses the overly elaborated interface to deconstruct the model of textual management at the heart of the program, demonstrating how its templates support office work but resist literary composition. The heavily-loaded toolbar with its discrete tasks represents the programming ideology (object-oriented) and the organization of the developer workforce it enables. Within this division of labor, Fuller asserts that the user is but another object (rather than subject) who might need to spell check but who doesn’t need to produce, say, “combinatorial poetry.” (p.144) And yet many, if not most, authors of literary fiction use Microsoft Word as a default writing environment.

Still, authors remain who prefer the heavy physicality of the typewriter over the luminous fluidity of word processing — Kirschenbaum cites Cormac McCarthy, Joyce Carol Oates, Don DeLillo, and Paul Auster, among others. Auster begins by writing with pen and paper and then re-types the entire manuscript. Auster says “You feel that the words are coming out of your body and then you dig the words into the page. ... Typing allows me to experience the book in a new way, to plunge into the flow of the narrative and feel how it functions as a whole. I call it ‘reading with my fingers,’ and its amazing how many errors your fingers will find that your eyes never noticed.” (Kirschenbaum, p.21)

Sometimes this self-conscious relationship with the materiality of the machine makes its mark on the writing itself. In *Reading Writing Interfaces*, (Emerson, 2014), Lori Emerson looks at how the concrete poets of the 1960s to mid-1970s “sought to create concrete poetry as a way to experiment with the limits and the possibilities of the typewriter,” drawing attention to the “typewriter-as-interface.” (p. xix) Emerson claims that the poems “express and enact a poetics of the remarkably varied material specificities of the typewriter as a particular kind of mechanical writing interface that necessarily inflects both how and what one writes.” (p.xix) This kind of writerly experimentation is

what Kate Hayles (Hayles, 2002) might call a *technotext*. “When a literary work interrogates the inscription technology that produces it, it mobilizes reflexive loops between its imaginative world and the material apparatus embodying that creation as a physical presence.” (p.25)

“The best writers have always understood that to write is to both grapple with, and to some extent, allegorize the very regime of technological mediation without which writing wouldn’t exist in the first place,” Tom McCarthy is quoted as saying in *Track Changes*. Kirschenbaum also conjures the idea of the interface: “The technological regime McCarthy is speaking of here is writing’s interface, by which I mean not only what is literally depicted on screen (menus, icons, and windows) but also an interface in the fuller sense of a complete, embodied relationship between a writer and his or her writing materials.”

Increasingly we see writers who also code their own software to conduct their research or compose their texts, particularly in the realm of the Digital Humanities. Since 1984, author John McPhee has been working with custom software that a friend wrote based upon his paper-based process of cutting, pasting, typing, and retyping. He has two programs, one that fragments his text into discrete units and another that combines them into a single orderly file. In “Structure,” he writes about how the software emulates the structures of his own thought. His are bespoke tools created in his own image. Kirschenbaum asserts, “to know the software is to know something of the mind of the writer, however obliquely.” (p.13)

For *Reading Project, A Collaborative Analysis of William Poundstone’s Project for Tachistoscope*, (2015) Jeremy Douglass created “purpose-built tools” to enact his interpretation of Poundstone’s screen-based interactive work. Together with co-authors Jessica Pressman and Mark Marino, Douglass observed: “The work teaches us that we need to read our reading machines in order to understand how they inform our perception, comprehension, and resulting interpretations.” (p.135) Indeed, in the conclusion to *Reading Project*, the co-authors discuss how the variety of emerging methods and media of their collaboration led them to ask: “If we were to imagine an online working space that would support and promote collaborative multimodal analysis of born-digital objects, what would it look like?” (p.142) The question led to creation of a tool called ACLS Workbench. Matthew Fuller would call such a project social software — “software built by and for those of us locked out of the narrowly engineered subjectivity of mainstream software.” (p.24)

In *Reading Machines, Toward an Algorithmic Criticism*, the “algorithmic reading” of Stephen Ramsay’s title proposes “that we create tools — practical, instrumental, verifiable mechanisms — that enable critical engagement, interpretation, conversation, and contemplation.” (p.x) Central to his argument is Jerome McGann and Lisa Samuels’s notion of “deformance” in which a reader manipulates a text, for example by reading it backwards, in order to see it anew and generate new interpretations. Ramsay advocates for digital tools that “...channel the heightened objectivity made possible by the machine into the cultivation of those heightened subjectivities necessary for critical work.” (p.x) By critical work, he means the close reading of literary interpretation. How might a digital tool “heighten subjectivity” and would that be considered a kind of “use”?

4 Couplings and misalignment

As we have seen, the narrow slice of textual production known as literary interpretation and literary fiction could be seen as being so reflexive, intimate, and multivariate as to resist any kind of generalization into uses and users. Writing is frequently understood by writers themselves as an extension of their bodies, their minds, and their identities. In that sense, writers are always already cyborgs, their subjectivity distributed across a network of circuits and instruments and substrates and institutions and industries.

This is the challenge for the software designer, even the speculative software designer like myself, who is not the intended user of the tool. I am Blue, staring blankly at Black. I cannot know what the writer is thinking. The act of critical interpretation is idiosyncratic and opaque. How, then, might

those of us on the outside conceive of the complicated interactions between writers, their technologies, and their texts, let alone design software that is the perfect fit? And even if we could, who is to say that the writer-subject wouldn't defy or rework the tool to their own liking? As Kirschenbaum, Emerson, Ramsay and others have shown — and as we have seen with Trina, Ida, and Doctrina — writers design, adopt, adapt, hack, and mis-use technologies in practice in myriad ways.

“There is no solution to the problem of distance between professional design and technologies-in-use, only different strategies for addressing it,” writes Lucy Suchman in *Human-Machine Reconfigurations: Plans and Situated Actions* (2006, p.204). Regardless of whether she is configured (Woolgar), scripted (Akrich), or reconfigured (Suchman), the user is a construct that is built with and into technology and its development in myriad ways. Software designers and researchers work with real people as test subjects, marketing data, ethnographic raw material, and co-participants. They also develop fictitious personas and scenarios that help structure and delimit features and functionality. Regardless of the strategy, the purpose is to insure that new technologies will be friction-free in future contexts of use. Suchman and others also note that the user figure plays its own role within an organization as different teams — marketing or engineering, say — use it to build a mental model of the technology under development and their own relationships inside and outside the organization.

And yet Suchman cautions against oversimplification and instrumentality. Toward the end of *Human-Machine Reconfigurations*, she issues a challenge to designers and others whose job it is to do the boundary work that joins and separates humans and nonhumans:

The task for critical practice is to resist restaging of stories about autonomous human actors and discrete technical objects in favor of an orientation to capacities for action comprised of specific configurations of persons and things. To see the interface this way requires a shift in our unit of analysis, both temporally and spatially. Temporally, understanding a given arrangement of humans and artifacts requires locating that configuration within social histories and individual biographies for both persons and things. And it requires locating it as well within an always more extended network of relations, arbitrarily — however purposefully — cut through practical, analytical, and/or political acts of boundary making. (p.284)

To tell a good story, design fiction narratives require “capacities for action,” “specificities,” “social histories,” and “individual biographies.” Composing a design fiction requires the concurrent design of the user and the technology as two parts of a mutually-defining whole, amplifying what happens in any user-centered technology development process: changes in one result in changes in the other. I will call this activity designing a “coupling.” The human-machine coupling does not exist in isolation, rather each side is itself connected with myriad other forces and concerns.

According to Wikipedia, “The primary purpose of couplings is to join two pieces of rotating equipment while permitting some degree of misalignment or end movement or both.” (Coupling. October 8, 2017) Story-world design provides an opportunity to play around with the “misalignment or end movement” of the human-technology configuration. It is a design space within which humans, non-humans, and networks are by necessity designed in one and the same gesture. While Bruce Sterling has famously placed “diegetic prototypes” — story props whose presence advances a narrative in some way — at the center of design fiction, *Trina* pushes further. (Sterling, 2017) *Trina* aimed to create what Sterling would call a “Gesamtkunstwerk, the Design Fiction as total-work-of-art”: prototypes *and* people *and* action designed as a whole. (p.22)

5 Conclusion

This paper has detailed how speculative fiction complicated my attempt to design digital tools for reading and writing. Designing an entire story-world shifted my attention to where the action was: in the borderlands between technology prototypes, histories, biographies, geographies, and social and

political forces. The process of designing “humans” in tandem with technologies — particularly when those humans are complex individuals engaged in a highly subjective activity such as critical interpretation — revealed the productive movement and misalignment characteristic of such couplings.

Ida subverted the social practices of type writing, one female typist at a time. Doctrina interrogated the materiality of the writing machine, misusing the technology to produce texts on her own terms in the context of literary practice. And Trina remapped the alphabet into her body so that she could produce texts that were illegible to the corporate control system she was plugged into, but that were meaningful to her. By design, *Trina*’s scenes of writing are fraught with conflict and hard choices, only some of which could be addressed by the design of software.

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