

weak perception, a shadow of reality. The paradox of fiction is that setting perception aside is the condition for augmenting our vision of things (Ricoeur 1991, 175.)

Yes, there is a difference between fiction and history. History refers to events that really occurred in the past. In history there is a burden of providing evidence, material proof, which in fiction, the writer can disregard. The work of the fiction writer, however, is not without a real reference to a real reality. The fiction must offer a different kind of evidence in order to "trick" the reader into "believing in" a seemingly "realer-than-life" story. Indeed, argues Ricoeur, fiction is an augmentation of reality -- an imitation or *mimesis* which makes reality more real by framing it within a narrative structure.

There is no question of denying this asymmetry [between history and fiction]. On the contrary, it must be recognized in order to perceive the overlap, the figures of the chiasmus formed by the crisscrossing, referential modes characteristic of fiction and history: the historian speaking of the absent past in terms of fiction, the novelist speaking of what is unreal as if it had really taken place (Ricoeur 1991, 6.)

Ricoeur's formulation of the narrative function arising from the temporal character of human *belongingness* allows us to recognize that fiction has a real reference, even as history has an imaginative, unreal component. History and fiction are different literary genres, not radically different activities. One takes the chronological scales seriously in its attempt to directly represent reality, the other plays with chronology and reality to imaginistically, productively, and indirectly represent reality. Both have "reality" as their referent.

Both history and fiction are mediated symbol systems. Emplotment, in this view, is itself a symbolic tool for indirect representation. These symbol systems,

the guiding metaphors and narratives, of history and fiction, are always productive in their capacity to render real life in certain ways.<sup>17</sup>

In one way or another, all symbol systems contribute to shaping reality. More particularly, the plots that we invent help us to shape our confused, formless, and in the last resort mute temporal experience (Ricoeur 1991, 6.)

Thus, in fiction we suspend our normal temporal referent to get at a deeper representation, a *mimesis* of reality, to use Aristotle's terminology. But this suspension of the "normal" referent is always a temporary move in a representation of real life, which is both descriptive and prescriptive in its form.

This is why suspending the reference can only be an intermediary moment between the preunderstanding of the world of action and the transfiguration of daily reality brought about by the fiction itself. Indeed, the models of actions elaborated by narrative fiction are models for redescribing the practical field in accordance with the narrative typology resulting from the work of the productive imagination. Because it is a world, the world of the text necessarily collides with the real world in order to "remake" it, either by confirming it or by denying it (Ricoeur 1991, 6.)

Story-telling is the first way that humans attempt to understand and negotiate a potentially infinite field of experience. In story-telling, the narrative structure provides "the technique of abbreviation, articulation, and condensation by which the effect of iconic augmentation is obtained. . . "(Ricoeur 1991, 176.)

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<sup>17</sup> See for instance Hayden White (1978) *Tropics of Discourse*, for a discussion of cultural criticism and history. White argues that tropics are the actual means by which discourse constitutes reality. White develops a schematic of metaphor, metonymy, synecdoche, and irony which he then correlates to modes of emplotment and explanation in history, fiction, social sciences, and ideology. According to White, historical accounts can always be present as either romance, comedy, tragedy, satire, or epic depending on the form of emplotment. While White's discussion supports Ricoeur's understanding of emplotment as central to history and fiction, I find *Tropics of Discourse* as problematic in its relativistic and reductionistic tendencies.

This augmentation by structuring a more poignant reference independent of the particulars of its original inscription is what defines great works of fiction in their ability to break free from their originating context and continue to project new "worlds" across the years. This is a kind of action or doing, not merely representing.

To the extent that fiction operates within the limits of a mimetic activity, what it redescribes is action that is already there. Redescription is still description. . . beyond its mimetic function, imagination, even applied to action, has a projective function that is part of the very dynamism of acting (Ricoeur 1991, 177.)

Ricoeur calls for a parallel approach to history that recognizes the augmentation of "seeing" into the past through the historical rendering of an interpreter.

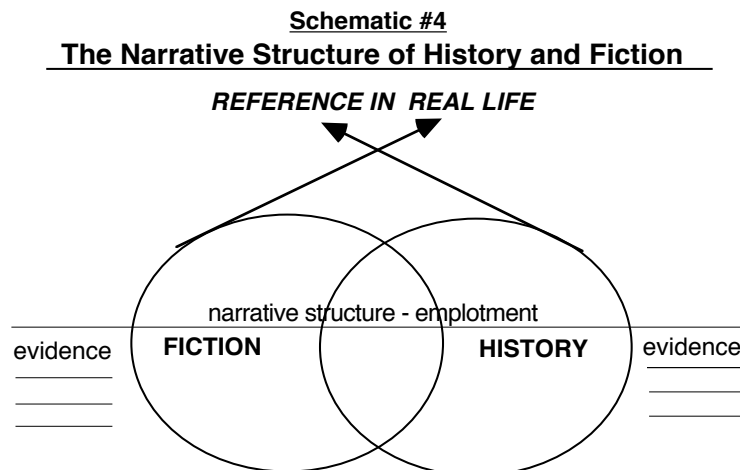
Just as narrative fiction does not lack reference, the reference proper to history is not unrelated to the "productive" reference of fictional narrative. Not that the past is unreal: but past reality is, in the strict sense of the word, unverifiable. Insofar as it no longer exists, the discourse of history can seek to grasp it only *indirectly* (Ricoeur 1991, 7.)

History is perhaps a more restricted literary genre than fiction. The historian creates plots that the records may authorize or forbid, but that they never contain transparently in themselves. History schematizes and organizes the records and traces into a meaningful whole. The past presents itself as a limited field or matrix of interpretations. Some emplotments of history may be more probable and more convincing than others, but this assessment occurs within the hermeneutical circle described above. Fiction, however, also has restricted modes of representation. The kinds of evidence offered in this narrative form must also find their authority or efficaciousness in creating compelling images of real life for the reader.

Narratives function in history, as in fiction, as models do in relation to metaphors in our earlier discussion. They are both descriptive and prescriptive in their effect on human perception, conception, and behavior.

Between what could be a logic of narrative possibilities and the empirical diversity of action, narrative fiction interposes its schematism of human action. By thus constructing the map of action, the man of the narrative produces the same reference-effect as the poet who, according to Aristotle, imitates reality by reinventing it mythically. Or, to employ the vocabulary of models mentioned earlier, one could say that narrative is a procedure of redescription, in which the heuristic function proceeds from the narrative structure and redescription has action itself as its referent (Ricoeur 1991, 177.)

The following schematic attempts to represent Ricoeur's understanding of the centrality of narrative in history and fiction:



Ricoeur's account of the narrative structure of history and fiction within the problematic of temporality is both descriptive and prescriptive of how humans should self-critically examine the narrative "tools" we use to emplot the universe and our lives as intelligible and imbued with meaning. We cannot step out of these evolving stories in order to tell the one true story, because we belong to these stories in multiple and layered ways. There is only an imaginistic

possibility of declaring a "nowhere" and an entry into a hermeneutical conversation that is constituted by our past and present, and constitutive of our futures.

## **12. Extending Ricoeur into the Biophysical Sciences**

I have tried to argue along side of developing a brief overview of Paul Ricoeur's philosophical hermeneutics that within scientific works, as within metaphors and literary works, there are surpluses of meanings that call forth interpretation. Science's attempts to describe, explain and understand natural processes through theoretical models function analogously to metaphoric and symbolic representation. It would appear that our biophysical worlds are in some way also symbolic at a depth level. The significations of any utterance, literary or scientific, are never simply literal or dennotative. Rather, there is a spectrum of possibilities between figurative and literal, at the extremes of which we encounter each other as mutually and dialectically constituted. Ricoeur argues that in fiction, there is a *mimesis* of reality which is a kind of improvement on or opening up of reality through its descriptive and formative powers. I argue similarly for the sciences that there is a swing toward the invention of reality away from simply a "discovering."

This metaphoric, interpretative process can provide a coherent account of science, in a way that naive scientific realism and empiricism cannot. This approach better accounts for the history of theoretical and observational enhancements in modern science as presented by Kuhn and Putnam under the rubric of paradigm shifts. At the same time, this approach can coherently and

productively engage us in a moral and political discourse about the ideological and utopic functions of modern science for ill or good.

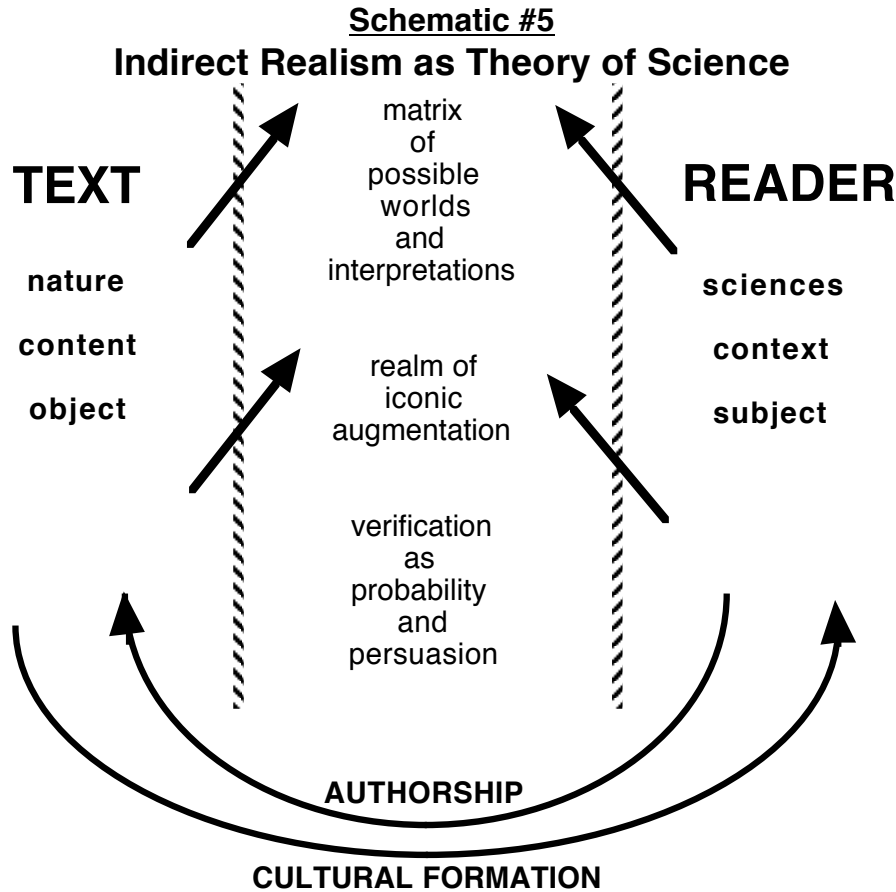
There are numerous pieces of this collage which help us negotiate the difficult problems which we encountered in the conflict between scientific realism and social constructionism. I believe it is possible to organize this discussion under the theme of indirect realism or metaphoric realism, terms which Ricoeur also uses.<sup>18</sup> Nature seen as a text is closed to a direct reading by science or any other human activity. Like a text, however, nature has a referential capacity to project a matrix of possible worlds. So science as a particular mode of "reading" nature has the task of discerning which interpretations better fit the field of phenomena. But science, like all other aspects of reading, necessarily brings prejudgments to the field of phenomena. These suppositions and theoretical models project an order onto an entropic field of reference.<sup>19</sup> The fusion of horizons between the projective capacity of nature and the projective capacity of science is "reality," but not in a fixed and unitary sense. This hermeneutical reality is always recycling in upon itself as a *model for* and *model of* nature and society.

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<sup>18</sup> See also feminist philosopher Lorraine Code's use of terms like "reconstructed realism" or "mitigated realism," as discussed in Matthew Ally, *Knowing Praxis: Rorty's Critique of Foundationalism, Feminist Theory of Knowledge, and the Variety of Epistemic Experience*, Masters Thesis at Union Theological Seminary, March 29, 1993.

<sup>19</sup> Berry and Swimme's discussion of entropy in chapter four, section three and four, will suggest that entropy by itself renders the form-producing powers of natural phenomena unintelligible. They seek to balance the Second Law of Thermodynamics with the principle of autopoiesis as a necessary correlary. Their discussion will augment this model of indirect realism by noting not only the need to interpret phenomena through a projective "reading", but the projective capacity of phenomena to limit plausible interpretations through their own autopoietic form-producing powers.

The following schematic is a representation of this biophysical hermeneutics:



In the schematic, we have the paradigm of the text as nature and the reader as science. Neither the text nor the reader are transparent to each other, but nor are they completely opaque. There is a distance between nature and science, which prevents a simple intuiting of reality. In the space of that distance between text and reader and between nature and science is where interpretation and discovery occurs. Nature projects a real reference for itself into this space and science projects theoretical models into this space. The intersections of these projections become particular worlds among many possible worlds. Note that we are not using the term, "world views", but "worlds", to highlight that what

we encounter in this interpretative space is "reality," and that it recycles upon both the reader and the text, both nature and science, to reconstitute their identities. This recycling process is represented on the bottom of the chart with the arrows of authorship and cultural formation. Just as texts are written by readers and readers are formed by the texts that they read and the con-text of their cultures, so too can we postulate a dynamic between nature and society. Anyone who doubts that science has a capacity to reconstitute nature in a kind of authorship is blind to the dramatic transformation of the Earth today through technology. Genetic engineering is only an extreme example of a much more ubiquitous trend. Conversely, anyone who doubts that nature has a capacity to reconstitute science and culture need only go without water for a few days to discover the extent of their biophysical determinedness.

In this mutually constitutive projective power of the text and the reading of text, the possibility exists for interpretation to become frozen within self-confirming prejudice that predetermine readings. Frozen and fixed interpretation is perhaps always a sign of distortion, because the space of distancing and the temporal recycling of cultural and biophysical formations creates an evolving dynamic field. The dynamics of the interpretative field can never be grasped *in toto*. Interpretation is a pragmatic decision, one of probability, not certainty. The chances of success are increased if the interpretative move of the reader is seen as a dialogue with respect for both the differences and connections between text and reader, between nature and culture. In language and in science, it is possible to creatively engage these differences and similarities within the space of distancing to create metaphoric innovations and theoretical models that produce new meanings and new insights. In society, it is also possible to

creatively engage difference and similarity within the space of ideology as distortion and utopia as ideal to create new meanings and social structures. Because of the polysemantic character of language, science, nature, and society, however, it is not possible to simply segregate these fields. Culture, nature, science, and language are dynamic and mutually constitutive.

Finally, because the field of indirect realism is not fixed, but evolutionary, it is necessary to account for this temporality through a narrative structure. In order to constitute a series of events as meaningful or not, there must be a narrative structure which defines beginning, middle, and end. This narrative structure is never simply given, but arises in the dynamic of the interpretative field of possibility. In fiction, as well as history and science, we discern and create narratives to account for the temporality of our belongingness. Story-telling is how humans relate to the universe. The question is not which stories are true, but which stories are better.

In the next chapter, we will examine a new story about the universe and how humans relate to it. The story intentionally crosses the boundaries between myth and science, between nature and culture. The story draws on science to create new metaphors and symbols. The story is self-consciously ideological and utopic. It is a story that tells itself within the framework of a dynamic cosmos of interpretation. It is a story that seeks a dialogue on the basis of respect and mutual enhancement between nature and culture and between one culture and other cultures. Thomas Berry and Brian Swimme's *Universe Story* is an attempt to reinterpret human and natural identities in the late twentieth century at the end of the Cenozoic era. By reinterpreting, they remythologize the modern scientific cosmology. Within our model of indirect realism and social-biophysical

hermeneutics, the act of telling stories is always a process of reinventing nature and ourselves.