perhaps displace, not simply augment, the old explanatory tools of computational and representational analysis. Consequently, the familiar distinction between perception, cognition and action and that between mind, body and world need to be rethought and possibly abandoned — causing upheavals strong enough to demolish the existing boundaries in the domain of knowledge.

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NOTES & REFERENCES

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2. Narratology is that branch of knowledge or criticism that deals with the structure and function of narrative and its themes, conventions and symbols.

3. Since truth-claim is irrelevant in the context of narrative, it has always been placed outside the realm of traditional epistemology, the distinguishing feature of knowledge being the possession of a true content.

Sundar Sarukkai

LITERARY REALITY AND SCIENTIFIC FICTION

Over centuries, both science and literature have been involved in creating particular images for themselves. Foremost has been the attempt by science to appropriate the notions of reality, truth and knowledge within its domain and activities. Literature has been a silent partner in this act of appropriation because such an appropriation suited its own image making. Even as much as the discourse of science constructed itself consciously in opposition to the discourse of literature, literature too found ways to consciously distance itself from scientific discourse, which included not only differences in their conceptual worlds but also in the way their texts were presented. They are both parties to the establishment of the common perception that science is intrinsically related to the ideas of truth, reality and knowledge and literature with fiction, myth and imagination. Associated with these categories are various others such as subjectivity (literature) and objectivity (science).

If we critically analyse these claims, we discover that these images about science and literature mask the nature of both these activities. Not only is literature in a surreptitious relation, an illicit affair, with reality and therefore knowledge but so also is science in such a relation with fiction and subjective imagination. So both literature and science allow us to challenge commonly held presuppositions about them. The consequence of such unmasking is to remind us that the ideas of reality and knowledge are much indebted to fictional imagination and fiction itself blossoms from the hard ground of reality and knowledge.

Literature, reality and knowledge

When we talk of knowledge it is usually knowledge of something. Having knowledge of something is related to how the thing really is and thus involves some notion of truth about that thing. When science

claims it generates knowledge about the world it is essentially claiming that it describes and explains the world as the world really is. Thus, it is not a surprise that in general, discourses on reality depend upon the idea of knowledge in various ways.

Let me begin with some remarks on the relation between literature and reality. Derek Allan discusses three views about this relation.[1] One is that literature represents or imitates reality. Another view understands the relation in terms of the capacity of expression, namely, literature as a means through which the author expresses her responses to reality. The third view sees this relation in terms of knowledge and truth. We should note that in general whenever truth and knowledge are invoked they are as tools of validation. So the important concern about literature is not just about the conflict between the fictional and the real but also about how it responds to questions of justification of beliefs, assertions and narrative. If we remove the demands of justification, then science too is literature or equivalently literature is just science. It would of course be wrong to say that literature has no justification since aesthetics does play a regulative role. However, the point is about justification with regard to knowledge and reality. This is a justification that literature does not often ask of its works, with exceptions such as in autobiography and the genre of early Realist Naturalist novel. Yet it is immersed in a complex relation with knowledge and reality. The question is how to make literature acknowledge its indebtedness to the ideas of reality, knowledge and objectivity, terms, which have been excessively appropriated by science. In other words, literature can no longer hide and protect itself within the ambit of the subjective and the fictional but must take responsibility for what it really does in the space of knowledge.

Novitz argues that literature is an important source of knowledge about the real world.[2] Moreover, literature provides knowledge which is "richer and more varied" than the empirical sciences. Primarily, the question about reality has to do with our description and understanding of the real world, and having the means to compare our description with the world. A scientific work makes an explicit reference to particular physical objects, events or phenomena. But so do literary works. The influential writer on aesthetics, Monroe Beardsley, notes that, "by their nature literary works have an essential and unavoidable reference to

reality."[3] The reality that literary works refer to is not only the world of the individual and society but also that of the natural world and our relationship with it. Furthermore, just as we have a notion of scientific reality so also do we have the idea of literary reality. For Novitz, literary reality is the "world in which we live", meaning therefore that there is really no distinction between our 'real' world and the world of the literary. For De Man, the literary reality is the 'phenomenal world', the world of experiences.

However, there is a difference between scientific and literary realities. For Allan, this difference is encapsulated in the observation that scientific reality is "that which is purged of the 'merely personal' whereas literary reality is the essence of the 'merely personal.'"[4] Thus, literary reality is the world, a real world, of individual experience. As far as the *nature* of reality is concerned, the experiential world and the natural world are the same. The reality of the natural world is also primarily an experiential one: the world reaches us primarily through an experiential mode. Our belief in the reality of the world rests on a belief that we can distil the physicality of the world from our experience of it. But if this is possible for the case of the 'external' world why is it not possible for the 'inner' world of experiences? Thus, the notion of reality that is available to literature is on par with that available to science.

However, the influential postmodern responses to reality also challenge these conclusions. In the context of knowledge, Novitz notes that for the deconstructionists literature does seem to provide knowledge but literature's reliance on language is an obstacle. Paul De Man expresses this in the following manner :

> "Literature is fiction not because it somehow refuses to acknowledge 'reality' but because it is not a priori certain that language functions according to principles which are those (or like those) of a phenomenal world. It is therefore not a priori certain that literature is a reliable source of information about anything but its own language." [5]

Rather than refuting De Man's characterisation of literature I merely want to point out that the relationship between language and knowledge/ information is precisely the central issue for science. It can be argued convincingly that it is science that is actually self-indulgent about

language. Mathematics is the particular language that is privileged by science. It is reasonable to paraphrase De Man to say that it is not "a priori certain that science is a reliable source of information about anything but its own language." Although this statement might seem to run counter to the dominant image of science that relates scientific knowledge with the world, we often forget the prior move that makes this possible. This move lies in the engagement of science with language qua language. There is a long historical tradition reflecting this relationship, beginning with the belief that nature is a book written in the language of mathematics. To do science is to do mathematics, but with some important differences. De Man's comment that we are not sure that language "functions according to principles" which are like that of the phenomenal world is much more relevant for science's use of language since mathematics, at least in the traditional view of it, is far more removed from the natural world of objects but yet describes them most effectively and in mysterious ways! I think his criticism about literature is actually most useful to understand an important aspect about knowledge — it is that knowledge is perhaps not much more than information about the language in which it is represented. This is a lesson that science heeds well.

To understand the nature of literary reality as well as its relation with language and knowledge, it is useful to start with a basic discussion on what it means to make a commitment to reality. It is also important to delineate the relationship between reality and language on the one hand and between the real and the fictional on the other. Firstly, consider the issue of reality. The question about reality has many dimensions. I want to consider those elements, which relate the real and terms such as the invisible, the unreal and the fictional. First of all, the domain of the real is far greater than the domain of the visible. For both science and literature the engagement with the world of the invisible is of great importance. For science, this includes its search for entities such as the atomic ones, which are beyond the immediate visible world. The search for the invisible, for science, also includes a realistic view towards non-material real entities such as mathematical entities, ideas such as laws, causal relations, universals and so on. Thus, scientific realism involves accepting as real not only the visible world around us but also a world filled with microscopic entities as well as non-material metaphysical

categories. This is the world of the real for science, a discipline that is often invoked as the paradigm for knowledge of the real.

Such a formulation of the real has strong resonance with various philosophical traditions. Philosophers who believe in the reality of universals, for example, would be committed to saying that universals such as colour or tree-hood exist or are real. Moreover, some of them would also claim that natural kinds also have an independent existence. So, for these philosophers, the real world is populated by particular (concrete) objects as well as abstract universals. They also believe in the existence of a wide range of properties and some relations between them, as also in the existence of individual entities such as events. There are many who believe that entities such as laws and causal relations in the real world are members of the real world. Platonists believe that mathematical objects exist independent of us. Many philosophers believe in the reality of the mind and mental states, as well as consciousness. They believe in the reality of the world of emotions, of the subjective phenomenal world. So to say that literary reality is different from scientific or philosophical ideas about reality, without taking into account the diversity of the inhabitants of this world of reality, would be to make a claim that may not be sustainable.

There is yet another category that problematizes our understanding of reality and this is the category of absence. At one level, the idea of absence is already present in the world of invisible entities. But these are not really absent since they exist at some level, however 'small' they may be. The real idea of absence is about non-existence in the usual sense of the word. In Indian philosophy, particularly in the Nyâya tradition, absence is seen as a 'real' category; one can thus 'perceive' absence. (However, note that these philosophers make a distinction between fictional entities and absent ones.) Even if we do not subscribe to this ontology, we can understand the importance of absence in other ways. One such example is related to the idea of space — absence of matter is what may be called space.[6] Words make meaning in a sentence through the discursive practice of creating an absent mark between them. The absence of a mark between words actually creates a whole new real world of meanings. We could thus understand reality as being composed of both presence and absence. An obvious corollary of this is that knowledge too must be related to truths both about presence and absence.

The above discussion on the nature of the real makes it all the more difficult to find clear criteria of demarcation between scientific and literary reality. Even the idea that literature is about the 'merely personal' misses the point that the 'merely personal' is enmeshed in a much larger world composed of the visible and invisible as well as the present and the absent. I shall initiate a critical discussion about literary reality by first beginning with the notion of fiction.

Fiction and reality : To what degree should fiction be fictional?
Fiction is in itself intrinsically related to reality. Ideas of what constitutes fiction are related to what is beyond the boundaries of reality or what lies in the realm of the possible and not the actual. However, such characterisations miss a fundamental point about fiction. This point has to do with the observation that every narrative of the fictional actually draws upon, in various interesting ways, the discourse of the real.

Consider a character in a novel. In what sense is this character a fictional one? The character is fictional if and only if such a character does not exist either in the world or is not part of the knowledge we have about people in the world. Let us assume that this person is indeed a character in the writer's imagination. However imaginative this character may be, as a human this character shares a large domain of the real narrative of humans — for example, the physical description of the character is a realistic description (unless, of course, the person is a 'creature' with ten arms and twenty eyes!), the language the character speaks is a realistic one in the sense it refers to a 'real' language spoken by real people, the behavioural characteristics in general are based on various real characteristics and so on. Even this simple example illustrates the inherence of the real in the fictional. Since knowledge stakes a special relationship to reality, it should not surprise us to find the inherence of knowledge and truth in the fictional through this relationship to the real.

We can explore this relation between the fictional and real in various ways. For example, we could have a fictional narrative composed of characters or situations that are real but something else makes them fictional. A story could be set in Kolkata invoking the various real places in the city as part of the story. The story could be inhabited by the

sights, sounds and flavours — all of them real — of the city. And yet, the writer might have placed a character in this real world and created a fictional story. So how do we decide that just this one character in the story makes the story fictional whereas the reality of the complete setting does not make the story real? In other words, how fictional should a piece of fiction be before it is called fiction? Or if we want to quantify it, we can ask how much fiction should a piece contain before it can be called fiction. And on the flip side, we can similarly ask how much reality should the real have before it is called real. In what follows, I will argue that we are much more sceptical and demand much more of the fictional than of the real. That is, *we want the fictional to satisfy more stringent demands in comparison to the real*. This conclusion is best illustrated by looking at how we resist calling a story (that might have a large component of description that is 'real') real and insist on dubbing it fictional, and at the same time call a narrative 'real' that involves the fictional but is about the real. The best example of the latter is the discourse of science. In other words, the standard responses to fiction betray double standards towards the fictional and the real.

Let me begin with a simple analysis of the relation between the fictional and the real. Consider a story set in Kolkata, a story that is faithful to the various descriptions of places, people and events in that city but with only one character, say the protagonist, who is a fictional character. Let us also assume, as is often the case, that the writer has drawn upon her 'real' experiences of people and city in the story. What makes this story a work of fiction? One obvious response is that the main character in the story is a work of fiction and thus the whole story is fictional. What is fictional here? It is not the 'objects' of the story, whether they be entities such as the real places, characters and so on. Perhaps the fictional resides in the relation between these real entities. That is, we can have Kolkata as a real city but the relationship between the city and the protagonist is what is perhaps fictional in this case. Thus, one element of the fictional is enough to make us call the whole story a fiction. There is an important lesson here: the fictional spreads and infects a discourse unlike the real. A drop of fiction is enough to spread through a narrative and make the whole narrative fictional. Whereas, on the other hand, a fistful of reality does not make a narrative

a real one. Why this interesting asymmetry? *Why this belief that fiction contaminates easily whereas the real cannot do so?* What is at stake in this common belief?

The belief about the 'infectious nature' of fiction reflects an ideological stance of literature itself. Literature appropriates and enhances the value of fiction and subjectivity just as much as science appropriates the idea of objectivity. Whether such appropriations are tenable or not, it seems to be the case that linking subjectivity and fictional with literature is as much an ideological stance as is linking objectivity with science. In other words, there is a self-consciousness in literature towards this process of the infection of the fictional as against the inoculation against the real, a self-conscious process that has been carefully cultivated by literary practitioners and critics. An advantage in taking this position is that the privileging of the fictional and the subjective in literature and arts actually negates attempts to regulate the artistic expression through constraints such as the real. While this, in a fundamental sense, is a good idea, it also means that literature ceases to acknowledge its debt to the real and to the realistic foundations of its fictions. The reverse story with regard to science illuminates this further: science ceases to acknowledge its debt to the fictional and the fictional foundations of the discourse of the real.

There is yet another consequence of this essential intertwining of the real and the fictional. The idea of knowledge itself is based on both the real and fictional. Any idea of knowledge rests upon a foundation of 'truth' and 'falsity'. If this is so, then the relation between literature and knowledge becomes more complex.

Perhaps we begin with the wrong question. Perhaps we should not begin by asking whether literature is related to knowledge but by asking how knowledge systems are essentially related to literature.

If we begin with this question, we can easily see how it illuminates the relation between literature and knowledge. I will state what I believe is the right answer to this question: there is no knowledge system, which does not possess elements of the literary or the fictional imagination. I will consider this claim with respect to two of the most influential knowledge systems, two which actually act as examples in our judgement of whether a body of beliefs or statements constitutes knowledge or not. They are the exemplars of what we would call as knowledge and yet

their relation to fiction is necessary. The two examples are that of science and mathematics.

The fictional in science and mathematics: how real should science be?

There is much that is in the nature of the fictional in science and mathematics. The association of fiction with science may be more obvious and clearer to understand. This is because science is a discourse about the world and the world functions as the final arbiter of its claims. This is the way in which reality intrudes into the scientific discourse. However, its essential relation to the fictional imagination is obvious since its narratives about the world are only that — possible stories about the world out of which some might be accepted as the 'correct' one. The stories that are not accepted should then be exactly equivalent to that of fiction. Thus, the path to truth and reality is through the minefield of the unreal and science has to construct and use such minefields. This is what I meant when earlier I alluded to the inherence of the fictional in the discourse of the real.

There are many illustrations of the fictional in science and mathematics. But, as discussed earlier, fictional may arise either in terms of the objects or in terms of relations. The characters or the objects in the narrative may be fictional in the sense that they do not really exist but function as if they do. This is the power of fiction in that a story can place an individual who is a construct of the writer's imagination in a world which faithfully mimics the reality of that world, such as the city of Kolkata. What is fictional in such a story is the fiction associated with the object of the story. It is fictional in the sense that there is 'really' no such person as depicted in the story. Our judgement of something as fiction always draws upon ideas of reality such as saying that there is no real person in the world that the character correctly embodies. So, the world of imagination is the world of non-reference. In illuminating the use of the fictional in science and mathematics, I will discuss four 'objects' which can be, depending on one's philosophical position, fictional and these four entities are essential to modern science.

Space and time are the foundational entities upon which modern science rests. Without believing in the existence of the entities called

space and time, it would have been impossible to construct science as we know it . The most basic description of motion begins with the idea of change foregrounded against a background of space and time. In various ways, science betrays an ontological commitment to these two entities. However, the 'existential' status of both these entities is not obvious. There have been both philosophical as well as scientific theories, which have questioned our belief in the existence of such entities. One influential philosophical position against the belief in the existence of space was offered by Leibniz, a view called the relational theory of space.[7] In this view, this world consists of objects alone and the relationship between objects is what is called space. That is, we do not need to invoke an entity called space over and beyond that of the objects of the world. The example of a genealogical tree is used to illustrate the nature of this relation. A genealogical tree has real people as objects who are all related to each other in various ways. There is no real genealogical tree over and beyond the people who appear there. Space is like that — there is nothing called space but only objects and the relations between them. There are also more arguments for claiming that an entity such as space cannot exist. One of them has to do with the observation that space is not accessible to us through our senses — we cannot see, touch, hear, taste or smell space. So what guarantees our belief in the existence of space? Space could be a fiction, a fiction that is essential to the real discourse of science.

There is a related story about space, science and fiction. Newton believed in the existence of what he called absolute space. Such a characterisation of space was thought to be essential for a foundation of his laws of motion, particularly the First Law. Newton also believed that he had experimental support to prove the existence of absolute space.[8] What is interesting to note is that it took over two hundred years to show that absolute space was a fiction yet in those years important developments in science took place even with this fictional entity as an important element of the scientific narrative. There are many other such examples, including the well known one of the existence of ether, which was finally showed to be non-existent. In other words, a large body of scientific knowledge was created even with the acceptance of entities, which were later recognised to be on par with fictional ones, such as absolute space and ether. What is important for our consideration

is this possibility of creating a wide body of accepted knowledge, which is in many ways based upon fictional entities.

Time is also possibly fictional, in the sense that there is a reasonable argument to show that the entity we call time does not really exist. While philosophical arguments for this are easily found, it is also interesting to note that even within scientific theories such a possibility can be found. I am referring to Godel who constructed a consistent solution to Einstein's equations of general relativity in which time did not have existence. This solution, called Godel's universe, implies that it is possible to have a consistent theory of the world without time as a 'real' entity. However, without belief in the existence of time, science as we know it would not be possible. Even the most basic analysis of movement and speed is based on beliefs about the existence of space and time.

Science actually abounds with such entities and relations, which are either fictional or shown to be fictional sooner or later. The question is how do such fictional or ephemeral entities create what we call knowledge and truth? While an elucidation of this question will take me too far from what I want to do here, it is enough to point out that perhaps no structure of knowledge can ever be removed from its indebtedness to fiction and the unreal.

Mathematics offers another set of interesting examples that challenge our naïve view of fiction and its relation to knowledge. I will only discuss two simple examples with the added comment that these examples are nothing special but embody a process that is common to the discourse of mathematics. The first is the example of infinity. Infinity as a concept had been an integral part of all world philosophical traditions. However, the mathematical approach to infinity differed in a fundamental sense from the metaphysical idea of infinity.[9] In the long history of this idea, we can see various approaches to the reality of infinity — while some held that infinity was 'real', at least in the sense of the reality of the divine, others believed that infinity was just a concept and could not have anything to do with reality. Debates on how finite human beings could ever grasp infinity were common in the philosophical traditions. However, in the nineteenth century the mathematician Cantor gave a new formulation of infinity. His theory of mathematical infinity engages in a profound sense with the question of

the reality of infinity. Cantor 'showed' that infinity was not actually a nebulous domain, something which did not distinguish between one infinite and another but was structured like numbers. The point is that while numbers like 1 and 2 can be distinguished there were no such 'numbers' related to infinity, which would in principle help us understand the structure of this domain. Cantor's formulation of the transfinite cardinals was exactly this: to exhibit a complex structure among transfinite numbers thereby allowing us to understand how one infinity can be 'greater' than another and so on. This exhibition of the structure of the domain of infinity actually adds a notion of reality to this domain and the language of the transfinite numbers constantly betrays a realistic commitment to them, at least in the sense of ontological commitment to mathematical entities in general. However, it is still quite conceivable that the idea of infinity continues to remain a vague idea in the human imagination and it can be argued that its fundamental force arises through its association with the fictional imagination.

This problem is similar to the important problem of mathematics in philosophy, that is, the question whether mathematical entities like numbers 'exist'. Given that the primal association with existence is the idea of the real, we can understand this concern as reflecting a broader one about the relation between mathematics and reality. While there are influential philosophers who believe that mathematical entities inhabit a platonic world (a world which is outside space and time!) there are others who believe that these are convenient fictional entities. Without entering into this debate, let me only make the comment that what is interesting in this debate is the possibility of fictional entities collaborating together to create the discipline of mathematics, a discipline which to us is a paradigm of knowledge and truth. While one may respond by saying that mathematical truths are not the truths of the world and hence the question of reality is indifferent to mathematics, we should note that this would be too hasty a conclusion. For, as is well known, the origin of modern science has been traced to the essential use of mathematics in the sciences. Famous scientists such as Galileo, Newton and Einstein have all voiced the belief that nature is written in the language of mathematics. Given that there is no modern science without this hovering presence of mathematics, we need to understand how knowledge about the real world is possible by using entities (characters

if you like) that in no conceivable sense are 'real'. In fact, fictionalism is an important theory in the philosophy of mathematics, a view that understands mathematical entities as fictional entities.[10] Even with all the attendant problems of this view, the very fact that such a view is possible must make us wonder about the relation between the fictional and the real, between the imagined and the truth, between stories and knowledge.

A final knot in these puzzles is due to the theory-laden view, one much popular in philosophy of science. The basic argument here is that real observations are theory laden, dependent on the theory we hold. In other words, the theory we already hold structures the observations we make. This inherence of theory (and therefore language) in the world of real observations suggests that the world is at least partially constructed and constituted by our theories. This raises the question of what in science can really taken to be real.

Yet, science is able to continue its activities, make new truth claims about the world, without getting mired in worries that its foundations are filled with the elements of the fictional and the unreal. It is this pragmatic nonchalance that literature and art have to learn from science. Literature has to engage with the possibility that its world of fiction is actually constructed on the world of the real, on the world of valid knowledge . Having understood this it may go on its way, doing what it does with the same nonchalance of science!

The final point that is worth considering here is this: there is a profound relation between fiction and absence as well as between reality and absence. The theory laden view in a sense brings our attention to the relation between reality and language. There is a burden placed on language and this burden is not that of imagination but that of the constant, constraining presence of reality. However, language can escape this suffocating presence of reality only by escaping into the world of absence, a world that is objectively real. Perhaps the Nyâya school understood best the importance of the category of absence.[11]

How is this relation between fiction and truth possible?
Such a relation is possible because it is do-able and has been done very effectively by science. This would be an adequate answer in itself but

it is worth exploring why such a relation should be surprising at all. One reason why it is often seen as surprising is basically because of a persistent belief, historically and culturally mediated, a belief that is part of the early Greek philosophical attempt to understand the nature of knowledge in a particular way. Since, for these philosophers, knowledge eventually is a judgement which would distinguish between belief on the one hand, and true belief that is justified on the other, the removal of the fictional from the domain of knowledge, may basically be re-read as a judgement on the fictional. The question then is what does fiction correspond to? Equivalently, what in our world or the logical world, can be mapped onto fiction?

Now, if we look at the presuppositions regarding knowledge in the western tradition with all its associated baggage, we see that the continuing battle is to keep the idea of the fictional out, meaning thereby to keep the human imagination out of the world of the real. Alas, the best paradigms of knowledge do not follow this dictate but happily build their houses of knowledge on fictional sand. Thus, it is not that the relation between fiction and reality, or between fiction and knowledge, which is such a serious problem. It is more the problem of misunderstanding the activity of knowledge-making, misinterpreting the role of language in knowledge creation, and the constant suspicion of the real that is *necessary* for creating a body of what we may call truth and knowledge. In other words, sticking to the world of the real will not get us far and the complexity of human knowledge, whether it be in the sciences or literature, is a just indicative of how engaging with the idea of the not-real, the unreal, the imaginary, is a necessary precondition for creating knowledge about the real!

I believe that a confused view about the relationship between fiction and knowledge is partly based on a confused view of what constitutes science or any knowledge-generating activity. But in misunderstanding science we have also misunderstood literature. However, the creation of their respective images is not due to 'external' factors alone; the members of these communities have shaped these images to suit their convenience. And the dominant image they have chosen to appropriate to themselves is that of objectivity to science and subjectivity to fiction. Both are false.

One way to further this debate is to begin with the relationship between science and language. Recollect what De Man's says: that it

is "not a priori certain that literature is a reliable source of information about anything but its own language." When looking at how science views language, I am tempted to use the same characterisation for science! Science's engagement with the issues of language and the capacity of language to express and capture reality is very complex, and this complexity illustrates that science too is not a priori certain that its language games are a reliable source of information about anything but these language games. There is an easy counter to this, however. It is that science is interested in information that is about the real world and hence the articulations of language can always be checked with that of the real world. To claim this is to misunderstand the heart of scientific activity, which is nothing but a fertile attempt to proliferate narratives about the real world. What gets chosen, as the right one is quite immaterial to this activity of generating narratives. In fact, the more number of narratives that are created the greater the chance that there is a match between one of them and the world. To create these narratives, science has to radically question the role of language in its relation to knowledge and truth. It is this radical questioning of language that makes science essentially a multisemiotic activity. It privileges multisemioticity only because it is not sure, a la De Man, that its narrative can say anything more than its own language. Thus, the primary search for science is not truth or knowledge, it is only newer and newer languages, newer expressions in different 'languages'.[12]

Science's use of language captures an important insight: that language is the repository of knowledge and to know is actually to speak and write. But what is the knowledge that is encapsulated within language? Is it knowledge of language itself or more than that? To ask this question is to betray the belief that language in itself does not have the capacity to shelter reality within it. It is worthwhile to consider another view, namely, that language always constantly attempts to break the shackles of reality, shackles which influence the development of any language. Knowledge of language already gives us knowledge of reality. It is this worldview, which influences science's approach towards language. Science finds natural language, like English, incapable of capturing the reality of the universe. In order to find the hidden truths of the universe, science believes that all it has to do is to find the 'right' language. It believes mathematics is this right language but then a given

body of mathematics is not sufficient for this task. So mathematics itself continues to keep creating newer and newer sub-languages, all 'part' of mathematics.[13] The statements of truth are to be found within this linguistic activity and not in experimental search. In other words, for science to find the hidden truths about the world we only have to find the truths hidden in both old and new languages. For science, to complete the text of the world, all we need to do is only 'complete' the language used in this text. Recall Heidegger :

> "But when does language speak itself as language? Curiously enough, when we cannot find the right word for something that concerns us, carries us away, oppresses or encourages us... But when the issue is to put into language something which has never yet been spoken, then everything depends on whether language gives or withholds the appropriate word."[14]

To know something new is to find the right 'word' for it. New knowledge needs a new language or a variation of the old language to carry it. An essential belief of scientific theorising is that language has the capacity to yield the appropriate word; to find this word is the essential struggle of scientific theorising. Science moves to other languages when it finds that this appropriate word is not available in natural languages. It goes to one extreme and claims that any possibility of finding the appropriate word can be found only in mathematical language. Hence the oft-repeated exclamations of surprise at the 'unreasonable effectiveness' of mathematics, the mysterious matching of a mathematical 'word' to a physical concept and so on.[15] What Heidegger wrote about poetry in its relation to language is what we should write about science.

Science follows this dictum in various other ways. The most obvious manifestation of this is in the structure of scientific texts and discourse. Scientific discourse is essentially multisemiotic; it uses many languages in order to expand the narrative possibilities since each language has an inherent limitation to its expressive capacity. One particular language cannot capture all that can be said about the world and hence to complete the description of the world it is useful to draw upon as many languages as possible. However, science has a specific belief about what kind of languages it needs to invoke. Given its suspicion of natural languages, it constructs technical languages. However, it can be argued

that a language like mathematics is not just a technical language but one which has a great deal of indebtedness to the world and the human imagination.[16]

In my view, the most importantly, science establishes discursive strategies which will, in principle, allow any practitioner of science to play a part in creating new narratives. Creating new ideas is not left to the vagaries of the human mind alone; to paraphrase a common saying, the task of being creative is too important to be left to the human mind. Science institutes discursive strategies of writing which allow any practitioner to be at least discursively creative.[17]

The importance of this discussion for understanding literature should be obvious. Fiction might want to construct itself as having nothing to do with reality or knowledge about some reality. But it can escape this responsibility to reality only as far as language can escape the dictates of reality; language often fails to do so.

Surprisingly, unlike science, fiction has a more guarded relationship with language. It is immersed in the 'moods' of language yet seems defensive about its use. It does not look at language through the 'free' eyes which science does. It does not give in to the dictates of language. Science gives in to language and creates a set of surplus narratives. It finally chooses one or some from this surplus by 'matching' these narratives with the world. Fiction is immersed in language but its privileging of human creativity comes in the way of its embracing language freely, of surrendering itself to the world of language. This is unlike science, where language is more important than the creativity of the human self who uses that language. *Perhaps this is the fundamental distinction between science and literature: what is most privileged in literature is the creative human mind whereas for science such a creative mind is always answerable either to the world or to the dictates of language.*

Imaginary and the real

An interesting insight into the nature of fiction and the essential significance it has for knowledge can be found in the use of imaginary numbers in science, which highlights how the language of fiction illuminates reality.

Imaginary numbers are those numbers, which are in general contrasted with 'real' numbers. They first arose in trying to find square roots of expressions whose squares were negative numbers. Since the square of any 'real' number has to be positive, whether the number was itself positive or negative, it meant that there could be no such 'real' numbers, which would satisfy the equation that a square of a number is equal to a negative number. However, the postulation of imaginary numbers meant that a number, i, was defined so as to have the property that its square is — 1. Given this number, we can construct a new set of numbers called complex numbers which are in general of the form $x + iy$, where x and y are real numbers and i is the imaginary number.

There are some very interesting properties of complex numbers, one of which is using them to describe the real world. There is an important sense in which numbers and the world share the appendage 'real'; real numbers have something to do with the expression of the reality of the world. And similarly for the imaginary number — an imaginary number by itself does not correspond to anything in the world. There is thus a naïve but powerful association between the imaginariness of the imaginary number and a fictional world. In fact, the belief that imaginary numbers do not represent real things is such an enmeshed belief in the sciences that when quantum mechanics was first developed there was a serious problem in interpreting the wave function. The wave function was a purely imaginary term and thus could not really represent a physical entity. This simple correlation between two metaphorical images actually led to a new interpretation of what the wave function means. Also, no observable (therefore physical, real) quantity in quantum systems can be purely imaginary. Thus, the match between real numbers and the real world is not carried over for imaginary numbers. What is intriguing in this connection is the fact that real numbers are themselves not real in any sense of the physical reality of the world, yet we are able to make a distinction between real and imaginary numbers as far as their reference to the world is concerned!

Now, complex numbers, which are the combination of real and imaginary numbers, have become indispensable to the sciences. In fact, they not only make the mathematics of physics and other sciences easier but they also have an essential role to play. The use of complex numbers

makes explicit various physical properties. The development of quantum mechanics, as mentioned earlier, was entirely indebted to the use of such complex numbers.

What should intrigue us is that the *description of the real is accomplished through the invocation of real and imaginary numbers*. Such an invocation is based on a simplistic view that real numbers correspond to real properties whereas imaginary numbers are not so correlated. However, the description of the real needs an essential combination of the real and imaginary, in order to understand various properties of the real. It is only when we come to compare the world and the description of it that we look at the real part of the complex number and ignore the imaginary part.

What mathematics does, imagination does too. Our description of the real, whether in science or literature, essentially draws upon the ideas of the real and the imaginary. The world of imaginary, the real world for literature, shares this common space with the world of imaginary numbers. There is a simple lesson here: to talk about the real it is *necessary* to invoke the world of the imaginary, suggesting that if we begin with such binaries we are soon forced to acknowledge the mutual inclusiveness of the opposing terms.

I believe that this phenomenon of imaginary numbers leads to a profound insight about the nature of the real and imaginary. It is that the imaginary and the fictional are not contradictory or contrary to the real. The really real world is an intertwined mixture of the real and the imaginary and the fictional. It is only the case that the imaginary and the fictional are *absent* from the real world. Thus, to understand the real nature of the fictional is to understand it as absence, an absence that itself can be understood to be real, perhaps like Nyâya did. It is in this sense that the fictional is both real and not real. It is in this sense that literature is both knowledge and not knowledge. Unless we are able to better comprehend the nature of absence, a study which western thought has strongly resisted, we will continue to make the same mistakes about the relation between literature, reality and knowledge.

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Bhaskar Mukhopadhyay

INDIC PILGRIMAGE LITERATURE AS KNOWLEDGE SYSTEM: RAIDS AND RECONSTRUCTIONS

Broadly speaking, my wider project is to interrogate, through a rigorous rhetorical *reading* of texts, the ambiguities of what Deleuze and Guattari termed 'deterritorialization'[1] — a term co-opted by the Anglo-American radical chic after Negri and Hardt's *Empire*.[2] In its current, post-Marxist deployment, 'deterritorialization' is understood as a defining trait of modernity which is destructive of 'dwelling'. It also acts as a metonymy for what has often been called the modern or post-modern 'loss' of the referent. Perhaps this way of putting it makes it rather difficult to relate with the Indic literature on pilgrimage but I hope to make the linkages quite clear in course of elaboration of my problem.

As a Cultural Studies person, I would not ever have thought of engaging with the arcane *puranic* texts of *tirthamatmya*, had it not been for the fact that most studies on what they call 'spatiality' are usually prefaced by a ritualized lamentation about 'place', 'locality' and 'dwelling'.[3] In these accounts of breast-beating, 'place' and 'locality' are held to be articulations of a primordial 'dwelling', postulated historically as 'lost' domains of 'authentic' experience.[4] The classic account of this so-called 'loss' of dwelling — modernity as a state of metaphorical 'homelessness' — is contained in German Romantic thought. The narrative works by positing an epochal rupture — a 'then' when men 'dwelled' in the world without knowing it reflexively, without being aware of its contingency and, a 'now' when men are conscious of the contingency of their worldings. Central to my concern here is the nostalgic slant of this account, summed up famously in an aphorism of Feuerbach in 1872: "In unknowing man was at home in his dwelling; in knowledge, he is estranged." By reversing the usual connection between knowledge, representation and certainty, this surprising sentence