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Motivations for reading stories:
Hedonic responses to fictionality and suspense

A dissertation submitted in partial satisfaction of the requirements for the degree of
Doctor of Philosophy

in

Psychology

by

Jonathan Daniel Leavitt

Committee in charge:

Professor Nicholas J.S. Christenfeld, Chair
Professor Amelia Glaser
Professor Gail D. Heyman
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Professor Piotr Winkielman

2013

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Chair

University of California, San Diego

2013

DEDICATION

I dedicate this dissertation to the people who have sustained me: my family and friends.

EPIGRAPH

“Fiction's about what it is to be a human being.”

- David Foster Wallace

“The use of imaginative fiction is to deepen your understanding of your world,
and your fellow men, and your own feelings, and your destiny.”

- Ursula K. LeGuin

“I understood that the need to tell stories was deeply embedded in our minds
and inseparably entangled with the mechanisms that generate and absorb language.
Narrative imagination--and therefore fiction--was a basic evolutionary tool of survival.
We processed the world by telling stories, produced human knowledge through our
engagement with imagined selves.”

- Aleksandar Hemon

“It's no wonder that truth is stranger than fiction. Fiction has to make sense.”

- Mark Twain

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ABSTRACT OF THE DISSERTATION

Motivations for reading stories:
Hedonic responses to fictionality and suspense

by

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University of California, San Diego, 2013

Professor Nicholas J. S. Christenfeld, Chair

Reading stories is an immensely popular cross-cultural pastime, even though its utility is not apparent. People read stories in their leisure time, use them to pass along cultural values and religious beliefs, and share them with their children before bed. Fictional stories in particular are popular, even though it is not clear the information they provide can be applied to real experience. This dissertation explores why people read stories by examining variables that cause stories to be experienced as

more or less pleasurable. In particular, we examine fictionality and suspense.

Chapter 1 describes three experiments investigating differences between reading fiction and non-fiction. Subjects in the experiments read, respectively, brief synopses, anecdotes from popular websites, and longer narratives. In each case, texts were randomly presented as true, fictional, or indeterminate. Results suggest that, all things being equal, readers prefer a story when they believe it is true. This may be because readers generalize that the events described in true stories occur more commonly in real life. At the same time, readers preferred the style of writing they associated with fiction, demonstrating a preference for the artfulness and confluences of circumstance that characterize invented stories.

Suspense is widely considered a crucial narrative element. When asked why they read stories, people commonly reply that they want to find out what happens. Chapter 2 tests the idea that not knowing the ending is crucial to enjoying the first read of a story. Across three experiments, readers of, respectively, stories that end in ironic twists, murder mysteries, and evocative literary stories were informed of the endings before they began reading. Readers preferred spoiled stories in all three genres, suggesting that suspense regarding outcomes is not crucial to story enjoyment.

Chapter 3 describes three experiments examining the mechanism underlying preference for spoiled stories. The first, using previously spoiled stories, found that it is increased fluency, rather than either greater attention to aesthetic elements or simple appreciation of anticipated endings, that mediates this effect. Knowing how stories end likely allows readers to focus their attention on relevant details and better comprehend the meaning of events.

Introduction

Preamble

Reading fiction is widely viewed as an engaging pastime, but is rarely considered a compelling topic for investigation outside of efforts to encourage children to read more. It appears to be but one of many ways people spend their free time. When there is nothing to do that more directly contributes to survival, we play sports and games, shop, engage others in conversation, or simply watch the clouds roll by. Why distinguish reading fiction from the rest of this array of activities?

First, let us try to take an objective viewpoint regarding how people interact with fictional stories. This can be challenging, because each of us has a wealth of personal experience with fiction that we naturally draw from when the topic is raised. Familiarity can be a boon, because it makes research on fiction highly relatable, but it can be an impediment as well. Sometimes, to understand something, we benefit by first making the familiar unfamiliar. A good analogy, if you'll bear with me for a few sentences, is to the nature of human vision. Each of us experiences the very powerful illusion that what we see is what's right in front of us, as if reflected light carries within it a perfect representation of the last object to change its direction, which is then, quite simply, accurately perceived by the eye. Vision processing is largely unconscious, so it is necessary to borrow knowledge from physics, psychology, and neuroscience in order to understand the degree to which what we see is organized, processed, and interpreted, largely based on entirely unconscious, systemically embedded assumptions that greatly simplify the information received. Taking a similar approach here may allow us a fresh perspective on the familiar habit of

reading fiction. Instead of picturing the common trope of a cozy armchair and a well-worn favorite novel, consider the strangeness of a living organism that regularly spends hours of its time staring at a small set of symbols, endlessly reordered, in order to borrow from the minds of others events that never took place.

The ultimate goal of this research is not to understand something about fiction, but to understand something about people. In light of that, while we are still thinking of fiction as a foreign activity, let us look at how it compares with other human pastimes. We will position fiction among these other activities on three scales. The first of these is real versus imaginary. Certainly, most activities people engage in can be described as “real.” This is especially true of adults. We do not need an especially deep understanding of what “real” means to make this point: Running errands means completing real tasks, doing taxes requires filling out real forms, and shopping involves purchasing real goods and services. Sports and games may invoke some elements of imagination, but typically involve real actions that take place within a circumscribed range of agreed-upon rules and conventions. Fiction, too, often involves some reality, as it describes and revises real places and institutions (and sometimes even characters), but most often the crucial elements of fiction, including plot, narrative, characters, and situations, are inventions. This conception groups reading fiction alongside such activities as imaginary play, daydreaming, and other forms of fiction, such as plays, television, and movies. Although becoming a mature adult involves severely curtailing the time spent in these activities, most adults nonetheless still spend time in imaginary and unreal scenarios. In fact, this curious activity of spending time in fictional worlds is more popular than any other

use of free time (Bloom, 2010). This is true even though reading fiction, unlike many other leisure activities, does not directly provide exercise, social companionship, or sensory stimulation. The popularity and impracticality of fiction, together with these facts, suggests that understanding the goals and motivations that underlie engagement in this activity can help us understand the range of motivations that drive us.

The second scale on which I would like to place the reading of fiction is concrete versus abstract. Reading fiction has of course its concrete component, such as the book or electronic reader, but the main action of a fictional novel is presented abstractly, in language. The goal of positioning fiction on this scale is not to distinguish it from concrete activities, like changing the oil in a car, but to distinguish it from other forms of narrative, such as plays, television, movies, and even audiobooks, that have non-symbolic sensory input. These other forms of narrative, in terms of the mental representation of events induced in the audience, are probably more similar than different to textual narratives, but reading fiction is the form that allows us to eliminate the most extraneous variables that might affect the experience. If an audience found one video more enjoyable than another, it might not be because of differences in the narrative and how it is represented in the mind, but because of perceptual differences in visual images, music, or sound effects. Similarly, if a film capturing actual events was more moving than a fictional film depicting similar events, it might not be because of the intended comparison, but for any of many other distinctions between the two (e.g., differences in attractiveness between actual participants and actors). In contrast, it would be difficult to argue that identical words

could not be used to describe a factual or a fictional event, or that narrative elements other than the words on the page were making one textual story more enjoyable than another. This is not to suggest that other investigations cannot profitably use other media, but it is the reason why the investigations presented here were conducted with print on paper.

Thus far, we have placed reading fiction at the more impractical end of the reality scale, and identified it as the most abstract form of narrative fiction. The third defining element, one shared with these other forms, is structure. Narratives have structure, and normally-developing humans master the basic elements of this structure at a relatively young age, a point after which their stories acquire the potential to be interesting. Defining this structure, which most of us appreciate at an intuitive level, is somewhat more difficult. Shakespeare's plays have five acts. Conventional Hollywood movies have three implicit acts. A television series might have 47-minute narratives, with some story arcs spanning a thirteen-episode season, and still longer ones spanning several such seasons. Story structure is infinitely flexible and extendable because, even in the absence of a consistent main character, narrative elements are generally considered part of the same story if they intersect, are interwoven, or are aspects of a broader conceptually or thematically coherent narrative. Part of the reason for this flexibility is that, despite the fact that text is presented in linear fashion, readers simultaneously conceptualize stories on multiple levels, including the meaning of the text itself, the situation described, and the perspective of the character. (See Graesser, Olde, and Klettke, 2002, for a thorough analysis.) Despite these endless variations, stories are generally considered to have

beginnings and endings (even those that begin at the end), and somewhere in between characters, plots, and resolutions, all of which speak to one or more themes while conforming to (or, sometimes, attempting to defy) genre conventions. Also widely accepted is that stories have conflicts that arise at the beginning, generate suspense about upcoming events, and are resolved by the end.

Stories are complex. It often seems that stories are as complex as real life, but of course this is not true. Real life involves chemical reactions, cells and molecules, heat exchanges, and an infinite array of undetected sub-microscopic details teeming beneath every percept. Stories may represent some of these complexities, but they are composed of symbols. Stories do not attempt to recreate all of life, but instead to heighten and recreate life's most salient moments.

A Brief Theory of Fiction

Reading a fictional story is an act of taking in information presented in the form of symbols. Our brains are structured with an innate capacity to perceive meaning in abstract domains such as signs, sounds, and gestures (Bruner, 1990), a capacity which allows us to understand language. But we do not simply understand and produce representational information; we also have a complex set of ways in which we relate to this information. For instance, rather than considering a statement either true or untrue, we may feel skeptical about it, or tentatively believe it. We know that the same statement may be "true" in one person's universe, but "untrue" in another's. We can "believe" statements about the future, but understand that they remain suppositional, and we can agree with if-then propositions, even when we believe the initial "ifs" are unlikely or avoidable. This complex, multi-level approach

to information processing, which may seem somewhat disorienting when listed in abstract sentences, is something we routinely achieve when we gossip with friends, listen to others' opinions, or watch the news.

We each have an internal representation of the world, and an ability to relate new information to this representation in various ways. We utilize this ability when we read fiction. While to some extent the details of fiction are understood as not real, our internal representation of fiction is more complex. In order for explicitly unreal stories to have meaning, they need to be understood in relation to our representations of reality. Our taste in fiction evolves over time, as any aesthetic sensibility does, as we are exposed to new styles, tropes, and genres, but it also evolves in tandem with our developing representation of reality.

The Study of Fiction

To make an argument that fiction is relevant, especially to learning and development, one hardly has to fight the tide. Parents and teachers have long agreed that reading stories can play a crucial role in the education of children, and many believe the role of fiction should be expanded more widely across the curriculum (Ross, 1994), even into non-traditional areas such as the sciences (Hammond, 1992; Smardo, 1982). In fact, across professional and academic fields of study, for adults as well as for children, fiction is widely viewed as a learning tool. Fiction has been incorporated into the social sciences in areas such as psychology (Hilary, 1990) and language learning (Lazar, 1990), and into the curricula of medicine (DasGupta, 2003), law (Dunlop, 1991), management (Shaw & Locke, 1993), business ethics

(Kennedy & Lawton, 1992), and even accounting (Dorocak and Purvis, 2004), in some cases as the topic of professional journals (*Law and Literature, Literature and Medicine, etc.*).

We set out to investigate basic elements of fiction, for the purpose of shedding light on why people like it. We examined two areas, fictionality and suspense. Fictionality is a quality of any narrative that is not true, and does not purport to be true. It is typically not signaled within the text of a realistic fiction, but is rather communicated contextually prior to reading. We examine this facet of stories because truth is greatly valued in narratives (and most other domains), yet appreciation of narratives that are explicitly unreal is universal across human cultures (Brown, 1991; Hernadi, 2002; Scalise Sugiyama, 1996; Tooby & Cosmides, 2001). Suspense is the emotional investment readers experience with regard to the resolution of a story. Suspense is experienced within stories, and is associated with enjoyment (Jose & Brewer, 1984). We examine this facet of stories because it seems to require uncertainty regarding outcomes, yet the enjoyment associated with suspense sometimes persists even when readers know the outcome (or the story), or when the outcome is implicit in the genre.

Fictionality

As stated above, parents and educators generally believe that reading fiction is a natural part of education and development, and scholars across professional and academic disciplines have embraced fictional literature as a learning tool. Nonetheless, the perception persists that a love of fiction is associated with social

awkwardness and limited efficacy in real life (Mar, Oatley, Hirsh, de la Paza, & Peterson, 2006). Of course, a defining element of fiction is its unreality. Even if processing narrative serves communicative and cultural functions, one could argue that enjoying fiction as entertainment is a frivolous or maladaptive activity that hijacks the neural structure intended for comprehending experiences (Polkinghorne, 1988), analogous to the way in which perceptual systems are deceived by bottled scents, diet sodas, and optical illusions (Larsen, 2012; Schlosser & Nation, 2001; Schlosser & Wilson, 2007; Eagleman, 2001).

Few theorists have advanced the idea that fiction impairs social ability, or that it provides the semblance of fact without substance. To the contrary, many theorists have proposed that exposure to fiction increases the ability to represent the minds of others (Gernsbacher, Goldsmith, & Robertson, 1992; László & Cupchik, 1995; Oatley, 1994). Gerrig (1993) suggests that the cognitive underpinnings utilized to understand fiction are the same as those used to understand real life. Nussbaum (1995) agrees, arguing that literature actively promotes the kind of imaginative thinking and feeling about others and their circumstances that is essential to not only relationships but social responsibility. Mar et. al. (2006) presents data suggesting that consumption of fictional narrative, as opposed to expository non-fiction, is associated with empathy and the development of social skills, lending support to the idea that the specific vocabulary of fiction, rather than general vocabulary or reading skill, may be crucial to understanding others.

The crucial comparison, however, and the one that is the focus of the fictionality research presented here, is not between fiction and expository non-fiction,

but between fiction and narrative non-fiction. Prior to recent technological advancements, it was difficult for our ancestors to distinguish fact from fiction. Since oral traditions could not easily be transported (or transmitted) over great distances, nor preserved through time, the imperfection of human memory made them mutable (Goody, J., 1998; Griffin, B., 2006; Rubin, D. C., 1995). Naturally occurring variations in stories were compounded by lack of factual references, and by limited cross-cultural agreement on the nature of truth (Vansina, J. M., 1985) and basic facts of science, nature, history, geography, etc. In an experiment not unlike a game of telephone, Bartlett (1932) showed that across retellings meanings of folk stories changed and were reinterpreted (especially across cultural contexts), details were lost, and a story without a clear moral quickly acquired one. But, Vecsey (1991) argues, the literal truth of stories in the oral tradition may have been less important than the cultural knowledge and experience embedded within them, and they could thus retain their value through changes across time, teller, and audience.

Today, access to facts and non-fiction accounts is virtually unlimited, trans-world travel takes less than a day, and trans-world communication is at the tip of one's fingers. Narratives are easily preserved and presented through electronic media, as well as in print journalism, books, and film. But as facts and factual narratives have become vastly more accessible, fictional narratives have become no less popular (Bloom, P., 2010). The clear implication is that fictional narrative is not a substitute for factual narrative, but a form that is appreciated on its own merit. If fiction truly serves a distinct purpose from non-fiction, we would expect readers to approach it with distinct motivations, and to appreciate distinct features. By

examining subjects' motivation and enjoyment of narratives presented as true or false, we can identify distinctions in processing and understanding fiction versus non-fiction. We begin with the exposure of young children to fiction, in part because children generally are read fiction. In addition, examining the influence fiction has on social and linguistic development early in life, when the effects and benchmarks of social and linguistic development are most clear, will establish the basis for the claims we wish to make about the effects of fiction in general.

Fiction in Development

Peggy Miller (1993) presented evidence suggesting that children as young as toddlers may use the material of fictional stories to address real-life problems. Her case study showed how a two-year-old used the popular children's story *Peter Rabbit* to understand conflicts in his own life. Even though children develop pretense and the seeds of metarepresentational ability in the second year of life (Leslie, 1987), they remain unable to draw parallels between experience and fiction, because they cannot yet represent multiple points of view (Wellman, 1991). In this case, the child invented narratives with himself and the rabbit as one fungible protagonist, progressively formulating and addressing personal conflicts within the story context until each of them were resolved, after which his interest in the story waned. The sentences the child produced in the course of these narrations were longer and more complex than his non-narrative utterances. Nyhout and O'Neill (2013) provided similar evidence in the inverse direction, showing that mothers employ more complex language when speaking to toddlers about narratives as opposed to didactic books, including more mentalizing terms, verb tenses, and comparisons to

experience. These findings suggest that very young children relate fictional situations to their own lives, and that they produce more advanced language, and are taught more complex lessons, in the context of a fictional narrative.

At about the age of four, children begin to understand distinct points of view (Wellman, Cross, & Watson, 2001), a skill that is critical for understanding most fiction. Janet Astington (1990) observed that a child's story preference may evolve at this time, transforming from enjoyment of books that feature concrete descriptions, such as listing the animals on a farm, to narratives, such as "The Emperor's New Clothes," that cannot be understood without mentally representing different perspectives and levels of abstraction. Consistent with the idea that story comprehension and understanding others share a developmental progression is the finding that storybook exposure predicts theory-of-mind abilities in children 4-6 years old, even when controlling for relevant factors such as vocabulary and socioeconomic status (Mar, Tackett, & Moore, 2009).

To understand any fictional story that involves distinctions between what different characters want or believe, or in which the reader's knowledge differs from that of characters, one must be able to mentally represent multiple perspectives. Bruner (1986) argued that multiple perspectives, including distinctions between events and how characters perceive them, are a defining element of literature. Understanding multiple perspectives has also been codified as one of the basic constellations of literacy skills that allows American students to fulfill the expectations of society (Deane, Sabatini, & O'Reily, 2011). According to Zunshine (2011), a story that does not offer opportunities for readers to attribute mental states

to characters cannot endure. This is likely true even for 4-year-olds, as stories for this age group require that readers make mental inferences into the competing goals and divergent beliefs of the characters (Peskin & Astington, 2004). Dyer, Shatz, and Wellman (2000) provided evidence supporting this idea, finding one reference to mental states per three sentences across a large sample of books intended for children from age 3 to 6.

Evidence suggests that understanding fiction, in addition to necessitating the development of complex representations of the minds of others, may actually help readers learn a vocabulary that is fundamental to these representations. Intentional verbs such as believe, desire, and intend are the most direct way to describe the various kinds of relations characters in stories may have to the propositions before them (Searle, 1983). When characters address statements to others, the variety of tones and stances they adapt are best described using illocutionary verbs, such as demand, declare, and promise (Searle, 1976). These kinds of words are rarely used in speech, and only a small subset of them appear regularly in science texts, but a wider variety of them appear more frequently in fictional narrative (Astington, 1990). The implicit attitudes and stances represented in fiction, as well as the words that describe them, mirror characteristics of real people. In fact, readers usually relate to characters, even in fantastical and far-fetched narratives, because they adhere to crucial aspects of human psychology and emotion (Oatley, 1999). Since the process of reading and understanding fiction involves developing a vocabulary and set of conceptions for representing the attitudes and speech acts of others, fiction exposure may directly enhance readers' ability to understand and relate to other people.

Comprehending fictional stories typically requires a vastly more complex representation of other minds than is tested in standard theory-of-mind tasks (Happé, 1994; Dumontheil, Apperly, & Blakemore, 2010), which are typically not useful for testing development beyond a mental age of about 6 years (Baron-Cohen et. al., 1997). Nonetheless, this does not prove that the verbs referring to mental states that occur most frequently in fictional narratives are essential to representing other minds. Intuitively, it may seem that the ability of people, especially adults, to form complex representations of the needs and motivations of others is orthogonal to their personal lexicon of verbs. Some evidence even suggests that a more explicit presentation can be detrimental, presumably because overt statements can eliminate the need for independent conceptualizations. In this vein, inserting metacognitive terms into children's literature diminished their ability to comprehend the mental states of characters (Peskin & Astington, 2004), and making a character's internal motives explicit, rather than implicit, decreased the degree to which readers internally represented the character's point of view (Bortolussi & Dixon, 2003).

Despite these concerns, converging evidence suggests that certain linguistic experience is necessary before a child can understand theory of mind (Eisenmajer & Prior, 1991), that verbal IQ is correlated with success on false-belief tasks (Bowler, 1992; Ozonoff, Rogers, & Pennington, 1991), and that language development supporting theory of mind accurately reflects the direction of causation (Astington & Jenkins, 1999; Happé, 2005). Although this evidence suggests that language acquired by reading fiction assists readers in understanding others, language development cannot be disentangled from the process of socialization (Miller, Astington, & Dack,

2007). However, the work of Pyers and Senghas (2009) suggests that language is crucial to representing the minds of others, independent of social experience. They studied a cohort of deaf signers who learned an early version of Nicaraguan Sign Language (NSL) that lacked mentalizing terms. These individuals were unable to perform simple pictorial theory-of-mind tasks, even as socially integrated adults with access to television and other elements of culture. A similar but younger cohort learned a more developed version of NSL that included mentalizing terms, and performed close to ceiling on the same tasks. Once the older cohort was exposed to these signs through socialization with the younger group, the performance of the two groups on theory-of-mind tasks was indistinguishable. While a great deal of evidence already associates language development with success in theory-of-mind tasks, the remediation of theory-of-mind deficits in these subjects diminishes the explanatory power of any non-linguistic developmental impairment.

Factual and Fictional Narrative

The value of true stories, in contrast with that of fiction, is apparent. Reading about real events teaches us about how the world works in a very direct way, while reading fiction, if it informs us, cannot do so literally. Yet some scholars dispute whether fact can be meaningfully differentiated from fiction. For example, Hall describes the way the details of “true” narratives vary across contexts and audiences, and suggests the distinction between real and fictional narratives may be oversimplified, perhaps even non-existent (1984). But theorists and researchers clearly delineate fiction from deceit (Appel & Maleckar, 2012; Lamarque & Olson, 1994; Williams, 2002), and Goody argues that the ease with which fiction is

differentiated from misrepresentations of reality indicates that this distinction is “an intrinsic feature of linguistic discourse” (2006). The fact that one can lie in the context of non-fiction, but not in fiction, makes it clear that even though non-fiction accounts are not always absolutely veridical, expectations and interpretations vary in accord with the purported truth of a narrative.

The truth of a narrative may be a crucial element in its reception, but tell-tale signs of factuality and fictionality are frequently not apparent within texts. Realistic fictions usually maintain the semblance of fact, mimicking non-fiction forms and styles, even though they do not purport to be true (Furst, 1995). Instead, the distinction between fiction and non-fiction narrative is made contextually. This context usually takes the form of a paratext, which is not part of the text itself, but a statement about the text that is encountered prior to reading (Genette, 1987; Gray, 2010). Paratexts can also be presented prior to narratives in order to manipulate readers’ beliefs about whether texts are true or fictional, as demonstrated by authors of supposedly non-fictional works (e.g., *A Million Little Pieces* and *Three Cups of Tea*) (Bastone, 2006; Frey, 2005; Kroft, 2011; Mortenson & Relin, 2006), marketers who use the phrase “based on a true story,” and researchers in narrative psychology (Appel & Maleckar, 2012; Goldstein, 2009; Zwaan, 1994).

Some narrative theorists agree that effort is needed to engage in fiction, as implied by Coleridge’s famous phrase on the necessary concomitant of poetic reception, “that willing suspension of disbelief” (Sandner, 2004). For instance, Bateson referred to extra-textual indicators of fictionality as metacommunications that invite readers to make a conscious choice to step into the frame of play (1955).

Collins similarly describes reading imaginative work as requiring a decision to relax one's usual standards for engaging the world (1991). Keen, however, takes the opposing view, arguing that a paratext that cues the expectation of fictionality actually frees readers, allowing them greater emotional and empathetic rein within their narrative encounter, in comparison to more skeptical and investigative readers of non-fiction (2006). Harris agrees, suggesting that differences in the reception of fiction, as opposed to fact, may be caused by a quieting of the appraisal system that would ordinarily determine the plausibility of events and the propriety of emotional responses (1998, 2000). Lending support to this idea, Zwaan (1994) used paratexts to manipulate presentation of identical texts as either fiction or news stories, and found that subjects spent more time focusing on language and meaning when reading "fiction," and more time integrating "facts" into their existing knowledge when reading news stories. These findings suggests that engagement in fiction may be less effortful than engagement in non-fiction, because fiction dampens the appraisal system and induces less reference to external knowledge.

Reading fiction may not only require less effort than non-fiction, but may also provide greater opportunity for emotional engagement. Storytellers in fiction are free to inhabit the minds they represent, whereas writers of non-fiction are limited in their access to real-life perspectives, and the reliability and depth of the perspectives they do access may be limited by those individuals' impression-management and self-presentation concerns (Leary & Kowalski, 1990). This is why Hamburger (1973) argues that fiction is the only form of narrative in which writers may portray the unspoken thoughts, feelings, and perceptions of others. Both forms of narrative offer

recipients the opportunity to form mental representations of others in a context free of social expectations, in which the need to monitor their own behavior is minimal or non-existent. However, readers of fictional narratives know that events cannot intrude upon their own lives, creating a safe environment for the practice and experience of emotions (Zunshine, 2006). Readers can therefore feel empathy and concern without incurring a sense of obligation (Coplan, 2004, 2006). In such an environment, emotions that might otherwise be unpleasant or threatening can be safely explored (Mar & Oatley, 2008). Goldstein tested this view by manipulating whether viewers who could personally relate to emotional films were told they were factual or fictional, but did not find a difference in sadness (2009). However, it is not clear that viewers were convinced by the “non-fiction” clips, and there may be less variance in response to film clips across paratextual contexts because, unlike with written texts, viewers encounter powerful emotional cues in the visual and auditory domains. Goldstein did find that the sadness induced by film clips was as great as that induced by recalling one’s own sad memories, but was not accompanied by the same anxiety, lending support to the notion that stories offer ready access to emotional experience, yet remain disconnected from real-world responsibilities and concerns.

Bruner (1990), in explicating how fiction makes meaning, distinguished between two kinds of truths: paradigmatic truths, which are logical and scientific, and narrative truths. Narratives, in lieu of arriving at conclusions based on empirical reasoning, produce verisimilitude through lifelike representation. Fictional narratives are advantaged in their access to unobstructed subjectivity, multiple perspectives, and

“true” intentions, and are not limited to literal representation of “aboriginal realities.” As Gabriel (1979) writes, “A literary work of fiction may be true even though it contains no true statements. Its truths are truths which are not *told in* but *shown by* the text.” Viewed in this light, the experiments discussed earlier that found decrements in comprehension of other minds when implicit mental states were rendered explicit did so because literal explication is not how fiction creates meaning. (Bortolussi & Dixon, 2003; Peskin & Astington, 2004). A literal account involves a one-to-one correspondence between narrative and reality, and includes the potential to extrapolate meaning from specifics to generalities, but fictional and literary accounts are untrue in the specifics, and induce the generation of meaning, or “truths,” through broad inferences based on the whole of the work. If experience with these distinctions between narrative forms influences expectations, and expectations color reception, then, as observed, readers who expect veridical truths from non-fiction, and verisimilitudes from fiction, will differentially interpret otherwise identical texts.

In accord with the view described above that reading fiction involves relaxed appraisal and reduced vigilance, Prentice, Gerrig, and Bailis (1997) argue that the supposed “suspension of disbelief” is in fact the default state of narrative comprehension. Supporting this idea is Gilbert’s (1991) finding that belief of new information is effectively automatic, whereas rejection only occurs if the recipient is motivated to engage in additional processing. Gilbert, Krull, & Malone (1990) subsequently provided evidence that belief is closely associated with comprehension, whereas disbelief is more effortful and takes more time to develop. Evidence that

greater effort is required to access information not endemic to the narrative comes from Laszlo (1987), who found that normally compliant subjects flaunted or forgot instructions to monitor superficial details while reading fiction (although these were lower-level, rather than higher-level, representations). These findings support the idea that reading fiction is less effortful than reading non-fiction because it is believed automatically, rather than being appraised for plausibility and integrated with what is known.

This raises the question as to what extent information from fictional narratives is compartmentalized, and not integrated with prior knowledge. Research conducted by Lewis & Anderson (1976) found that learning fantastical “facts” that conflict with known information slows retrieval of the real facts, which suggests that fictional information is not wholly compartmentalized from real knowledge. Potts and Peterson (1985) subsequently manipulated subjects’ belief that facts embedded within stories were real or “artificial,” and found that the degree to which real-world knowledge was accessed during comprehension predicted the extent to which new information was integrated. They surmised that “fictional” information is incorporated into real-world knowledge, but “real” information can be accessed through a broader associative network. Potts, St. John, and Kirson (1989) posit that information believed to be fictional is not integrated into real-world information about that topic, but stored in a distinct memory node that is linked to the real-world node. Using methods similar to those of Potts and Peterson, they found that fictional “information” was easier to retrieve within the story context than in other contexts, whereas “facts” from stories were better integrated into real-world knowledge,

facilitating retrieval in novel contexts. Gerrig and Prentice (1991) inserted untrue details into fictional stories that were either so specific they could only apply to the fictional context (such as a fictional president that is obviously different from the real-life president), or that were general enough to be applied in other contexts (such as a habit contributing to longevity that in real life detracts from longevity). While the specific details were not incorporated into real-world knowledge, the more generalizable details were represented in memory. This suggests that although fictional information is partially compartmentalized, certain kinds of fictional information can influence world knowledge.

Gerrig (1998) argues that the evidence for partial compartmentalization falsifies arguments for whole-hock compartmentalization of fiction derived from belief in a “willing suspension of disbelief.” Readers who are transported by fiction have diminished access to information from outside the currently activated schema, such as details of the real world. However, as exemplified by movie viewers who were terrified of the ocean after seeing *Jaws*, the easy assimilation and emotional transportation of fiction make certain kinds of information portable from fiction to reality. Oatley (1999) concurs that this compartmentalization exists, and that comprehension of fiction (as well as veridicality) is schematically constructed, but argues that Gerrig’s interpretation of truth in fiction depends too greatly on empirical correspondence. Oatley, like Bruner (as discussed above), believes truth in fiction is generated in a distinct fashion: through coherence with complex structures, as in a simulation, and through personal relevance. Mar and Oatley (2011) propose that what fiction does is abstract the crucial elements of the social world, so they can be

simulated in the minds of readers. Evidence supports this social view of fiction reception, suggesting that readers who are emotionally transported into a story subsequently become more empathic (Bal & Veltkamp, 2013).

Unlike other leisure activities, reading fiction has little to offer in terms of physical activity or social engagement. Unlike non-fiction narrative, it does not veridically represent reality. However, the convergent evidence described above shows that fiction increases empathy and the ability to represent other minds and social relationships, skills that are necessary to survival and performance in a social environment. While evaluating Coleridge's poetic insight is not a goal of this work, the view of fiction set forth here is consistent with an interpretation of "willing suspension of disbelief" as not effort *exerted* in order to set disbelief aside, but as effort *relaxed* as the vigilance necessary to generating disbelief is let go. When reading non-fiction, our appraisal systems remain active, and world knowledge is accessed in order to assess the plausibility and implications of the material. When reading fiction, immersion in a new social context crowds out knowledge available only in other planes of existence, such as whether the work is true. Fiction emerges, then, not as a frivolous leisure-time activity, but as an abstract refinement within safe, simulated contexts of abilities that are essential to culture and community.

Fiction and non-fiction often inhabit similar narratives, but fiction's departure from the veridical world appears to be associated with differences in reception and expectations. In reality, despite these differences, people enjoy reading both fiction and non-fiction. In chapter 1, we use paratexts indicating that identical passages are true or invented to assess differences in motivation and enjoyment in these readers.

One empirical question is the extent to which the paratextual context, as opposed to the text, shapes reception. Do readers enjoy identical texts more if they believe they are fiction, so they can relax their vigilance and “play” in social environments that are free of consequences? Do they alter their understanding of the real world to accommodate new information extracted from texts they believe to be true?

Alternatively, if the prose plays a greater role in guiding perception, the same stories may be considered less applicable to other contexts as “fiction,” and therefore liked less. Pleasurable fiction reception may be more associated with a writing style that inhabits minds and generates coherence truths rather than empirical correspondences.

We test expectations by providing only outlines of “true” or “invented” stories, allowing subjects’ beliefs regarding distinctions between true and false narratives to guide their expectations. We test whether empirical correspondence is crucial to the enjoyment of non-fiction by presenting as true and invented sets of anecdotes that are relatively concrete, and therefore amenable to empirical correspondence, or more abstract. Finally we utilize full stories and chapters to examine how impressions of factuality and fictionality impact enjoyment and integration of knowledge presented in the text, or whether, alternatively, the content of longer narratives dictates its own reception, diminishing the impact of paratextual cues.

Suspense

People experience suspense in the context of reading a narrative when they want to know the resolution, but the author has delayed or withheld presentation of that information (Rabkin, 1973; Carroll, 1990). The structure and sequence that make

a story can be simply represented in three parts: It begins with an initiating event foreshadowing a meaningful outcome, followed by intervening events, and culminates in the resolution (Brewer & Lichtenstein, 1982). These intervening events induce a state of tension in the person reading the narrative, entailing increased anxiety. While this experience might typically be aversive, there is evidence that intense emotional responses may be more readily accessed while reading fiction than in real life (Harris, 2000). In fact, suspense is widely accepted as one of the essential elements of a fictional narrative (Brewer & Lichtenstein, 1982; Alwitt, 2002). An ideal narrative establishes a limited number of possible resolutions, typically as few as two (Comisky & Bryant, 1982; Cheong & Young, 2006). This allows readers to mentally represent these two possible outcomes in the course of reading. Suspense may be induced by the narrative because these outcomes will have highly disparate consequences for characters with whom readers identify, or because readers conceptualize the potential outcomes as morally “good” and “bad” (Carroll, 1996). Readers generally have an intuitive sense that if the resolution is known prior to reading a story, the story will be “spoiled,” meaning the pleasure of reading it will be greatly diminished. However, affective forecasting is frequently inaccurate (Wilson & Gilbert, 2003). Knowing the ending may be one of the experiences for which people fail to predict their affective response, because they fail to anticipate how other aspects of the experience, apart from diminished suspense, might be changed. We briefly review theory and findings related to the role of outcome uncertainty and suspense in narrative reception, in advance of empirically testing the hedonic effects of knowing the endings of stories in Chapter 2.

Jose and Brewer (1984) helped lay the theoretical foundation for the study of suspense by finding that the main contributors to story enjoyment are identification with the main character, suspense, and liking the outcome. All three are inextricably related, as greater identification induces greater suspense, and suspense is most often focused on the outcome. A related concept, transportation, is the experience of becoming absorbed into the story world and losing awareness of one's surroundings (Green & Brock, 2000). Transportation is typically characterized by vivid imagery and enhanced enjoyment (Green, Brock, & Kaufman, 2004), and may represent a distinct path to the experience of suspense, as transported readers pay more attention to the developing plot and express heightened interest in its resolution (Tal-Or & Cohen, 2010).

The common intuitive theory (shared by the vast majority of participants in the experiments presented here) is that knowledge of endings eliminates suspense, and thereby diminishes story enjoyment. Carroll (1996) disputes this, citing the common circumstance of people revisiting stories and enjoying them again, even though they know the ending. He argues that if a story is sufficiently engaging, the reader becomes fully caught up in the moment-to-moment action, and experiences suspense as the known resolution is lost from immediate awareness. Gerrig (1996) suggests that this anomalous experience of deriving suspense from known narratives occurs, in more or less the manner Carroll proposes, because our cognitive architecture is designed for a world in which outcomes do not repeat. To support this claim, he presents evidence that readers may temporarily become less certain of known historical events when reading an account that generates suspense while

describing the developments that led up to those events (1989, 1996). Situations and circumstances may arise again and again, but we have an “expectation of uniqueness” because, outside of the highly unique context of preserved narratives, it would be maladaptive to expect identical outcomes.

If, as Gerrig claims, suspension of disbelief is the default mode of reading fiction, then people in the process of reading would not have automatic access to known information that is external to the narrative. “Suspending disbelief” would not be effortful. Instead, readers might find it effortful to keep in mind events that have not yet occurred in the narrative, and which are therefore inconsistent with both the present action of the story and the characters’ perceptions. However, some researchers disagree that suspense persists in the exact putative circumstance of its elimination. Yanal argues that people who revisit stories cannot experience uncertainty regarding the outcome, and thus do not experience suspense, but may still find pleasure in reading because they may re-experience sensations that do not require this uncertainty, some of which may be altered by previous exposure.

Suspense is a process-oriented emotional experience that occurs progressively, during the course of action, rather than at a particular moment in time (Iwata, 2009). Becoming engaged with a story involves transportation (Green, Brock, & Kaufman, 2004), meaning that the reader is immersed in the context of the story. One of the primary goals of the engaged reader is to construct a coherent mental representation of events, including understanding why each element of the story is included (Graesser, Singer, & Trabasso, 1994). Thinking *about* reading the story, in contrast, occurs beyond the context of the story. Gerrig’s arguments described above

imply that inhabiting a coherent mental representation of the story while accessing known information about the story would require engaging two distinct mental processes, which, according to dual process theory, can be effortful and slow due to bottlenecks (Pashler, 1993). Representing an abstractly structured fictional world and accessing future-relevant information each require conscious or explicit thinking, both of which are restricted by working memory capacity (Evans, 2003).

Compounding this potential conflict in resource allocation is the fact that understanding stories involves making complex inferences, as fictional stories commonly include phrases that refer implicitly to other aspects of the story (Templeton, Cain, & Miller, 1981). Intuitive ideas about the importance of resolution uncertainty to story enjoyment may be skewed by a failure to anticipate the degree to which narrative comprehension engages the mind, as well as the degree to which situations presented in the narrative may alter one's perception of, and even one's certainty regarding, the known outcome. One possible interpretation is that knowing the ending may not greatly affect the reader when fully transported, but may minimize confusion when struggling to understand implicit references, or to interpret clues and events within the story context. Spoilers are expected to impact enjoyment by diminishing suspense, but they may enhance the experience of reading by easing comprehension when coherence and engagement are threatened.

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Chapter 1 – True Story:

Fact is better than fiction, and more generalizable.

Abstract

Determining whether stories are true or make-believe is of primary importance, yet fiction, once distinguished, is not discarded, with most successful books and films fictional. Research indicates a story being true may add value to the reader's experience, but other findings suggest fiction may increase enjoyment by providing fewer disruptions to narrative comprehension. We address the paradox of truth's importance and fiction's popularity with three experiments that manipulate whether stories are presented as factual or fictional. Subjects read (1) story synopses, (2) vignettes from two popular websites, or (3) narratives on relationships and war. Results suggest readers prefer stories that are true, yet have the qualities of fiction, and that we use factual stories to update our notions of reality.

True Story: Fact is better than fiction, and more generalizable.

The British comedian Eddie Izzard has a famous bit in which he tells his audience that the singer Engelbert Humperdinck is dead. Izzard shakes his head to reveal this is merely a joke, but then ruefully nods to show it is actually true. He alternates between nodding and shaking his head for several minutes, to sustained laughter, as the audience, wavering between partial belief and uncertain disbelief, reacts to his inappropriately glib confusion of what is true and what is not.

Izzard's bit is not so successful because the daily life of anyone in the audience would be impacted by Humperdinck's death, nor because people are indifferent to his possible passing. Part of the reason for its success is that distinguishing what is true from what is fictional is central to processing information (McDonald, 2012; Stelter, 2012). Separating truth from fiction underlies the organization of our libraries, our oaths in court, and our close relationships. When we hear surprising news, we draw upon our experiences and mental resources to determine whether it is true (Hatano & Inagaki, 2003; Hoover, 2012; Kagan, 2003).

Yet fiction, once distinguished, is not discarded. Indeed, fiction is an industry unto itself, available in bookstores and Kindles, displayed prominently on movie marquees and prime-time TV. People of sound mind read untrue stories while commuting and at the beach, watch untrue stories in their homes after work, and make an occasion of going to see untrue stories at the theater. In fact, 49 of the all-time top-grossing 50 films are fictional (with much of the plot of the 50th, *Titanic*, also fictional), as are 9 of the 10 best-selling books (with the 10th, on how to get rich,

arguably also in that category) (“21 Best-Selling Books,” “All-Time Box Office,” 2012) Converging evidence indicates that these explicitly fictional narratives are incorporated into our perceptions of reality (Gerrig & Prentice, 1991; Green, Garst, Brock, & Chung, 2009; Prentice, Gerrig, & Bailis, 1997; Strange & Leung, 1999), suggesting that fiction is not merely a popular escape, but a medium that influences individuals and society.

Whether a story is taken to be true or fictional may impact intermediate levels of comprehension of various elements, such as the significance of details (Hendersen & Clark, 2007), interpretation of references (Pihlainen, 2002), causal relationships (Strange & Leung, 1999), and situations and the perspectives of characters (Graesser, Olde, & Klettke, 2002). Details may be categorized either as information, in non-fiction, or, in fiction, as abstractions in the service of a higher representation. The view that aesthetic enjoyment is related to volume of information (Hekkert, 2006; Leder, Belke, Oeberst, & Augustin, 2004) suggests that readers should derive greater rewards from true stories. Likewise, Baumeister, Zhang, and Vohs (2009) argue that gossip contributes to the listener’s cultural knowledge as a complement to personal experience and observational learning, and true narratives may similarly provide real-world knowledge with little acquisition cost. Since our perceptions and representations of reality are noisy and fluctuating (Harvey, 2004), information that contributes to our estimates of the probabilities of events like those found in true narratives is valuable. In line with this view, Appel and Maleckar (2012) found that subjects expected non-fiction to be more useful than fiction. Presuming readers of non-fiction make contextual inferences analogous to those of listeners in a conversation (Schwarz,

1996), the mere fact of stories appearing in print may imply that they are relevant to knowledge of the world (Sperber & Wilson, 1986). Certainly, readers care about the distinction between fact and fiction, as there were public outcries when it was revealed that details of *A Million Little Pieces* (Bastone, 2006; Frey, 2005) and *Three Cups of Tea* (Kroft, 2011; Mortenson & Relin, 2006) were invented. Although these revelations did not change the content of the stories, readers may have felt they had mistakenly used them to update their notions of reality. In this manner, readers may ascribe less value to a story categorized as imaginary rather than actual.

On the other hand, fiction may provide greater access to the emotions associated with sympathy and identification with a character (Oatley, 1999). Fiction may be viewed as a simulation of social scenarios (Mar & Oatley, 2008), and interpreting details as elements of scenarios rather than as individual truths may ease gestalt comprehension (Hendersen & Clark, 2007). In fact, evidence suggests that this sort of uninterrupted processing is beneficial to global experiences such as narrative cohesion (Trabasso, Secco, & van den Broek, 1984) and narrative impact (Nisbett, Zukier, & Lemley, 1981). Fiction may freely incorporate compelling details and thematically relevant confluences of events, and in this manner represents purer “storytelling,” with events coming together in an aesthetically pleasing way, unconstrained by the limitations of mundane reality. Evidence suggests that readers expect to find fiction more transportive and entertaining than non-fiction (Appel and Maleckar, 2012). Fiction may generate increased fluency that can enhance aesthetic experiences (Chenier & Winkielman, 2009; Reber, Schwarz, & Winkielman, 2004) and provide reader access to thematic concerns.

Our concern is not whether fact or fiction is preferred, which may depend on textual and motivational differences, but with how the experience of a text is changed by presenting it as fact or fiction. We propose that the two views above may be reconciled when stories are written in the seamless, meaning-driven manner associated with fiction, yet are presented as true. This suggests three testable claims about reading narratives: (1) We update our notions about what takes place in the world when we read true stories. Despite a lifetime of direct experience with physical laws and the social environment, we generalize from the events presented in a single true story to believe that similar events will occur more commonly in real life. (2) We prefer the surprising and “storylike” qualities of fiction. (3) In spite of our preference for the qualities of fiction, we will enjoy a given story more if we believe it is true.

To test these predictions, we conducted three experiments in which we presented identical texts to subjects as either fiction or non-fiction. In the first experiment, subjects read brief synopses and rated their interest in reading the full-length versions. In the second, subjects read batches of brief, real-life comic anecdotes posted on fmylife.com (FML) or textsfromlastnight.com (TFLN), and rated their enjoyment. In the third experiment, subjects read story-length selections of realistic fiction and narrative non-fiction on the theme of either relationships or war.

Experiment 1: Synopses

Method

Participants in all three experiments were undergraduates from the subject pool at the University of California, San Diego. Fifty-nine men and 194 women read eight synopses of under 215 words each, written by the experimenters to be plausibly either

fact or fiction. For example, one was about a man recruited by the CIA to work on encryption, and another about a collegiate female track star battling to overcome injury. Synopses briefly described stories, with few details and without resolutions, to give subjects the impression they were finding out about a story they could read. Actual stories are likely to differ based on whether they are factual or fictional, but the stories summarized here differed only to the extent that subjects changed their expectations based on assigned truth value. Of the eight synopses, the first four, selected randomly, were presented in alternating order as fiction or non-fiction, with half starting on fiction. Whether a given synopsis was factual or fictional was printed on the experimental materials in plain language both before and after the synopsis. The last four synopses were not identified as fiction or non-fiction, and subjects instead rated their own impressions on a scale from 1 (definitely fiction) to 7 (definitely non-fiction). Subjects were informed that the experiment was about differences in “what people want to find out when reading fiction and non-fiction.” For each synopsis, subjects rated from 1-10 their interest in reading the full-length version. Subjects also rated their interest in seven issues they might want resolved in the full story, such as “What is the point of the story/article?” and “What happened to the central individual/character?”, ranking their importance from 1-7. These rankings, which are consistent with the cover story, allow for comparison of the goals readers have when reading fiction vs. non-fiction.

Results

Responses for this and subsequent experiments were analyzed using ANOVA at the level of ratings of individual reading selections, controlling for order of

presentation and overall level of interest in specific texts.

Subjects expressed more interest in reading full versions of synopses presented as factual than presented as fictional $F(1,951) = 10.28, p = .001, \text{Cohen's } d = 0.19$. Synopses were also categorized by whether they seemed like fiction or non-fiction (based on the mean rating provided by subjects who read the synopsis in the indeterminate condition) in order to test whether subjects preferred the semblance of factuality or fictionality. Subjects expressed more interest in reading full versions of the synopses rated more like fiction¹ ($F(1,1760) = 75.26, p < .001, \text{Cohen's } d = 0.38$). When ranking which questions they would most like answered, subjects felt finding out the point was more important for stories presented as fiction ($F(1,951) = 5.66, p = .018, \text{Cohen's } d = 0.14$), while finding out how common such events were in real life was more important for stories presented as fact ($F(1,951) = 7.66, p = .006, \text{Cohen's } d = 0.16$).

Experiment 2: Web anecdotes

Method

Subjects (197 male, 335 female) read posts from either fmylife.com or textsfromlastnight.com. Both sites are ideal for manipulating whether posts are fiction or non-fiction because they publish reader-submitted anecdotes that are supposedly true, but potentially fabricated. The posts on fmylife.com (FML) are ironic, often rueful, and frequently humiliating. FML anecdotes are first-person accounts that begin with "Today," end with "FML", and in-between briefly describe something very bad that happened to the poster. The website is extremely popular, with thousands of users clicking approval or disapproval of new posts within the first day, and such raters

representing only a fraction of readers. Most of our subjects have viewed FML multiple times, but with over 20,000 anecdotes archived online, few recognized the ones we presented.

Textsfromlastnight.com (TFLN) posts actual text messages, sent between cell phones prior to being submitted, depicting outlandish events, crass insults, and zany ideas. It is less popular than FML – new posts garner only hundreds of responses – but still has over 35,000 texts and text exchanges collected online. About half our subjects were familiar with TFLN.

Subjects were told that a website called “Urban Myths” investigates whether anecdotes posted on FML or TFLN are true, and reposts selections as true, false, or unverifiable. Since our aim was to investigate subjects’ responses to true and false anecdotes in general, rather than to capture responses to specific anecdotes, FML’s and TFLN’s were presented and rated in batches. Subjects read either three batches of anecdotes from FML, or three from TFLN, presented as true, fictional, or of indeterminate veracity, in randomized order. (In reality, all batches were of indeterminate veracity.) We generated six batches from each website by clicking the “random” button on each home page. (A few posts were eliminated for material deemed too crass or offensive; inappropriate words were presented like t***) The resulting batches were about half a printed page, with 7-8 FML’s or 9-12 TFLN’s per presentation. Subjects rated each batch as a whole, rating from 1-10 how much they liked it and how commonly such events take place in real life, and ranking from 1-3 their top choices from six potentially relevant themes. In the indeterminate veracity condition, subjects rated whether the batch seemed true or invented on a scale from 1

(almost all invented) to 7 (almost all true).

Results

Since FML's and TFLN's differ in length (generally) and format (consistently), separate analyses were run for subjects who read FML's and subjects who read TFLN's. Subjects reading either kind of anecdote preferred them when told they were true (FML: $F(1,516) = 48.3333, p < .001, d = 0.56$; TFLN: $F(1,476) = 25.3636, p < .001, d = 0.43$). Subjects also believed anecdotes presented as true occurred more commonly in real life (FML: $F(1,516) = 51.9090, p < .001, d = 0.59$; TFLN: $F(1,477) = 42.6868, p < .001, d = 0.55$). When FML's are categorized according to whether they seem like fiction or non-fiction (based on ratings provided by subjects in the indeterminate condition), those that seem more fictional are preferred, $F(1,815) = 11.66, p < .001, d = 0.24$. However, TFLN's rated as more like fiction were not preferred, $F(1,751) = 0.04, p = .835, d = -0.0101$. Post-hoc review suggested a mechanism underlying this distinction. FML's are generally concrete ("Today, I got fired from a great babysitting job because the little girl said I was boring."), while TFLN's express thoughts or provide commentary ("How young is too young to ask my kid to make me a drink?") For FML, "seeming fictional" may represent a judgment of whether events really happened, while for TFLN it may distinguish sincerely intended thoughts or desires from ones concocted to shock or amuse. A separate set of 184 subjects (51 male, 133 female) each rated one FML batch and one TFLN batch, drawn randomly from this experiment, on a scale from 1 (almost all abstractions) to 7 (almost all concrete events), and FML's were uniformly rated more concrete than TFLN's (5.23 versus 3.38, $p < .001$).

Experiment 3: Narratives

Method

Subjects (165 male, 521 female) each read three published narratives presented in random order as fiction, non-fiction, or of indeterminate veracity. Half the subjects read three narratives about relationships, and half read three about the Vietnam War. Narratives were selected so they could stand alone, including whole and abridged versions of short stories and book chapters. Four narratives from each of the two thematic domains, two actually fiction and two actually non-fiction, were used in the experiment. Presentation to subjects as fiction, non-fiction, or indeterminate was independent of whether stories were actually fiction or non-fiction. Subjects rated from 1-10 how much they liked each narrative and how common they thought such events were in real life, and also ranked their top three choices from seven potentially relevant themes.

Results

Subjects preferred narratives presented as true over those presented as fiction, $F(1,1215) = 5.28, p = .022$, Cohen's $d = 0.12$. Subjects believed events depicted in narratives presented as true were more common in real life, $F(1,1215) = 15.39, p < .001$, Cohen's $d = 0.22$, with direction of difference consistent across all eight narratives. Subjects also gave higher ratings to stories that seemed more fictional, $F(1,1869) = 13.07, p < .001, d = 0.17$, but this result must be interpreted with caution. Although subjects did not express doubt for narratives presented as true or fictional, and "indeterminate" stories were not clearly factual or fictional (means from 3.3 to 4.7, with 4 = "can't tell"), stories that were actually fictional were rated as seeming

more fictional, $F(1,610) = 20.3232, p < .001, d = 0.36$. Thus, the difference may be explained by these fictional stories being preferred, rather than stories that seem fictional generally being preferred. Despite these reservations, this finding duplicates the patterns seen in synopses and FML's, lending support to the existence of a preference for stories that seem fictional.

General Discussion

We presented the same stories as true or fictional, and subjects preferred them when they were presented as true. Subjects were more interested in hearing the full versions of synopses that were “true,” drew more pleasure from comic anecdotes that were “true,” and enjoyed realistic narratives more when they were “true.” One reason for this appears to be that we use stories perceived as true to update our notions about the sorts of events that are likely to occur. Subjects told that a story was true, as opposed to fictional, tended to infer that the events therein occur more commonly in the world, even when the events were ordinary. This is surprising, because the only difference between true stories and plausible fictions is that the true story must have occurred at least once in the history of time. While a true story serves as an existence proof – men once fought in Vietnam, people have fallen in love – the distinction need not be consequential in estimating commonality. Whether Engelbert Humperdinck has met an untimely end does not determine whether such things are possible, or how likely others are to meet a similar fate, but differentiates only between a provocative fiction and a compelling reality. Readers were willing to generalize from supposed “realities” despite their lifetimes of experience prior to reading them, even when they already considered the events described perfectly commonplace.

These findings are consistent with the idea that aesthetic enjoyment is associated with volume of information, and that true narratives, like gossip, are a source of cultural knowledge. We also found some evidence that readers are drawn to the surprising, aesthetically crafted developments associated with fiction. However, although subjects enjoyed the fictional writing style, the stories we presented were preferred as non-fiction. If labeling a story fictional benefitted fluency or cohesiveness, these benefits were superseded by those of calling a story true.

Of course, these results only speak to the areas of overlap between fiction and non-fiction. True stories may be too mundane or poorly constructed to be of general interest, and fictional stories (including fantasy, science fiction, and magic realism) may be compelling even if they cannot be true. These results also may not generalize across all contexts, as our comparisons between fiction and non-fiction occurred within only one context.

Our results may help explain why storytellers who fictionalize experiences and declare them to be true are often popular. Comedians present their absurd ideas as first-hand experience, authors of non-fiction exaggerate the challenges they've faced, and heavily-edited, utterly contrived television programs are marketed as "reality." It would not be nearly as powerful for a comedian to say "*Imagine if* a horse walked into a bar," for James Frey to propose, "*What if* I had caused a deadly train accident in my drug-addled state?" or for CBS to show viewers the craft services buffet and EMT's standing by on the set of *Survivor* (Giesman & Misiewicz, 2001). The best stories – a college student changes the world by creating a multi-billion dollar social networking website, a legal assistant earns a massive settlement against a utility company, a man

whittles off his own arm to survive – often seem fictional but are actually true.

Our notions of reality, rather than being set in stone, are in a constant state of flux and reconsideration. When we read that the exotic animals from a local zoo were loosed upon the town of Zanesville, Ohio, we adjust our expectations accordingly, even though we already know that zoos exist, and our likelihood of encountering a roving tiger on the way to work is unchanged. Whereas fictional stories have a propositional or “what-if” quality, non-fiction requires no translation and no suspension of disbelief. When we read of events that really happened – even plausible events that do not challenge our notions of how the world works – we generalize from them, and are more likely to believe that they represent a sort of event that tends to occur.

Perhaps this is why case studies are such powerful persuaders. The data may indicate that bacteria cause ulcers (Marshall & Warren, 1984), vaccines do not induce autism (Taylor et al., 1999), and job interviews are not diagnostic (Hunter & Hunter, 1984), but when a true story appears to support a contrary position, it’s taken not as the one-off that it is, but as a generalizable representative of reality. When we read that a man leaving his house for work encountered a tiger in the driveway, it seems fictional, and thus makes a great story, if true. And if true, it causes us to increase our probabilistic estimate of similar events, and likely to be a tiny bit more vigilant in our own driveways.

Chapter 1, in full, is a reprint of the material as submitted for publication by Leavitt, J. D. & Christenfeld, N. J. S. The dissertation author was the primary investigator and author of this paper.

Notes

¹ One synopsis was excluded from this analysis because its mean rating (3.95) fell between the group means (3.45 and 4.92) and almost exactly on the scale midpoint (4).

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Chapter 2 – Story Spoilers Don’t Spoil Stories

Jonathan D. Leavitt, Nicholas J. S. Christenfeld (2011). *Psychological Science*, 22, 1152-1154.

Stories are a universal element of human culture, the backbone of the billion-dollar entertainment industry, and the medium through which religion and societal values are transmitted. The enjoyment of fiction through books, television, and movies may depend, in part, on the psychological experience of suspense. Spoilers give away endings before stories begin, and may thereby diminish suspense and impair enjoyment; indeed, as the term suggests, readers go to considerable lengths to avoid prematurely discovering endings. *Transportation*, a distinct form of story engagement associated with vivid imagery and enhanced enjoyment (Green, Brock, & Kaufman, 2004), is highly associated with suspense via close attention to the unfolding plot and interest in how it will be resolved (Tal-Or & Cohen, 2010). However, people’s ability to reread stories with undiminished pleasure, and to read stories in which the genre strongly implies the ending, suggests that suspense regarding the outcome may not be critical to enjoyment and may even impair pleasure by distracting attention from a story’s relevant details and aesthetic qualities. In complex stories, developments hazy in their implications on first read are readily understood when the narrative is revisited, and nervous stirrings of uncertainty may become warm anticipation of coming events once the story is laid bare.

Reading a story with foreknowledge of its outcome may be analogous to *perceptual fluency*, in which perceived objects are processed with ease, an

experiencethat is associated with aesthetic pleasure (Reber, Schwarz, & Winkielman, 2004), positive affect (Winkielman & Cacioppo, 2001), and story engagement (Vaughn, Childs, Maschinski, Niño, & Ellsworth, 2010). *Schema discrepancy theory* suggests that increased predictability can result in increased positivity of affective response, although this effect is dependent on initial level of uncertainty (MacDowell & Mandler, 1989). Thus, despite intuitive beliefs about the effects of spoilers, there are plausible theoretical reasons to think they may not ruin the pleasure of reading a story. Their actual effect remains unknown. We conducted three experiments, each with stories from a different, distinct genre, to test the effects of spoilers on enjoyment.

Method

Participants (176 male, 643 female) were recruited from the psychology subject pool at the University of California, San Diego. They took part in three experiments in which they read three different sorts of short stories—ironic-twist stories, mysteries, and more evocative literary stories. For each story, we created a spoiler paragraph that briefly discussed the story and revealed the outcome in a way that seemed inadvertent. These paragraphs were designed so that they could work as either independent text or the openings of the stories (as though the stories were intrinsically spoiled).

Each experiment included four stories selected from anthologies. Each subject read three of these stories, one spoiled (with the spoiler paragraph presented before the story), one unspoiled (with the story presented without alteration), and one in which the spoiler paragraph was incorporated as the opening paragraph. Story, order, and

condition were counterbalanced such that each story was presented with equal frequency across positions and conditions. Each version of each story was read and rated for enjoyment (on a 10-point scale ranging from 1, *lowest rating*, to 10, *best rating*) by at least 30 subjects. The stories were by such authors as John Updike, Roald Dahl, Anton Chekhov, Agatha Christie, and Raymond Carver, and ranged from 1,381 to 4,220 words. Subjects indicated whether they had read any story previously, and if they had, their data for that story (< 3% of ratings) were excluded from analyses. Subjects were also provided the opportunity to respond freely about each story.

Results

For all three experiments, analyses of variance revealed a significant effect of condition. (In order to control for variability between stories, we analyzed the data by comparing different versions of the same story.) Subjects significantly preferred spoiled over unspoiled stories in the case of both the ironic-twist stories (6.20 vs. 5.79), $p = .013$, Cohen's $d = 0.18$, and the mysteries (7.29 vs. 6.60), $p = .001$, $d = 0.34$. The evocative stories were appreciated less overall, likely because of their more expressly literary aims, but subjects again significantly preferred spoiled over unspoiled versions (5.50 vs. 5.03), $p = .019$, $d = 0.22$. In all three story types, incorporating spoiler texts into stories had no effect on how much they were liked, $ps > .4$. Subjects also did not indicate in their free responses that they found these altered beginnings out of place or jarring. Figure 1 shows the ratings for the spoiled and unspoiled versions of each story.

Conclusions

Writers use their artistry to make stories interesting, to engage readers, and to

surprise them, but we found that giving away these surprises makes readers like stories better. This was true whether the spoiler revealed a twist at the end (e.g., that the condemned man's daring escape is just a fantasy as the rope snaps taut around his neck) or solved the crime (e.g., Poirot discovers that the apparent target of attempted murder was in fact the perpetrator). It was also true when the spoiler was more poetic, as when frisky adolescents watching a couple struggle with a baby are revealed to be previewing their own futures, and the couple glimpsing their own pasts. In all these types of stories, spoilers may allow readers to organize developments, anticipate the implications of events, and resolve ambiguities that occur in the course of reading.

It is possible that spoilers enhance enjoyment by actually increasing tension. Knowing the ending of *Oedipus Rex* may heighten the pleasurable tension caused by the disparity in knowledge between the omniscient reader and the character marching to his doom. This notion is consistent with the assertion that stories can be reread with no diminution of suspense (Carroll, 1996). Although our results suggest that people are wasting their time avoiding spoilers, our data do not suggest that authors err by keeping things hidden. Stories that open by revealing outcomes may lead readers to anticipate additional revelations at the end; in other words, readers do not expect a story to provide complete premature knowledge of its ending the way an external source might. Indeed, it was only spoilers external to the stories that enhanced readers' delight; there was no benefit to our editing the stories themselves.

Erroneous intuitions about the nature of spoilers may persist because individual readers are unable to compare spoiled and unspoiled experiences of a novel story. Other intuitions about suspense may be similarly wrong: Perhaps birthday

presents are better when wrapped in cellophane, and engagement rings when not concealed in chocolate mousse.

Chapter 2, in full, is a reprint. The final, definitive version of this paper (<http://pss.sagepub.com/content/early/2011/08/09/0956797611417007>) has been published in *Psychological Science*, 22, 1152-1154, by SAGE Publications Ltd., SAGE Publications, Inc., All rights reserved. Leavitt, J. D. & Christenfeld, N. J. S. (2011). The dissertation author was the primary investigator and author of this paper.

Appendix 1.1

Regular and simplified spoilers for “Bread on the Water,” one of the stories used in Experiments 2 and 3:

Regular spoiler (Experiment 2)

Life lessons often emerge from personal experiences, and it's not always the experiences that one expects to learn from. When Tommy is thrown out of church because of his friend Andy's jokes, it seems like a chance for them to spend a morning free of lessons in kindness and morality. But then Andy helps a hungry homeless man, and Tommy learns a lesson in generosity he may never have picked up from a sermon. It might even be an experience his parents and the church elders could stand to learn something from as well...

Simple spoiler (Experiment 3)

When Tommy gets thrown out of church because of his friend Andy's jokes, it seems like they'll have a morning free of lessons in morality. Instead, Andy feeds a hungry homeless man, and Tommy learns a lesson in real generosity he might not have learned from a sermon. Sadly, his parents and the church elders seem more focused on teaching kids to behave properly than to do good deeds.



Figure 2.1. Hedonic ratings of the individual spoiled and unspoiled stories. Error bars represent standard errors.

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**Chapter 3 – The fluency of spoilers:
Why giving away endings improves stories**

Jonathan D. Leavitt, Nicholas J. S. Christenfeld (2013). *Scientific Study of Literature*,
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Abstract

Spoilers, despite their name, seem to increase enjoyment of stories. This could be because readers enjoy reading expected endings, because knowing the ending allows them to appreciate aesthetic elements instead of guessing what will happen, or because knowing the ending increases fluency by enabling readers to correctly interpret clues and events. We conducted three experiments to test these hypotheses. Experiment 1 collected ratings at the midpoints of anthologized stories, and determined that readers experience greater pleasure even before reading the end of spoiled stories. This spoiler benefit was mediated by processing fluency, and not by appreciation of aesthetic elements. Experiment 2 found that spoilers similar to those in Experiment 1 do not increase ease of reading - or pleasure - for very-easy-to-read stories. Experiment 3 found, however, that very simple spoilers could increase the pleasure of easy-to-read stories.

The fluency of spoilers: Why giving away endings improves stories

Readers and moviegoers go to considerable lengths to avoid prematurely discovering the ending of a story, believing intuitively that suspense is integral to pleasure. Indeed, research suggests that transportation, the experience of becoming engrossed by a story so that the world falls away (Green, Brock, & Kaufman, 2004), is closely associated with the unfolding plot and interest in how it will be resolved (Tal-Or & Cohen, 2010). However, people are not always accurate at predicting what they will enjoy (Wilson & Gilbert, 2003), and it is not clear that pleasurable suspense is eliminated by knowledge of the ending (Gerrig, 1996). At a minimum, the fact that people enjoy experiencing the same story more than once, together with the fact that stories in certain popular genres effectively come with built-in endings, suggests that suspense derived from the uncertainty of the resolution is not always essential. Consistent with this, we previously demonstrated that spoiler texts that gave away the endings of stories did not make readers like them less. In fact, for every genre we tested – murder mysteries, tales that end with ironic twists, and more evocative literary stories – spoilers actually enhanced pleasure (Leavitt & Christenfeld, 2011).

Why might spoilers make people like stories better? There are several mechanisms that could underlie this phenomenon. One possibility is that spoilers improve the experience of reading by making stories more fluent, with fluency defined as subjective ease of processing (Reber, Wurtz, & Zimmermann, 2004). When a story begins, people and places are introduced, and a reader who knows what roles they will play by the denouement can make better, more confident inferences regarding their

qualities and relevance . When a story ends, its various elements are resolved, and a reader who has made correct inferences along the way – while ignoring red herrings – is better able to comprehend and integrate them. For instance, while the beliefs and expectations of characters might lead a first-time reader astray, a knowing reader can contrast what the characters’ believe against the actual outcome in the course of reading. Although there are many aspects of story difficulty, such as vocabulary and lexical complexity, that will not be altered by a spoiler (Hayes-Roth & Thorndyke, 1979), elements of the underlying structure, such as phrases that implicitly refer to other aspects of the story (Templeton, Cain, & Miller, 1981), may be rendered more easily comprehensible. If one of the reader’s goals is to construct a coherent representation of story events that accounts for why they are mentioned in the text (Graesser, Singer, & Trabasso, 1994), then the perspective and insight afforded by a spoiler can aid in this goal and thereby make reading more satisfying.

A second possibility is that readers of spoiled stories draw greater enjoyment from aesthetic elements because they are less focused on guessing the outcome. A story may develop characters that have unique perspectives and complex emotional experiences, richly describe sensory experiences, or employ poetic or compelling language. Just as a viewer who is familiar with the plot of *Casablanca* may take greater pleasure in the script and performances, a reader who knows the ending of a story may experience emotional rewards not typically accessible to first-time readers (Yanal, 1996). In this view, reading a spoiled story is analogous to driving to a known destination. The driver may be less concerned about the exact nature of the

destination and how to interpret signs along the way, and therefore be more free to enjoy the scenery and other incidental pleasures.

Perhaps the most parsimonious explanation for the benefits of spoilers is that readers take pleasure in stories concluding in the manner they expected, and this adds to the otherwise undiminished joy of reading a story.

To test why spoilers enhance enjoyment, we conducted three experiments. Experiment 1 examines whether spoilers increase enjoyment by increasing fluency, by increasing aesthetic pleasure, or merely by delivering expected endings. We used a selection of anthologized stories that had been enhanced by spoilers in previous experiments. Experiment 2 tested whether spoiler effects depend on increased fluency utilizing simpler stories that had been published in collections targeted to junior high school students, along with spoilers that were similar in complexity to those in the first experiment. Experiment 3 further examined the relationship between spoiler effects and fluency, using the same simple stories as the second, but spoiling them this time with brief paragraphs that were correspondingly simple.

Experiment 1: Classic stories previously enhanced by spoilers

Experiment 1 tested whether subjects prefer spoiled stories because more fluent comprehension makes the story easier to read, because greater attention to aesthetic elements increases artistic appreciation, or simply because they end as expected. This experiment used stories that had previously been demonstrated to be preferred when spoiled, along with the same short spoiler paragraphs, presented in text

immediately prior to reading the story (Leavitt & Christenfeld, 2011). However, instead of rating stories at the end as in previous experiments, subjects rated them half-way through, in order to test whether enjoyment was increased in the course of reading, rather than exclusively at the end. If spoilers increase enjoyment only because stories end as expected, ratings will not be higher at the midpoint. If spoiler enhancement results from greater aesthetic appreciation or greater fluency, we would expect ratings for both liking and aesthetics or fluency to be higher at the midpoint.

Method

Subjects in all three experiments were undergraduates recruited from the UCSD subject pool, and seated at a desk or table in the lab in order to read and rate stories. Subjects in this experiment (140 male, 191 female) rated spoiled and unspoiled versions of classic stories previously demonstrated to be enhanced by spoilers, including two each from the ironic twist, mystery, and literary genres. “Ironic twist” stories ended with a shocking twist, such as a dog being thrown out a window, or a murder weapon being fed to the police. Murder mysteries hinged on murders for which the perpetrator and/or motive were unknown. For our purposes, literary stories were defined not only by the use of evocative language and imagery, but as stories in which there is no concrete event of clear significance at the end. The stories were written by authors such as Roald Dahl, Agatha Christie, and John Updike, and range from 1,381 to 4,220 words.

Each subject read two of the six stories, one spoiled and one unspoiled, randomly selected from two different genres. Stories were presented on paper, with

questionnaires (described below) inserted in the middle, on a separate page, directly following a page break at the end of the paragraph closest to the midpoint of the story (as calculated by word count). All analyses were done on midpoint questionnaires, but subjects finished reading stories, as we did not wish to arouse their suspicion, nor to allow unfinished narratives to cloud their experience of subsequent stories. The spoilers described the outcomes of stories, while providing enough context so that the outcomes could be understood. They were of moderate complexity, and described endings seemingly inadvertently, so as not to tap into subjects' assumptions regarding the effects of spoilers.

Subjects rated overall enjoyment from 1 (lowest rating) to 10 (best rating). Other ratings were made on a seven-point scale, with the midpoint (4) representing the rating an average story would receive. Subjects first rated whether the story was unfolding as expected from 1 (not at all as expected) to 7 (exactly as expected). Next, following questionnaire text stating that stories are works of art, they were prompted to rate how "beautiful/evocative" they found each story, compared to stories in general, from 1 (much less than average) to 7 (much more than average). Finally, subjects evaluated how difficult it was to follow what was going on in the story, from 1 ("very easy") to 7 ("very difficult"), with fluency operationalized as the inverse of this rating. Since we are investigating spoilers, subjects were asked at the end of each story (in all three experiments) whether they had read it before, and data for any story for which they answered "yes" was excluded from the analyses. After completing all stories and story questionnaires, subjects filled out a final questionnaire including

demographic information, a question on whether they read fiction for fun (described in results), and prompts to rate from 1-10 issues such as how much they like fiction, and whether they generally read stories more for entertainment (low numerical end of scale) or for insight (high numerical end of scale).

Results

We analyzed subjects' responses using ANOVA's, controlling both for order of presentation and for overall differences in how much particular stories are liked. Subjects rating the first halves of stories preferred spoiled stories over unspoiled stories ($F(1,637) = 4.55, p=.033, \text{Cohen's } d = .14$), confirming that spoilers increase enjoyment prior to readers reaching the end of a story. (*See Figure 1 for a summary of main outcomes for Experiment 1.*) Spoiled stories were rated at the midpoint as unfolding more as expected, suggesting that knowing the ending was allowing subjects to anticipate developments in the first half in the story, $F(1,637) = 23.20, p<.001, d=.35$. As expected, ratings of aesthetic pleasure were correlated with enjoyment of stories ($r=.447, p<.001$), and ratings of how difficult stories were to follow were inversely correlated with enjoyment ($r=-.402, p<.001$). Stories proceeding as expected at the midpoint was also associated with enjoying them more, although the magnitude of the correlation was smaller ($r=.205, p<.001$). Subjects found spoiled stories easier to follow, $F(1,637) = 9.07, p=.003, d=.21$, suggesting that greater enjoyment of spoiled stories may be associated with greater fluency, but did not find them more artful, $F(1,637) = 0.01, p=.924, d=.01$. This supports the notion that readers prefer spoiled stories due to increased fluency, but not that readers derive

greater enjoyment from the aesthetic elements of spoiled stories. To demonstrate that fluency mediates the effects of spoilers, we must show that spoilers make stories more enjoyable, that spoilers increase fluency, and that including fluency in the model eliminates the main effect of spoilers. The results above show that spoiling stories increases enjoyment and increases fluency (or, equivalently, lowers difficulty of reading). Consistent with the evidence that spoiler effects are mediated by fluency, when ease of reading is entered into the analysis, ease of reading is significant ($p < .001$), and spoiled stories are no longer significantly preferred, $F(1,524) = 1.38$, $p = .240$. As stated above, although aesthetic appreciation was associated with enjoyment, it was not increased by spoiling stories. Consistent with the evidence that spoiler effects are not mediated by attention to aesthetic details, when aesthetic enjoyment is entered into the model (and fluency is not), spoiled stories are still preferred, $F(1,535) = 8.34$, $p = .004$.

Post-hoc examination of individual differences in reading revealed no interactions with spoiler condition. Subjects' ratings of how much they enjoy fiction in general did not interact with spoiler condition to predict hedonic ratings ($F(7,499) = 0.32$, $p = .943$). Subjects who selected that they enjoy reading fiction for fun (56%) versus when assigned or seldom (44%) both rated spoiled stories higher, and there was no interaction with spoiler condition ($F(1,611) = 1.05$, $p = .305$). Finally, we tested preference for entertainment versus insight using a median split, and found that both groups preferred spoiled stories, and this variable did not interact with spoilers to affect hedonic ratings ($F(1,613) < 0.01$, $p = .995$).

Experiment 2: Simple stories

Our previous experiments found that spoilers enhanced enjoyment of stories in genres we might expect them to ruin – murder mysteries and stories ending in ironic twists –and stories they seemed unlikely to affect – literary stories with evocative endings. Spoilers, then, seem capable of increasing enjoyment for several traditional genres. However, if the effects of spoilers are based on increases in the ease and fluency of reading, then we would not expect spoilers to have a positive effect on stories that are already experienced as close to ceiling in fluency. In this experiment, subjects read simple stories (in their entirety) to test whether spoilers could enhance story enjoyment under such circumstances. If they did not give higher ratings to spoiled stories, it would further support the hypothesis that spoilers increase enjoyment by increasing fluency. If spoilers instead increase enjoyment of stories by permitting greater attention to aesthetic elements, merely by revealing endings, or through another, unidentified mechanism, we would predict an increase in enjoyment even for spoiled versions of simple stories.

Method

The four simple stories used in Experiments 2 and 3 range from 2,098 to 3,783 words. They were found in anthologies intended for junior high or high school students, were penned by less famous authors than the classic stories, and explore simpler themes. Each story conformed to relatively conventional structure, although each also incorporated elements of irony or mystery. For instance, in “Bread on the Water,” the main character winds up learning more about charity after being thrown

out of a religious service than he did by attending services. In “The Shoot Out,” the character resents his parents forcing him to visit an historic old west town, but a ghost he encounters there helps him learn to appreciate the value of family. In this experiment, subjects (104 male, 136 female) finished stories before rating them. Furthermore, in addition to spoiled and unspoiled versions of stories, subjects also read, in random order, a version with an “intro spoiler.” This was a paragraph similar in length and complexity to the other spoilers we used, but describing only events in the opening paragraphs of stories. If spoilers increase enjoyment by giving away endings, then ones that give away only beginnings will not have the same effect. On the other hand, if intro spoilers do increase enjoyment, it would suggest that increasing fluency at the beginning of a story, without disclosing the ending, will benefit enjoyment.

Results

Spoilers did not increase enjoyment in this experiment ($F(1,680) = .01$, $p=.995$), with neither traditional spoilers ($d=.01$) nor intro spoilers ($d=.00$) significantly enhancing simple stories. (See Table 1 for a summary of main outcomes in Experiment 2.) Consistent with our expectations, mean ratings for how difficult these stories were to follow were lower than for the classic stories used in Experiment 1. Neither end spoilers ($p=.267$, $d=-.10$) nor intro spoilers ($p=.880$, $d=-.01$) had a significant effect on difficulty of reading (overall $F(2,680) = 0.72$, $p=.485$). It appears that increased fluency of comprehension is driving the positive effect of spoilers. When stories are already easy to digest, it is difficult for spoilers to increase fluency,

or pleasure.

Table 3.1: Means (and standard error) for Experiment 2.

Experiment 2 Results		
Spoiler	Hedonic (1-10)	Ease (1-7)
Ending	6.62 (.130)	5.82 (.073)
Intro	6.61 (.130)	5.73 (.072)
None	6.61 (.129)	5.71 (.072)

Experiment 3: Simple stories with simple spoilers

This experiment tested whether spoilers might increase enjoyment of easy-to-read stories, provided the spoilers are direct and obvious enough to further increase fluency. Regular, moderately sophisticated spoilers have been demonstrated to increase fluency and pleasure for moderately sophisticated stories, but had not increased fluency or pleasure in simple stories. Since difficulty ratings for the unspoiled versions of the simple stories in Experiment 2 were not at floor (mean=2.25, not 1), it may be possible to increase fluency. If spoiler effects are mediated by fluency, and simple spoilers increase fluency for simple stories, then we would expect them to increase enjoyment as well.

Method

The methods and materials for Experiment 3 were identical to those of Experiment 2, with one exception. Subjects (61 male, 174 female) were presented with the exact same stories in the exact same conditions, but for this experiment, both intro and regular spoilers were rewritten to be simple and direct. Changes that were

made to spoilers included simplifying sentence structure, eliminating unnecessary details, and shortening texts by reformulate statements about character's perspectives into more straightforward statements about the facts of the story. (See Appendix 1 for an example.) Compared with spoilers in Experiment 2, spoilers in Experiment 3 averaged 33% fewer words (reduced from 98 to 65), 32% shorter sentences, and 16% fewer words describing cognitive processes (Pennebaker, Booth, & Francis, 2007).

Results

Subjects in this experiment preferred simply spoiled versions of simple stories ($F(2,669) = 17.19, p=.003$). (See Table 2 for a summary of main outcomes in Experiment 3.) While the effect of intro spoilers was significant ($p=.003, d=.25$), and larger than that of traditional spoilers ($p=.063, d=.16$), the difference between the two types of spoilers was not significant, $F(1,445) = 1.19, p=.276$. The effect did not appear to be driven by stories being easier to follow ($F(2,668) = 0.69, p=.565$), based on ratings made at the end of the story, as neither spoilers ($d=-.10$) nor intro spoilers ($d=-.04$) had significantly lower mean difficulty ratings. Nonetheless, the mean difficulty rating was slightly lower in the spoiled conditions, and difficulty of reading was again inversely correlated with liking stories ($.137, p<.001$). Of course, mean difficulty of reading was low (between 2.21 and 2.33 for each of the four stories on a 7-point scale with 4 as the midpoint) in all conditions in this experiment. Even in the unspoiled condition, 27% of subjects rated stories at floor for reading difficulty (1 on a 1-7 scale), and another 38% rated them just 2 out of 7. Perhaps spoilers made stories initially more fluent, and therefore more enjoyable, but the simplicity of all stories

made the distinction less salient by the end, and left little room to reflect it in the ratings.

Table 3.2: Means (and standard error) for Experiment 3.

Experiment 3 Results		
Spoiler	Hedonic (1-10)	Ease (1-7)
Ending	6.56 (.130)	5.78 (.073)
Intro	6.76 (.130)	5.72 (.072)
None	6.22 (.129)	5.67 (.072)

Discussion

These experiments suggest that spoilers make people like stories better because they increase fluency. The beneficial effects of spoilers cannot be explained by readers merely reaching the end they expected all along, because subjects in Experiment 1 experienced greater enjoyment even at the midpoint. Nor can they be explained by readers who know the ending deriving more pleasure from the purely aesthetic elements of the story, because those same subjects did not rate the purely artistic elements of the stories more pleasing. When spoilers do not reduce fluency - as in Experiment 2, when the stories were very easy to read - they do not make stories more enjoyable. When spoilers are also very easy to read, as in Experiment 3, they again make stories more enjoyable, although we were unable to confirm that they increased ease of reading, possibly due to floor effects.

As with any study, we cannot be certain that these findings will generalize across all subjects and materials. Our subjects were undergraduates enrolled at

UCSD, and while very few had formal literary training, they are generally bright and successful students. We also did not investigate individual differences, such as low need for cognition or high tolerance for ambiguity, that might predict liking spoiled stories less. We also did not exhaust every genre, or test all stories within the genres we selected. We selected the two genres (mysteries and ironic twist stories) for which it seemed intuitively most important to conceal the ending, and the genre (evocative literary stories) for which it seemed that knowing the ending would be least telling. Readers may respond differently to spoilers in other genres, or even to some stories within these genres.

The idea that spoiled stories are more enjoyable simply because they are more fluent may appear to cast readers in a dim light, suggesting that we seek the least effortful route to finding out what happens. However, enjoying a story more when it is spoiled is not the same as wanting stories to spill their secrets quickly, in lieu of artfully concealing them. In prior work, when spoilers were presented as if they were part of the stories themselves, they no longer increased enjoyment (Leavitt & Christenfeld, 2011). Readers of fiction do not seek the most straightforward descriptions of events, or else they would eschew ironic twists, mystery, suspense, and every other genre that deliberately conceals relevant information. In practice, stories are complex stimuli, presenting new information in each sentence. They are inhabited by characters into whom authors breathe life, and include descriptions of locations, physical details, and abstract ideas in the course of presenting temporal developments leading to a denouement that ideally, if perhaps not achievably, weaves a tapestry as

rich as life itself. The language of stories is not one of simple declarative statements, but rather one that requires complex inferences, and often defies full comprehension. Instead of these findings pointing to lazy readers, they may indicate curious readers seeking comprehension. In this view, the increased fluency associated with spoiled stories may ultimately lead to deeper comprehension of thematic elements, without altering the artful presentations of stories. Further research will be necessary to explore the relative degrees of comprehension associated with spoilers and fluency. Increased fluency appears to play a crucial role in the beneficial effects of spoilers. Perhaps secretly informing a person of her surprise party will increase her enjoyment, as she is better able to meaningfully connect the mysterious behavior of others to its secret purpose – and an employee discovering his company’s plans to downsize may likewise experience less displeasure, as it becomes easier for him to draw future-relevant meanings from interceding events.

Chapter 3, in full, is a reprint of the material as accepted for publication by *Scientific Study of Literature*, 3(1). Leavitt, J. D. & Christenfeld, N. J. S. (2013). The dissertation author was the primary investigator and author of this paper.

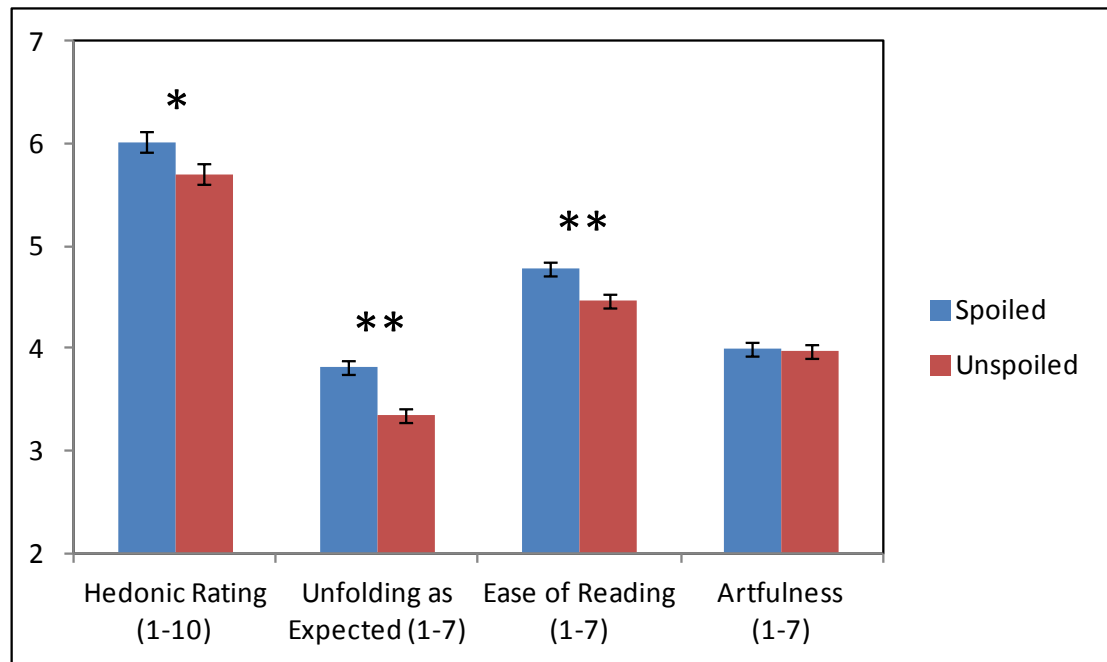


Figure 3.1. Midpoint ratings for Experiment 1. Error bars represent standard error.

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Conclusion

The goal of the research presented here was to further our understanding of why people like fictional stories. To do so, we looked at two crucial elements of stories, fictionality and suspense. We first examined fictionality, or how narrative processing differs between fiction and non-fiction. Non-fiction has evident value, as readers may learn from its veridical representation of the world. However, non-fiction texts are constrained by reality, and authors do not have unfettered access to the minds they seek to portray. The value of fiction is less obvious, as it does not accurately represent reality, and thus cannot be directly integrated into world knowledge. However, fiction offers greater access to multiple perspectives, and includes confluences of characters and events designed to evoke emotional responses and generate meaning. It stands to reason that readers will approach these forms with distinct motivational stances, and interpret them differently.

We provided evidence that people are more interested in reading the same story if they believe it is true, and that they like the same story more if they believe it is true. This supports the intuitive notion of greater utility for non-fiction, both perceived and experienced, as well as information-processing models of aesthetic enjoyment (Leder, Belke, Oeberst, & Augustin, 2004), especially those that prioritize deriving information not only from the work itself, but from a shared context (Ivanov, 1998). We found that people are more interested in learning how commonly events take place in real life when reading non-fiction, and are more interested in finding out what the point is when reading fiction. Readers also believe that events depicted in non-fiction, as opposed to fiction, occur more frequently in real life. This supports the

notion that readers expect non-fiction not only to veridically represent the world, but to be useful (Appel & Maleckar, 2012). It also supports the notion that readers do not expect to learn from fiction through correspondences with reality (Oatley, 1999). Instead, fiction readers may learn about reality through construals that transcend the story context (Gerrig & Prentice, 1991), and non-literal coherence “truths” gleaned from the work as a whole (Oatley, 1999). We also found that readers expect to derive more enjoyment from stories that seem more like fiction, as inferred from a synopsis, and in fact do derive more enjoyment from stories that seem more like fiction, based on subjects’ impressions of the text. In other words, readers believe fiction is more pleasurable, and, consistent with the finding that texts were preferred when presented to readers as non-fiction, it appears that this pleasure is derived from (and associated with) the style and content of fiction, and is less attributable to changes in interpretation based on the paratextual context. The one exception to this preference was that readers of particularly abstract web anecdotes did not prefer them when they seemed fictional. This suggests that readers enjoy it when surprising or unlikely events, as opposed to surprising or unlikely thoughts, are rendered in the style of fiction.

More study is needed to further understand anticipated and experienced distinctions between factual and fictional narratives. We found that readers prefer to read a non-fiction story if all else is equal, including the text. But what if subjects anticipate that different kinds of tasks will follow reading the text? In one study, subjects who read a fictional story in *The New Yorker* were subsequently more attuned to social stimuli than subjects who read a didactic article (Mar, 2007; Oatley, 2009).

Subjects could instead be given identical narratives presented as fact or fiction, and told that the subsequent task would either be a social task, such as an interaction with another subject, or a task that requires accessing world knowledge. If task expectations influence preference for narrative genre, it would suggest that readers are aware (consciously or unconsciously) of the differential effects of fact and fiction, and that real-life motivations for choosing one over the other are influenced by goals lying outside the narrative. If such an effect is found, another question that can be experimentally verified is whether performance on social and knowledge-retrieval tasks may be affected by first reading a factual or fictional narrative, distinguished only by the paratextual context, indicating an effect of receptive stance independent of narrative style and content.

We demonstrated that paratexts indicating that a text is fiction or non-fiction influence readers' motivations and narrative receptions for the same text, but texts also have intratextual markers of these genres. Even in the case of factual and fictional versions of the same story, we would expect differences in the text, some of which would likely serve as indicators, or reminders, of the text's empirical veracity. A corpus analysis across fiction and non-fiction texts could distinguish phrases that are common in one, and rare in the other (Graesser, McNamara, & Louwse, 2010). For instance, we have seen that certain kinds of verbs (promise demand; want, resent) are more common in fiction (Astington, 1990), and certain kinds of context details, such as those that can be externally corroborated, may play a more important role in non-fiction (Gerrig & Prentice, 1991). Determining and testing what some of these genre variants are would make it possible to reliably manipulate a text to appear more

factual or fictional while making only small changes. Next, presenting texts that were manipulated in this fashion would allow for a more finely tuned analysis of the relative importance of paratextual versus intratextual markers in predicting readers' responses. For instance, if subjects read a paratext claiming a work is fictional, followed by a paragraph containing textual indicators that suggest it is true, to what extent do they anticipate liking the work versus finding it useful? These findings in narratives could also be compared to lie detection (and lie creation) in conversation, to test whether there are parallels in indicators of truth and falsehood across linguistic media (Ali & Levine, 2008).

Goldstein presented sad films to subjects, manipulating presentation as either true or fictional, and found that self-rated levels of sadness and anxiety did not differ based on genre (2009). However, there are distinctions between the transportation experienced when reading a narrative and the diegetic effect when viewing a film (Schubert & Crusius, 2002; Green, Kass, Carrey, Herzig, Feeney, & Sabini, 2008). Although mental processing of narratives is likely similar across media (Busselle & Bilandzic, 2008), readers must generate their own mental images, whereas subjects viewing "factual" versus "fictional" films experience identical sounds and images. Thus, it may be the case that subjects experience differing levels of sadness or anxiety when reading a true or false narrative. For instance, Coplan (2004, 2006) has suggested that emotional experience of fiction is freer because one cannot feel a sense of obligation to a fictional character. Other emotional experiences may differ as well, such as a pleasurable thrill associated with mortal danger in fiction that may be experienced more as fear or concern in non-fiction. Readers of emotional texts

presented as fact or fiction can rate their emotional experience, and, in the case of an emotion such as anxiety, physiological arousal can be measured using heart rate or skin conductance. Electronic presentation of stories in which viewers select when to advance from one passage to the next would allow researchers to synchronize capture of physiological measures with specific passages. Findings of such an experiment would help clarify distinctions in emotional reception between fact and fiction, and also contribute to the literature on narrative reception across media.

We also examined suspense, specifically the question of how important it is to enjoyment for readers to lack knowledge of how the story they are reading will end. Across three genres, with three distinct kinds of endings, the intuition that knowing the ending will detract from story enjoyment proved false. In fact, the opposite was true, as readers actually preferred stories when they knew the endings in advance. A plausible explanation for this surprising finding was that readers derive more enjoyment from aesthetic elements when they are not focused on figuring out endings (Birkerts, 1998; Ian, 2012). However, further investigation demonstrated that an increase in aesthetic appreciation did not underlie the beneficial effect of spoilers. Instead, knowing the ending increased the fluency of reading the story, and this increase in ease of reading mediated the benefits of spoilers. This suggests that, for complex narrative stimuli, any negative effect of diminished suspense regarding the outcome is outweighed by the increased enjoyment associated with ease of processing (Winkielman & Cacioppo, 2001).

Our findings demonstrate that spoiling suspense regarding outcomes does not only not diminish enjoyment, but actually increases it. Typically, we would expect

people to preferentially pursue more enjoyable experiences, such as reading spoiled stories rather than unspoiled stories. However, people are not always accurate in forecasting how choices will affect their affective experience, and reading spoiled stories appears to be an example of this capacity for erroneous prediction. If people expect to enjoy spoiled stories less, it stands to reason that they may feel less desire to read them. This is consistent with the finding that enjoyment and desire are not always correlated in a rational manner (Winkielman & Berridge, 2003). In fact, they are represented by distinct neural pathways (Berridge & Robinson, 2003; Wyvell & Berridge, 2000). One way to test how knowing the ending affects the relationship between wanting and liking is to disrupt readers midway through reading a story. At the beginning of a story, readers without spoilers have very little information on which to base whether they want to read it, and by the end, desire is besides the point, as the goal has already been reached. We have already shown in Chapter 3 that spoilers increase hedonic response by the midpoint of stories. At this same midpoint, we can ask subjects to rate their desire to continue. This data can then be complemented by a behavioral measure in which subjects choose whether they want to continue reading. Reading can be disrupted by a supposed computer glitch or by missing pages. If, as in one of our experiments, readers fill out questionnaires at the midpoint, experimenters may then give them the first pages of a new story rather than the remainder of the original story, tell them they're not required to finish, or simply dismiss them, and record responses in relation to desire to continue the half-read story. One plausible path for divergence between wanting and liking in narrative reception is that a reader may become hooked on a cheap suspense thriller, as on a drug, without necessarily

deriving great enjoyment from it, because the narrative very directly establishes the likelihood of two outcomes of opposing moral valence. At the same time, the reader may feel little drive to continue reading a complex literary novel, even if the experience is very enjoyable, because the moral valence of potential outcomes is relatively opaque, and the process of reading is more effortful (Carroll, 1996; Zillman, 1980). A spoiler may diminish the state of wanting that drives narrative engagement, while increasing the fluency and comprehension that generate enjoyment.

Perhaps the reason that many readers believe a spoiler will ruin a story is a simple case of misdirected priorities, as finding out the outcome is overvalued, and the process of reading the narrative is undervalued. Theorists hold widely varying opinions on how best to model the mental processing of narratives, but most agree that narratives do not make meaning through direct statements, but rather they evoke meaning through lifelike depictions including the subjective experience of characters. Bruner describes narrative truth as an alternative to paradigmatic truth (1986); Gerrig and Prentice describe fiction as communicating only those details that transcend context (1991); Oatley describes fiction as generating coherence truths that arise from complex structures (1999); and Mar and Oatley describe fiction as a social simulation that runs in the human mind (2008). These theories all suggest that enjoyment of fiction is more likely to benefit from heuristic processing, which better allows one to integrate elements into a whole, rather than systematic processing, which focuses attention more on details (Tiedens & Linton, 2001). The evocation of suspense, in its tendency to heighten the likelihood of a very small number of clear outcomes (often two, such as victory and death), may be somewhat in opposition to the complex

structures represented in these models. Manipulating the processing style of subjects prior to reading spoiled and unspoiled stories could shed light on the role of processing style in narrative reception. To manipulate processing style over the course of a narrative, subjects' motivations for reading the story can be altered by informing them of subsequent tasks (Chaiken, 1980; Chaiken & Maheswaran, 1994), such as rating only how much they enjoy the story (enabling heuristic processing) versus telling the experimenter why they believe certain story elements are most interesting and most crucial to the story (encouraging systematic processing). A plausible prediction would be that subjects using a systematic processing style would show increased preference for spoiled stories, as they are better positioned to interpret the relative importance of story elements, while heuristic processing, although it might benefit the liking of stories overall, would impact the positive effect of spoilers, by encouraging a more holistic reading. However, our hypothesis is just the opposite: that spoilers actually benefit a heuristic processing style by granting readers better comprehension of how the story will unfold and the significance of intervening events. Readers of unspoiled stories, according to this view, will find reading relatively more effortful and confusing, and this process will be exacerbated by the need to engage in systematic processing. This prediction is in line with the theories proposed by Tiedens and Linton (2001), who suggested that uncertainty (such as not knowing the resolution) is associated with systematic processing, while certainty benefits heuristic processing. A related experiment testing top-down vs. bottom-up processing of visual stimuli immediately following presentation of spoiled or unspoiled stories could reveal whether spoilers induce a more heuristic style, shedding further light on the elements

of a pleasurable reading experience. Finally, a related but entirely distinct follow-up study, rather than manipulating processing styles related to uncertainty, could attempt to manipulate the affect experienced in response to uncertainty. If subjects can be manipulated to experience “positive uncertainty” (an approach most commonly applied in career counseling), it seems likely that this would diminish, or possibly even reverse, the positive effects of spoilers (Gelatt, 1989; Gelatt & Gelatt, 2003). This would support the idea that negative affective response to uncertainty plays a crucial role in the beneficial effects of spoilers.

We have shown that the enhanced enjoyment of stories associated with spoilers is mediated by fluency (Chenier & Winkielman, 2009). This could indicate that readers are lazy, and prefer for stories be as easy as possible to read and understand, or that greater enjoyment is associated with depth of comprehension, and that readers actively constructing meaning in the course of reading are aided by spoilers (Larsen & Seilman, 1988). In fact, the two interpretations do not contradict each other, but we argue for the latter playing a greater role in generating positive spoiler effects. If readers were lazy, stories that conceal important facts and developments would be unpopular, and genres such as mystery and suspense, which induce guessing and prediction of what did or will happen, might not exist. Perceptual fluency of narratives necessarily manifests differently than in images, because images permit rapid comprehension, often bordering on subjective instantaneity, whereas even the most fluent narrative unfolds over time, and can never be understood in a glimpse. Textual narratives also consist entirely of symbols, or encoded meanings, that must be interpreted, such that even a short narrative is polysemous (Bartlett, 1932). If readers

prefer spoiled stories because they are better able to construct meaning, then we would expect readers of spoiled stories to better remember meaningful details, and to construct richer interpretations. Giving subjects a short-answer questionnaire that tests memory for outcome-relevant clues and details that transcend the story context would indicate whether readers better understand the crucial elements of spoiled stories. Such a questionnaire would ideally also include questions on outcome-irrelevant (or misleading) “clues” and context details (Gerrig & Prentice, 1991), on which we would not predict enhanced performance for readers of spoiled stories. Finally, since the meanings of stories are not located in individual details, prompting readers of spoiled and unspoiled stories to identify story themes will enable experimenters to assess depth of story comprehension. Producing story themes is actually a challenging task, even just after having read a story (Goldman, 1985; Williams, 1993), but evidence suggests adults can match stories that have similar themes with some reliability (Seifert, McKoon, Abelson, & Ratcliff, 1986; Graesser, Olde, & Klettke, 2002). For this reason, an ideal test of thematic comprehension would be to present a set of potential themes for which rank order has been agreed upon by advanced readers following multiple story exposures, and to score readers’ abilities to select the most appropriate theme. Findings would either falsify or lend support to the theory that the fluency generated by spoilers benefits comprehension.

One final proposal would be to integrate the two lines of research covered here into one experiment investigating the role of spoilers across factual and fictional texts. Ideally, this would follow the preceding investigations, such that there is first more clarity on how spoilers operate, and on the goals and motivations associated with

reading fact versus fiction. One might hypothesize that works of non-fiction are immune to spoiler effects, considering that the audiences of many true stories are already familiar with the ending (e.g., *The Social Network*, *127 Hours*, *Titanic*). However, interest in famous true stories may be somewhat unique, in that consumers of popular culture (or, in one case, history) may develop great interest in them based on knowing the plot, but very few of the details. (This differs from reading a spoiler prior to a story in that the participants, rather than being imaginary or unknown, are recognized figures in whom viewers have taken an interest.) We have already reviewed some of the ways in which details in factual stories are processed differently than in fictional stories. For instance, elements of factual stories are more thoroughly integrated into world knowledge. Factual stories are also enjoyed more, when all else is equal. It seems, then, that since readers pay more attention to the individual elements of non-fiction, and spoilers will aid them in interpreting those details, spoilers will increase the enjoyment of non-fiction, perhaps more greatly than they do fiction. However, if spoilers benefit heuristic processing (as has been suggested, but remains to be established), we can construct an opposing view. Readers of spoiled non-fiction narratives would be predisposed to process them heuristically, but the genre would predispose them to process narratives more effortfully, so details could be integrated into world knowledge. In contrast, readers of unspoiled non-fiction would need to focus more attention on details in order to comprehend the narrative, which is consistent with the norms of the genre. This investigation could determine whether stories presented as non-fiction exhibit this reversal of the spoiler effects seen in fiction.

People enjoy reading narratives, whether fiction or non-fiction. We develop linguistic skills and hone our mental representations of others when we read fiction, and we update our understanding of the world when we read non-fiction. We believe our enjoyment of reading stories will be diminished if we know the endings, but in fact it is enhanced. Narrative is likely an extension of the crucial ability to learn from the experiences of others, and to share our own. Since it is often difficult to distinguish whether others' stories are veridical or fictionalized, it stands to reason that we would have adapted to comprehend and make use of both. Non-fiction may contribute directly to our knowledge, but fiction generates the possibility of abstracting and simplifying elements of reality, in order to present the most meaningful or streamlined iteration of a story. We are transported by stories, and experience suspense as we become invested in how they will be resolved, but we can enjoy the same stories again and again, and, perhaps similarly, enjoy the same story more when we are better able to anticipate the significance of its elements because we know how it ends. This thesis presented empirical findings, but also sought to provide compelling ideas that may fuel the imagination. It was written in the hope that you, its reader, would follow eagerly to the end to appreciate its full measure, even after having read the summary of findings in the abstract.

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