Two cultures but one epistemology: novels and empirical science

Examine the bookshelves of any lakeside cottage, and you are likely to find one or more novels. We care a great deal about fiction, a love affair with many different psychological motivations. In this paper, however, I'd like to examine whether our affection for novels is philosophically warranted. Is it a rational love? Is reading novels something that philosophers like us should spend our time doing? Are we right to convert our vacation reading to our research vocation?

Historically, novels have been derided with the kind of scorn currently reserved for television and video games. While we may want to put *Crime and Punishment* in a different category from *CSI*, an initial examination suggests that for every noble purpose we might assign to novels, some other genre does it better. Following the Russian formalists, narratologists distinguish three levels of analysis in their study of narratives[1]: first, there is the text, the physical medium in which the story is presented. Second, the story, which can be captured by a close paraphrase of the text (and which is fully preserved in translation). And third, the "fabula", which is the chronologically ordered series of events the story narrates. For example, *Crime and Punishment* is a text in Russian; the story begins with the fevered meditations and wonderings of Raskolnikov, which eventually sparks a flashback to a scene six weeks prior to the story opening, an overheard tavern conversation proposing, hypothetically, a murder justified on

utilitarian grounds. In the story the Petersburg wanderings precede the tavern scene. The fabula, in contrast, is the timeline of these events, in the order of their occurrence "in reality". In the fabula, the overheard conversation occurs before the other events.

Considered as texts, novels offer the aural pleasures of style and voice, but for the music of language one ought to prefer poetry, and for the variety of voices, drama. But of course we read novels mainly for their stories, tolerating weaknesses of style and losses in translation. Aesthetically, the standards for good stories descend from Aristotle's *Poetics*, which I need not rehearse except to note that novels fare poorly compared to several other forms, including short stories. In general the organic union of character, action, and plot (with its rise, climax, and denoument) is exemplified in great short stories (and drama). Compared to these, novels are sprawling, flabby, and wasteful.

One might argue that the aesthetic import of stories has little to do with their overall formal properties but rather with the more general powers of narrative itself. Narrative comes first in the lives of cultures and individuals and remains the basic framework for communicating and understanding one's experience, a connection to life so basic that many propose that consciousness, the self, and even the natural world be explained in narrative terms.[2] In this trend, the value of stories shifts from the aesthetic to the intellectual and epistemic. Stories are the vehicles of knowledge, and insofar as stories reflect human life, the knowledge stories impart

is ethical. We shift, then, from the aesthetic properties of stories to a consideration of content, what the stories are about, moving to the third level of analysis, the fabula. Here novels encounter a different kind of objection, one reminiscent of Plato's rejection of mimesis. Novels are fiction; their fabulas do not exist. Any conclusion based on the content of a novel is based on false premises, by definition. We may embrace narrative for its cognitive fit with our lived experiences, but for communicating knowledge and informing our ethical lives, we ought to prefer history, biography, and autobiography over all forms of fiction. Let us call this the epistemic problem of fiction.

The epistemic problem of fiction is especially troubling due to the many areas of life in which our understanding is informed mainly through stories. My knowledge, such as it is, of 19th Century English country life rests on the novels of Austen, the Brontes, and Eliot – exclusively. All are fictional, and as such I should consider Middlemarch as fantastic as Middle Earth. Perhaps even more troubling, I make relative judgments of verisimilitude among these authors, trusting Eliot the most and Emily Brönte the least. But I make these assessments strictly on the texts themselves, unaided by any genuine historical research. *Middlemarch* seems to me to be more plausible that *Wuthering Heights.* Eliot's tone, narrative voice, and point of view are steadier than the more "romantic" Brönte sisters. But surely it is a mistake to convert style into epistemic authority. In the absence of factual knowledge, I evidently make judgments about the content of the novels using my own experience as a reference point, but if so it would be circular reasoning to regard the novel as adding to knowledge I already have. The epistemic problem

does not limit itself to period details of costume and props. It encompasses my understanding of important aspects of psychology and sociology. On the topic of orphans, I think of Dickens. On the French bourgeoisie, Flaubert. It extends finally into the moral dimension. To understand the collision of consequentialist and deontological ethics, I turn to *Crime and Punishment.* I'll often refer to Raskolnikov's crime and all its consequences as if these were facts. I'm not alone – the moral authority of novels is widespread in philosophy.[3]

In short, we trust novels, but the epistemic basis for this trust is obscure. One could follow Plato's lead and consign fiction to the flames, in favor of edifying nonfictions based in virtuous realities. But I prefer instead to examine the epistemology of fiction, especially novels, to reconstruct a view of "fictional veracity" that grants the fundamental point that fictional fabulas are nonexistent but that novels nonetheless offer genuine evidence for claims not already held by readers. I propose that not every fiction is equivalent in this regard; the novel will turn out to be distinctive.

As a step toward a positive account of novelistic epistemology, we might consider two common deployments of fictions, the example and the thought experiment. Logically, examples fill two roles, as illustrations and as evidence. As illustrations, they display the consequences of views that rest on other grounds. As such, they fall outside the logic and epistemics of arguments. As evidence, an example forms part of the inductive basis for a more general conclusion. But to be

part of a sound argument, an example has to be true. Once again, fiction is illegitimate in this role.

A more complex case is the thought experiment, and fictions, including novels, are often cited in this application. A thought experiment is designed to motivate and clarify intuitions and commonly plays an important role in argument. Generally, a thought experiment draws out the consequences of a claim; those consequences are either welcome or absurd. In the normal function of the thought experiment, the narrative is logically determined by the claim in question. For example, in Judith Thompson's classic thought experiment, we are asked to imagine ourselves suddenly and involuntarily tethered to another person, a famous violinist, who depends for life on the unbreakable umbilicus between us.[4] Butler asks what our obligations to the other person are, in the context of principled arguments against abortion. If we do not feel obligated to spend nine months tethered to another person, then it seems irrelevant that the person is an unborn fetus. Thus, the thought experiment implies that the alleged personhood of the fetus may not be decisive with respect to the morality of abortion.

A good thought experiment should illuminate a conclusion that can be deduced from the combination of stipulated conditions and general principles. The cleverness of the thought experiment derives from the author's ingenuity in constructing its premises. Beyond those conditions, however, the thought experiment is all clockwork, even when the consequences are

elaborated at great length and embellished with descriptive detail. A thought experiment is the narrative equivalent of an analytic sentence. But novels (and literary fictions in general) are not like this. The initial conditions of a literary narrative may greatly constrain the outcome but do not determine it. However worked out the initial conditions of a novel may be, there is always a residual contingency, always some aspect of the story that exceeds what must unfold to make the story coherent in its parts.

In their capacity to go beyond their premises, then, novels are more like synthetic truths. For example, Einstein grappled with the theory of special relativity by imagining himself chasing a beam of light. What would happen, he wondered, in his thought experimental situation, given the available theories of light? Now imagine the same premise in the hands of Kafka or Calvino….

Contingency appears in fiction either as a character's free choice or as unanticipated events in the world of the story. In either case the reader cannot entirely foresee what will happen next. Nonetheless, unfolding events in the story modify the understanding of the initial conditions. From this clue we hypothesize a different epistemic role for fictions, and especially novels (that is, works where contingency is most on display). Fictions of this type, open and contingent fictions, resemble experimental science; the novelist and the empirical scientist are close kin. The novelist and scientist are separated by the gulf of the legendary two cultures,[5] and indeed in many operational details the two are very different, but these are potentially superficial

differences between two fundamentally similar modes of discovery. To clarify this conjecture, I'd like to work out the analogy in some detail. This redescription of the processes of writing a novel or constructing an experiment does not depict a literal or chronological process, but rather a conceptual procedure, an edifice that may be constructed piecemeal in the process of articulating a fiction or an experiment.

The scientist and the novelist both construct what I will call "model systems." Their constructs are systems in that they consist of many interdependent parts. The systems are semi-autonomous: they depend partly on the choices and inclinations of their creators, but also can grow and alter outside of the direct intentions of the scientist or writer. The scientist's system will run in her lab, involving dynamic objects and apparatus. The novelist's system will "run" in her imagination. Both creators will make observational reports on their systems, and both will eventually distill and elaborate their observations into a narrative of the system in operation. The system is a model in that it is in a special relationship to the real world. Both kinds of system are parts of the world and both behave according to laws of nature. (The novelist's imagination will be implemented in her brain; the scientist's experiment will be implemented in the lab.) Both systems will contain particular entities that will interact within the system. Entities of interest to the scientist can include any entity or group of entities amenable to experimental manipulation – animal, vegetable, or mineral. The novelist's entities especially include characters but also settings and props. Both creators construct and observe the behavior of particular entities, but their interest is not in the particular tokens but in the types they represent. For the scientist, the

behavior of her particular experimental subjects is used to question generalizations that she will attempt to discuss explicitly. For the novelist, the narrated behaviors may not inform explicit generalizations, but the interest is nonetheless in the characters as exemplifying more general dynamic relationships.[6] This is the first sense of "model", the capacity of the system to represent the dynamism of a much more complex reality that includes the system and many variations and expansions of it. The constructed system is a model in another sense as well, namely, in the connotation of the distinctness and separateness of the model from reality. Although both systems are real parts of the natural world, the entities manipulated by the novelist and the scientist are removed from that world, and their systems run inside a bubble that insulates them from leakage from or into the outside world. The novelist's system is protected by ontology. Raskolnikov (the character) can menace people all he wants but we readers are never at risk. The scientist's creatures are real but thanks to scientific practice enjoy a comparable separateness from the rest of the world. This isolation is enacted in deployment of experimental controls. By controlling all the causal conditions except for the condition of interest, the experimenter in effect brackets the world, to create an artificial subworld in which only one cause is effective. The outcome, if any, is unaffected by the myriad contingent influences that would normally interact in the real world. Thus the model systems of both the novelist and the scientist are purified from outside influences, and exempt from most or all of the buffets of ordinary reality. In this way models are unrealistic. Like a model airplane, an experiment or a story is similar to a part of the world, yet functionally disconnected from any real context.

This initial look at model systems emphasizes the resemblance of writing and experimentation, analogizing the exercise of novelistic imagination with the conduct of controlled laboratory experiments. If the analogy is useful, it recasts writing as a lab exercise.[7] But the analogy also emphasizes elements of scientific practice that are usually not marked, recasting science as a creative exercise. This emerges as we turn to the stages of creation. Both fiction and science necessarily operate from a standpoint, comprising two main elements. First there is a set of background assumptions, a presumed "world" of the model system. In this world certain types of entities are real and certain laws hold (and others do not). Both scientist and novelist will make some of these explicit, providing a setting for the model, for example "evolutionary theory" or "Paris". Even if not explicit, these background conditions are common knowledge shared by authors and readers, and violations will be jarring and grounds for rejecting the work outright. These background conditions comprise the "local ontology" of the model system. This ontology is often conventional. For the scientist it is given in materialism and the assumptions of normal science in the particular discipline she works. The novelist can erect her background with equal efficiency by signaling her genre. But in addition to ontology, both creators must also choose a "local epistemology". In fiction, this is the point of view, which in contemporary narratology has been called "focalization". Meike Bal characterizes it thus: "Focalization is the relationship between the 'vision,' the agent that sees, and that which is seen." (*Narratology*, 146) The focalizer in fiction is the standpoint from which the action is reported. Proust is focalized through a single mind, while Hemingway is focalized from outside his actors. Even the most "objective" writing styles nonetheless are focalized through the choice of detail, style of

description, pacing and ordering of elements, and many other choices. Thus focalization is at once an enabling and disabling of different possibilities of insight, as writers will allow us to know what some characters think and see, or not, or disclose certain features of the story world, or not. By choosing what to focalize, the writer excludes myriad possibilities as well. Some of these exclusions are irrelevant to the story, but others may be decisive.

Focalization has a strict parallel in science, found in the choices experimenters make in method and methodology. The methods section of a scientific article is the scientist's equivalent of focalization. It explicitly describes what the scientist will do and not do, and what can be observed and what will escape observation. Like the novelist, the scientist makes many choices here, and these choices are contingent. There is nothing in science or its methods that dictate how an experiment must be observed.

I'm emphasizing this parallel to undercut a conventional contrast between science and fiction, a contrast between "objectivity" and a variety of terms for epistemic squishiness often attached to fiction: subjective, imaginative, personal, etc. Focalization (in fiction) and methodology (in science) are choices of human creators, and are fully subject to all the influences of interest and convention arising through an individual's life experience in particular social circumstances. Accordingly, in science alternative explanations are excluded not by falsification but simply by omission. This is in agreement with the feminist critiques of science espoused by several

authors, a point to which I'll return.[8] In a novel, the exclusion and limitation of insight is prominent. We are led to wonder what is happening off the current page we read. In science, however, the limitations and exclusions are disguised. In many ways the rhetoric of scientific writing, with its passive voices, passion for quantification and graphical contrasts, and formalized styles, operates to distract us from the underlying free play and its doubts. If a scientific paper were narrated as a fiction, these focalizations would be prominent. (Scientists know this, as is visible in their memoirs or in any conversation with a working scientist. Insiders read scientific papers with the same critical apparatus that literary critics bring to novels. As writers, scientists modulate their focalization with great sophistication. Each of the major journals in any field has its own style. To convert a submission to *Science* to one appropriate for *Nature* or *Proceedings of the National Academy of Science* requires a complete rewriting.)

In short, both novelists and scientists construct model systems and watch them run, making their observations from particular chosen standpoints. Their interest, and ours, is not in the concrete particulars of the experiment but in what those particulars imply about the world outside the model system. Novels make implicit claims about the real world, while scientific reports are more likely to draw their conclusions explicitly, but the generalization from model to reality is similar. However, these comparisons of literary and scientific process do not yet determine their relative entitlements as knowledge. To continue the exploration, then, we carry the twin processes forward another step. How are novels and scientific reports received? Most science is (Kuhnian) normal science, with its outcomes in conformity with the background conditions.

They cast their light on an unknown corner of nature, but reveal only what was already expected there. Most novels are similarly "normal". In most novels, and especially in genre novels, we watch the action unfold in satisfying representations of aspects of life we already understand. However, in both science and fiction the normal sometimes breaks. In Kuhnian terms, an anomaly occurs – an outcome in violation of the normal expectations. There are novelistic analogues. For example, toward the middle of *Crime and Punishment* Raskolnikov confesses his double murder to Sonya, the virtuous young woman forced into prostitution in order to support her family. Raskolnikov's crime horrifies Sonya and naturally offends her deepest moral convictions. But instead of recoiling she throws her arms around Raskolnikov, crying "There is no one more unfortunate than you in the whole world!" Then she declares that she will never leave him. Before Dostoevsky, this behavior – responding to a confession of murder with a profession of love – would have been inconceivable.

Our reaction to novelistic and scientific anomaly is initially skeptical. How could this be? (Could any human behave like Sonya?) This leads to attempted replication. If replication fails, the initial report is rejected (remember cold fusion?); in literature, the anomalous novel is rejected as implausible. In science, as the anomaly is replicated the discipline enters a period of crisis, eventually resolved through a paradigm shift. In literature, something similar may occur. The reader may search for parallel anomalies in other literary works or in life, or authors may adopt standpoints in which anomalies are ripe for replication. Following Dostoevsky's repeated presentations of contradictory characters like Sonya, novels turned psychological and existential.

Sonya would be impossible in the world of Jane Austen, but a full citizen in the worlds of Camus, Beauvoir, or Sartre, let alone Nietzsche or Freud.

The processes of reception and acceptance are of course more complicated than this sketch allows, but I hope there's enough detail to identify a parallel epistemic trajectory, as follows: We provisionally accept the model systems of both scientists and novels as models of the world, which acceptance is always modulated by our existing beliefs and subject to further modification. Overall, then, the analogies I've drawn provide a common epistemology for fiction and science. Because novels and experiments are model systems, we are interested in their generalization and not in the particular entities narrated. So we can believe in *Crime and Punishment* even though its characters are not real. We believe in its descriptions of the dynamics of a model world insulated from the real world, but a part of it nonetheless. This is a provisional belief, one we are prepared to abandon, and a limited belief, qualified by the standpoint we recognize as shaping and limiting Dostoevsky's and his character's perspectives and perceptions. But it would be a mistake to regard this as an inferior sort of knowledge, compared to empirical science. Science, I've argued, is no different. We discard the particulars of the scientific report in favor of generalizations that hold outside of the model system, but these beliefs are also provisional and qualified by standpoints. We should be critical and skeptical readers of both novels and science, but both forms of writing can legitimately extend our knowledge of the world.

I'd like to conclude by coordinating these comments with standpoint epistemology as developed in feminist philosophy of science over the last few decades. Standpoint theory generally interprets standpoints as positions in social, political, and economic hierarchies, and proposes that relatively oppressed positions afford epistemically superior standpoints.[9] The oppressed must anticipate the views of the oppressor along with his or her own, while the oppressor remains comfortably blind to the perspectives of the oppressed. The dual viewpoint of the oppressed affords a better chance to perceive what's really happening. Here, however, I understand standpoint more broadly, as the free play of focalization. One's social position is part of it, along with one's personality, free choices, and many other contingencies can affect what is seen and what is understood. But the epistemic gain of multiple standpoints remains. The ability to move from one standpoint to another maximizes the visibility and sensibility of the world. Each standpoint excludes more than it includes, but the exclusions are different from standpoint to standpoint. Novels are therefore important.[10] These considerations validate one's literary research – and vacation -- commitments. But for the same reasons, we should be reading our science as well. However, we should be reading our science as if it were fiction, and not as if it pronounces final and unassailable truths.

Literature has been promoted for its role in ethics.[11] Here I've suggested that this is legitimated by the epistemics of fiction. Insofar as novels tend to explore the limits of human action, novel-based understanding is highly relevant to ethics. Not all science expands our conception of human action, but some does, and these perspectives cannot be excluded either. The papers

presented at this session portray narrative and especially fictional narrative in its full glory as a tool for human understanding.

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[1] V. I. A. Propp, Morphology of the Folktale, International Journal of American Linguistics (Bloomington, Ind.: Research Center, Indiana University, 1958). See also: Mieke Bal, Narrative Theory, Critical Concepts in Literary and Cultural Studies, 4 vols. (London ; New York: Routledge, 2004).

[2] For example, Daniel C. Dennett, Consciousness Explained, 1st ed. (Boston: Little, Brown and Co., 1991).

[3] See especially the essays of Martha C. Nussbaum, Love's Knowledge : Essays on Philosophy and Literature (New York: Oxford University Press, 1990).

[4] Thomson, J. "A Defense of Abortion". *Philosophy and Public Affairs* 1:1 (Autumn 1971): 47-66.

[5] C. P. Snow, The Two Cultures: And a Second Look, [2d ed. (Cambridge,: University Press, 1964).

[6] Suppose that we discovered that Raskolnikov had been a real person, and that all the interactions narrated in Dostoevsky's novel were accurate renderings of historical encounters. Suppose further that Dostoevsky used elaborate recording devices to capture Raskolnikov's mutterings to himself, and through sophisticated reconstructions grounded his reflections in historical truth. In short, suppose we discovered the "historical Raskolnikov" and thus converted *Crime and Punishment* into a case study, a 19th Century Russian precursor of *In*

Cold Blood. It seems to me that historical particularity diminishes and relocates the meaning of the book. The particularity of the real Raskolnikov makes him less of an archetypal model for other persons, places, and times. By now this Raskolnikov would be long dead. The fictional Raskolnikov cannot die, and floats among us as a permanent possibility of character and action. The thought-experimental distinction, I think, suggests the presence of general themes expressed through the particulars of the story.

[7] Novelists often describe their created worlds as separate realms whose dynamics the writer merely witnesses, as a lab scientist or naturalist might describe her activity.

[8] Sandra G. Harding, Whose Science? Whose Knowledge? : Thinking from Women's Lives (Ithaca, N.Y.: Cornell University Press, 1991), Nancy C. M. Hartsock, The Feminist Standpoint Revisited and Other Essays, Feminist Theory and Politics (Boulder, Colo: Westview Press, 1998).

[9] Sandra G. Harding, The Feminist Standpoint Theory Reader : Intellectual and Political Controversies (New York: Routledge, 2004).

[10] Interestingly, in a recent defense of standpoint theory, Alison Wylie's principal example is drawn from a novel. See "Why Standpoint Matters" in *Science and Other Cultures* (Ed. R. Figueroa and S. Harding, 2003), 26-48.

[11] Nussbaum, ibid.