Methodological Transplants:
Linguistics, Science, the Arts and Literary Criticism

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By outlining a few interdisciplinary issues in the context of recent developments of critical theory, I intend to pay tribute to my distinguished predecessors, Frederick May and Gino Rizzo, both of whom, in different ways, were passionately committed to interdisciplinarity. I would really need a series of lectures to realise my intentions, and even a cursory summary of what I intend to do would take too long.

Let me therefore move straightaway into my argument and take as my starting point a piece of literature. By doing so I am already begging a number of questions: that it is possible to distinguish literature from non-literature, that literature comes in recognisable chunks or pieces, and that there is someone, a writer, who gave it a visible form which I shall call text. These propositions, furthermore, presuppose that there is someone who does the distinguishing or the recognising, and that this someone can be identified with one or more real persons. All this may be intuitive but is still problematic.

I spoke of the text as 'visible' form, but until recently the vast majority of recognisably literary texts have been consumed in audible form. Many still are to-day. I use the word 'consumed' to avoid prejudging the issue of what exactly one does with the text, or to it, which I hope may become clearer as I go on. Often the visual component of the audible text is more likely to be a performance than its appearance on a written or printed page. Without being consciously aware of the fact, most times we think of a literary text as if we were thinking of its original form we are actually thinking about our experience of its production, reproduction and consumption. We experience the poem or novel as a book object, or a part of a book object, totally unlike what it

was when it was first written, even granting that it had or could have an original form as opposed to various co-existing drafts. We read the play in the quiet of our sitting room, or see it on television, or enjoy it in the distinctive environment of a theatre, through the mediation of a host of intermediaries: actors, designers, stage hands, scenery painters and builders, set decorators, property people, lighting engineers, a director and a dramaturge, not forgetting the rest of the audience; so that the same play, seen on two different nights, or in two different productions, amounts to utterly different experiences, throwing doubt on what exactly is meant by 'the same play'.

I also propose to assume that our piece of literature is a work of art in the sense of being the product of an aesthetically satisfying activity: aiming, that is, to give pleasure to its practitioners, both producers and consumers. Literature does that, in common with painting or music, but things are widely different in most other respects. One does not enjoy a piece of literature as one does a concert or a painting. To begin with, most people, whether they are literate or not, can feel some pleasure merely by seeing a painting or a sculpture (in most cases via a reproduction), by looking at a dance, by listening to a poem or a play. But only literate people can read a text. Listening to the sounds of a musical performance, preferably live, is a pleasure open to all. These differences in modes of consumption are due to the different peculiarities of the artistic 'object'. Music is usually encoded in a score, but the original score handwritten by the composer is not for consumption, not even by the highly trained few who could re-create its sound in their mind (and even for them reading a score is not as rich an experience as listening to its performance). Various performances of that score may have been encoded by other means on vinyl, tape or CD records; but we can only access that encoding through playing machines with varying degrees of fidelity. No playback or performance is *the* piece of music. There is no original, in the same sense as there is one for a painting or a sculpture. And yet we experience most visual arts through reproductions which approximate it in varying degrees of accuracy. In the case of paintings they may be analogues of the original: not in the case of sculptures mostly reproduced as two-dimensional illustrations.

4

The original manuscript of a work of literature, when it exists, is largely irrelevant to our appreciation of its text. If we are literate, we obtain access to the text through a multitude of analogues which, however much unlike the original or one another, are all equally valid representations (to concern ourselves with translations would require a separate lecture).

Literature differs from the visual arts and music also because its medium is language, which, unlike sounds, shapes or colours, happens to be the chief means of communication between human beings. Sounds, shapes and colours can also be used as signs within a communication code. Codes, however, are sign systems either referring to a pre-constituted and conventionally invariable set of meanings, like traffic signs or electrical wiring; or encoding language, like the Morse code, or the codes used by spies. Sounds, shapes and colours are meaningfully and even systematically used by artists to express a variety of emotions; and to that extent one loosely uses phrases such as 'the language of music' and 'the meaning of colours'. But they lack the two fundamental properties of language: the ability to express new contents, and to refer to itself.

The question of self-reference needs clarification. We need to distinguish between formal and narrative self-reference, which all arts have, and discursive self-reference which is a property of language. Self-reference is formal, when certain parts of the work, or of other people's compositions, are copied, quoted, elaborated; it is narrative when the work refers to its art form in its contents. The music of Bach, for instance, exhibits in his fugues the most absorbing and intellectually satisfying self-reference of the formal type. Saint-Saëns *Le carnival des animaux* or Elgar's *Enigma Variations* show narrative self-reference, alluding to other musicians in a more or less transparent way. The graphic work of the great Maurits Cornelis Escher is wholly based on self-reference of both types. And we are all familiar with what the French call *mise en abîme*: the play within the play in Shakespeare and Pirandello, the film about film-making such as Truffaut's *La nuit americaine* or Diane Kourys's *A Man in Love*, the ballet about ballet like Antony Tudor's *Gala Performance*. Literature offers any number of poems about poetry, from Horace's *Epistula ad Pisones* through Boileau's

Art Poétique to Manzoni's *Sermone a Giovan Battista Pagani*; or of novels about the writing of novels: to mention only a recent Italian example, Calvino's *Se una notte d'inverno un viaggiatore* (*If on a Winter's Night A Traveller,* 1981).

It is easier to maintain that all arts are self-referential by pointing out that reference to external reality is irrelevant to them. That does not mean that the arts may not refer to external reality, only that their meaning, and our enjoyment of it, is not dictated by reference, narrative contents or mimesis (imitation or reproduction of reality). Music, for instance, is incapable of explicit narrative content. One may guess that the fourth movement of Beethoven's 6th Symphony alludes to a storm, but it is possible to identify the previous movement as a 'scene by a brook' only by reading it in the programme. No one could identify the four *Kalevala* legends Sibelius was inspired by in his tone poems simply by listening to the music. When dance tells a story, as in *Swan Lake* or *The Nutcracker,* it does so through movements that bear little resemblance to normal body movements, and require a conventional interpretation. Most modern dance is abstract. As for representational painting, no one would be so naive today as to judge of its merit by the accuracy with which it portrays reality. Reference to external reality is equally irrelevant in the case of literature, in spite of the fact that a great deal of the discussion about it is still concerned with what it allegedly refers to, or communicates.

Reference and communication are not identical concepts. Literature may communicate emotions or ideas, but it does not follow that it necessarily refers to anything outside the emotions or ideas it contains. Schoolteachers, alas! still train students to evaluate literature as if the point of doing it were to compare the imaginary characters in texts to real persons. Historical novels, like Manzoni's *I promessi sposi,* or Tolstoy's *War and Peace,* mention real persons, such as Cardinal Federigo Borromeo, or Napoleon; but their appearance is functional to the fictional plot of the novel, not to real history. Whereas history writing or everyday communication are mostly about things outside the act of communication itself, literature, like music, painting, or any other art, is mostly self-contained and almost inevitably ends up by drawing attention to its internal structure; not only to what it says but also, perhaps primarily,

to how it does it. Art tells us something about reality mostly insofar as the work of art itself becomes part of our cultural horizon. Language, however, is self-referential in a more complex way, which I called discursive self-reference. We can only talk about language (including the language of literature) by using language, and we distinguish the two levels by calling 'metalanguage' the language we use to talk about language. We can use mathematical symbols to elaborate and express mathematical theory, and to that extent the language of mathematics can be self-referential: but it is limited to logico-mathematical propositions and cannot encode any contents outside its own system. We cannot discuss piano playing by playing the piano, or the Heidelberg School's work by painting a picture. It seems therefore reasonable to suppose that an improved understanding of what language is about might result also in a better understanding of literature.

Granted that the point of literary language is not reference, it still is a form of communication, often powerful enough to cross time and space. We therefore have to establish in what way the language of literature differs from that of everyday communication, technical manuals, legal contracts and commercial correspondence. We cannot merely say that the difference lies in the fact that literature's use of language is aesthetically satisfying, because that was part of our initial assumption, and one cannot use as evidence what was part of one's assumptions. In the past critics tried to sidestep the difficulty by saying that there are certain forms of language having in themselves an aesthetically satisfying quality. They thus developed a theory of specifically 'artistic' forms called rhetorical figures, such as metaphors, similes and other tropes. They prescribed the use of restricted lexical choices. Words and expressions used in everyday communication were deemed to be inelegant and banned from poetry. A wide range of contents was also banned. This type of criticism was developed from the classical age down to the present time, often with great ingenuity and marvellous subtlety; and it yielded many valuable insights into the nature of the literary phenomenon. It did not explain, however, why many texts written according to the rules, full of all sorts of rhetorical figures and dignified lexical choices, about uplifting subjects, crafted with great sincerity and moral commitment, were obviously

worthless; whereas many others, apparently unadorned, undignified or 'irregular', were clearly of great artistic merit.

This kind of criticism, prescribing the lexical ingredients of lyric poetry or the structure of regular tragedies, went hand in hand with prescriptive grammar, and both were based on an extensive study of classical languages and literatures. In the seventeenth century the rationalistic grammar of Port Royal, with its underlying belief in the psychological foundations of linguistic categories and in the close connection between the structure of language and that of logical thought, harmonised well with the rationalistic criticism of Boileau, stressing the interdependence of clear thought and clear style, and the role of reason in poetry as an antidote to the blazing follies of the Baroque age, '*de tous ces faux brillants l'éclatante folie*'. The end of the eighteenth century saw the beginning of historical and comparative linguistics, which deeply influenced literary studies making them heavily dependent upon textual criticism, the study of tradition and the discovery of literary sources and analogues. The awareness that linguists such as Wilhelm von Humboldt derived from their study of linguistic change and development of the energy and creativity of language, reflecting the energy and spirit of human societies, was consonant with much of the best criticism of the Romantic age, with its emphasis on creativity and emotional power.

The rift between literature and language studies began when, in the first decades of this century, linguistics went through a sort of revolution which may be conveniently symbolised by the name of Ferdinand de Saussure. Saussure saw that the investigation of a historical phenomenon through time and space clearly does not amount to a description of what constitutes the phenomenon itself. One may be able to gain some understanding of the purposes and use of a car (to give an updated example) by looking at the history of transport and comparing one vehicle with another, but that would not be the same as the knowledge of how a car is engineered and what makes it work. Of course pre-Saussurean linguists had a pretty good grasp of language structures; but the point is that such a grasp could not have been wholly and safely founded on the comparative study of aspects of language, taken at various stages in various language histories, since the choice of those aspects and

the identification of those stages presupposed linguistic structures, and an intuitive non-explicit procedure for recognising or constructing them. Saussure's plea for a synchronic or structural study of language systems was a plea that discovery procedures be made explicit. In his perspective, synchronic and diachronic (or historical) methodologies were complementary: the results obtained through one can be embodied in hypotheses to be confirmed through the other. In practice Structuralism, as the synchronic methodology came to be known because of its reliance on the concepts of structure and system, came to replace or displace traditional philology, causing the resentment of many of its adepts. They reacted by denying that structuralism could be a proper scientific method for studying language or languages. That in turn caused some reflection on the question whether, and under what conditions, linguistics could claim to be a science, and its methods transplanted to other fields of research.

It is easy to see how the Saussurean revolution caused a breach between the study of language and literary studies which, in many academic departments, were inextricably tied to the study of the old classical languages in which many great masterpieces had been written and hence to traditional philology. Criticism at its most 'scientific' had been closely concerned with tradition, periodisation, source-influence; and critics therefore were antagonistic to the notion that the diachronic dimension could somehow be dispensed with. At its most subjective, their work dealt with elusive impressions, personal evaluations, intuitions, perceptions, such as only discerning practitioners of literature could hope to have. They therefore rejected the idea that criticism could be made 'scientific' through a 'science of language', and open to any upstart capable of applying a few objective 'discovery procedures' to a text.

The Saussurean revolution had however brought to fruition a tendency which had already begun in the eighteenth century: a shift from an atomistic view of language as a lexicon of reality to a contextual and epistemological view, focussing on the way in which language represents mental processes. Freed from its obsession with individual sounds and lexical items, which had reached its climax in the second half of the nineteenth century, linguistics could now profitably explore large systems of structures. Historical

9

and comparative philologists used to construct suitably large fields of study by extending the diachrony through which they investigated and reconstructed small particles of language. The new linguists widened their context by choosing larger synchronic samples or 'corpuses' of language which they studied in *toto*. Structuralist methodology could therefore be seen as better suited to the systematic study of literary texts than one having as its object the study of isolated forms. But what could a literary 'corpus' consist in? a single poem? the collection of which that poem was a part? the whole poetic output of its author? the whole literary tradition to which the writer belonged, and by contrast those to which s/he did not belong? Should literary critics study texts as individual instances of poetic *parole*, or take them as manifestations of the great system of poetic *langue* which is the real object of investigation? In order to gain a clearer insight into these methodological transplants, let us go back to the 'piece of literature' we took as our starting point.

Let us imagine that our literary object is a love sonnet, two words roughly referring to its contents, or subject matter, and form. I have said 'contents and form' as if they were two ontologically separate and discrete things, but things are not so simple. In the poem itself neither member of the pair can subsist without the other. And yet a closer investigation makes it possible to distinguish between not two but four separate concepts:

(1) *the form of the form,* in this case its being a sonnet with a specific form common to countless other sonnets;
(2) *the form of the contents,* being the conventions the poem shares with similar ways of expressing one's love in poetry (for instance, the assumption that it is unrequited);
(3) *the substance of the form,* that is, the structure of the text; and
(4) *the substance of the contents*: what the poem actually says.

This distinction, borrowed from Saussure and the Danish linguist Louis Hjelmslev, can be fruitfully applied to literary criticism because it provides a justification of a structuralist, as distinct from a historical, study both of the various conventions shaping types of literary contents, such as the love lyric with its complaint about unrequited love, the epic romance with its typical duels between

knights, the fairy tale with its happy ending, the detective story with its turns and twists and suspense; and also of such form and contents classes as sonnets, canzoni, anecdotes, jokes, not to speak of more traditional genres like tragedy, comedy, the novel.

One could multiply distinctions of this kind; between the various voices that may be speaking in the text, say the poet as himself or herself; the poet as some other kind of poet, a bard, a visionary, a prophet; a dramatic character speaking in verse; a narrator. In a narrative text we may have the narrator speaking in the first person as the writer, or as the writer introducing the narrator who tells the story, or as the protagonist of the story. There may be different viewpoints or focuses: the omniscient narrator with unlimited access to the characters' thoughts and emotions; the knowledgeable but not omniscient narrator who may be on the fringes of the story as an observer or inside it as a minor character; the limited outlook narrator, who may be telling the story in the third person from the viewpoint of one of the characters, or the protagonist speaking in the first person. The focalisation may shift from one to the other of these types. And then we have to consider whom all these voices speak to, within the text and outside it: whether the intended recipient of the text is someone imagined to be within the story (for instance, the woman to whom the poet declares his love in the sonnet); or who could be within it as an ideal contemporary of the characters; or totally outside the story, as another writer, a critic, a cultivated reader, an uncultivated reader, a contemporary of the author or someone from a distant future. Here too various combinations are possible.

Our love sonnet stands now identified as a rather complex chunk. As to its form, it is perceived as a poem-thing intrinsically different and relating to different interpretive conventions from a drama-thing or a novel-thing. Within its formal class it is perceived as a sonnet long before it is decoded: one needs only to look at the number of lines and the pattern of rhymes. Its pre-verbal significance is totally independent of its linguistic message even if it concurs with it in the realisation of its global meaning. The form of the contents also transcends language, though we obviously rely on our decoding in order to decide what it is: to be a member of the class of love poems transcends the message of this particular sonnet.

Like a feminine plural noun in Italian or French, belonging to two separate morphological classes which cannot be easily seen or separated in the actual word, our text belongs to two formal classes, poem and sonnet, the latter implying the former; but neither membership is actually visible in a separate label. Like Saussure's *langue*, they are objective but intangible realities, existing outside any individual manifestation of their members.

When we move to substance, it may appear at first sight that its form and subject matter are somehow embodied in the poem-thing, but how can that be? Unlike a painting-thing or a sculpture-thing of which there must be an original, displaying those features that enable one to assign it to a specific class of objects, the poem-thing has no original and cannot consequently have reproductions, only presentations. Whereas the original of a visual work of art displays qualities that may be completely missing from a reproduction, a poem's substance does not change for being written in longhand or printed or spoken aloud, though the manner of its presentation can also be significant. Its text is a real, factual object, and yet it is impossible to say where or how it actually exists.

It is now becoming increasingly obvious that the meaning of a literary text cannot be reduced to any of the factors we have singled out so far, but must depend upon their complex interaction. I cannot possibly explain the whole of semantics in a sentence: but let me just say that meaning does not arise on a specified level at the end of the decoding process, but occurs at every level on which an element in a structure is related to its component parts and to the system of which it is a component in all the various ways we have looked at so far. The fact that something can be recognised as having a structure or being part of one is evidence of its having a meaning of some sort. The total ascertainable meaning (I am going to suggest in due course that the whole meaning is not ascertainable), results from all these partial meanings and at the same time is much more than their mere sum. Structuralists have shown how the elements can be identified. Each element in a structure can be seen as

(a) an arrangement of smaller parts;
(b) a part in a larger arrangement;

12

(c) a member of the classes of all similarly arranged elements;

(d) a member of the classes of all elements that may become a part of the same larger arrangement.

Let me clarify this by means of a simple linguistic example. Take the sentence *He comes invariably late.* Let us look at *invariably*. It can be analysed as a linear arrangement (in its written form), or a complex sound sequence (in its spoken form) of a negative prefix *in-* followed by an adjectival stem *-vari-* and the suffix *-able* modified by the adverbial ending *-ly*. Note that identifiable elements are not always neatly separable: *-ly* is not separable from *-able* in the previous example as it is from *real* in *really. Invariably* is itself a part of the larger arrangement *He comes invariably late.* It is a member of various classes of similarly constituted words, like *indelibly, internally, intangibly,* which may be extended to include other negative adverbs like *untruthfully, unmistakably,* but not other adverbs such as *rather, always, too.* It is a member of the class of all adverbs that can take its place in the sentence without infringing any rule of acceptability, including *rather, always, too,* but not *indelibly, internally* or *intangibly.* Similarly any part of *invariably* may be shown to be an arrangement of minimal significant units of sound called phonemes, which can themselves be subject to further analysis through a sound spectroscope; and the whole sentence may be related to an endless continuum of higher contexts. Each element has a meaning at the level on which it combines in the structure: *in-* is negative in *invariably* but not in *internally; invariably* means in this context 'always' and not 'changelessly'. The meaning of the whole sentence depends on its context: but more about that in a moment.

Coming back to our love sonnet, it is a sequential arrangement of words. It is also a part of a number of larger arrangements. It belongs to the work of the poet in its entirety, to a particular series of love sonnets by the same author, to the class of poems written during a particular period, to a body of national literature. It is a member of the class of poems called sonnets by virtue of their internal formal structure, or love poems by reason of their contents. One may look at it also as a member of the class of all texts which would fit any system of which it can be a part (other drafts or

13

versions of the same sonnet, alternative poems that might be included in its place in an anthology etc.). All these classes contain texts which have what is nowadays called an 'intertextual' relationship with the poem under examination, and impinge on it in some way.

Literature, like language, is sequential because it is time-bound and to a certain extent it unfolds sequentially, although, like music, it is also a complex harmony of many concurrent features. That also applies to written language, with all its resonances and implications. But sequentiality is a mode of production and analysis, and cannot possibly account for comprehension. The *highest* speed of which the human brain is capable in identifying separate elements of a sequence is from 7 to 9 signs per second. But this speed is too *low* for comprehension, because the elements, once identified, cannot be retained at that speed: by the time one has reached the end of the sequence one has forgotten the beginning. If I uttered the previous sentence by spelling its words one by one you would not understand it. What we comprehend are *Gestalten*: not strings of elements but complex multilayered chunks. We make sense of them in a non-sequential way: the meaning of something in the early portion of a sentence may become clear only after reaching its end (a well-known feature of German syntax). It may even depend upon its *not* being clear until the end.

This point was convincingly made for literature by Roland Barthes in *S/Z*, where he analyzes a story by Balzac entitled *Sarrasine*. At a certain point in the story Sarrasine, a young sculptor, embraces Zambrinella, an operatic soprano, while travelling in a carriage towards Frascati. At that point neither he, nor the reader, know that Zambrinella is not a woman but a *castrato*: that will become apparent only later in the story. The full implications of the episode can therefore be realised either when one is not actually reading it but reading a subsequent page, or on a second reading. The appreciation of the story depends on a non-sequential comprehension in which earlier features are recollected on a first reading, and later features are remembered when going through the earlier stages for a second time; and one's former role as first reader is compared with the present, producing a sort of dramatic irony. Non-sequential comprehension is characteristic of tragedy

14

which depends for our enjoyment of it on our previous knowledge of the plot. All Greek tragedies were based upon well-known myths or stories. Even today there is hardly any spectator of *Hamlet* who is in any doubt as to the Prince's fate. Even if one has never heard the story one expects the protagonist to fall from high, fail, and die, because that is the convention of tragedy. The opposite convention prevails in thrillers: we may grip the edges of our seat in watching the unspeakable dangers James Bond goes through, but we know from the very beginning that nothing can ever kill him, even when we see him placed in a coffin in the first scene of the film.

The fact that our sequential structures of analysis are incompatible with our non-sequential mode of comprehension is a serious weakness of the structuralist approach to literature. It is similar to the weakness of phrase-structure grammar which, as Chomsky pointed out, cannot account for relatively simple phenomena such as the difference in meaning of identically structured sentences, the syntactic relationship between discontinuous forms, or the fact that obviously related sentences like an active clause and its corresponding passive cannot be produced one from the other by means of step-by-step re-write rules. It would seem that both the grammatical and the literary study of a text cannot stop at its sequential surface, but must posit other levels of textuality inaccessible to the usual structural analysis based on composition, distribution, interrelation and contrast of surface features. When one considers intertextuality it is clear that the subtle relationships between a text and its intertexts cannot possibly be grasped without hopping, so to speak, to and fro from one to the others. And the ability to perform these hops is not equal for all readers since it depends on the varying levels of literary competence of each one of them and the number of intertexts they can recognise.

All this points to the inescapable conclusion that many of the alleged properties of the literary object do not belong with the object at all, but depend on it being made sense of in a certain way, according to often implicit conventions. When I said earlier on: *He comes invariably late* you no doubt supplied an unspoken context, probably about a friend who is never on time. If I now say

15

> At the long table of life,
> before an empty plate,
> Fate sits, the uninvited guest:
> he comes invariably late.

you would probably try to discover more meaning in the sentence than you would bother to look for in the context you supplied, because you would take those four lines as a poem (don't try too hard: the poem is mine). And you would take them as a poem because of their rhythm and rhyme, that is the way in which the four lines fit a context of literary conventions, and would probably try to recapture in your mind possible intertexts, that is, other poetic pronouncements on Fate, uninvited guests, the banquet of life, etc.

But when one tries to separate the properties of the object itself from the manner of its decoding and interpretation one finds that there are no clear guidelines. It may well be that *all* observed structures are in fact properties of the interaction between the object observed and the observer in a specific cultural situation. The structures of our love sonnet may well not 'exist' in any ontological sense; or, if one must use this word, they exist in a culturally conditioned, though not wholly determined, system of interpretation, to which individual readings must refer. This system would then be not so much a social institution totally outside the individual, like the Saussurean *langue,* but a grammar of interpretive rules internalised by the literature consumer, more like the Chomskyan *competence.*

That accounts for the shift, in recent times, from a text-based to a reader-centred literary criticism, in other words, from the study of certain objects to the study of the theoretical models by which we attempt to understand them. This shift was in a sense paralleled both by the new scientific epistemologies championed by Popper, Kuhn, Lakatos (to mention but a few names), showing that science was very much unlike the objective experimental model favoured during the age of Positivism; and by the second linguistic revolution headed by Chomsky in the 'sixties, which attempted not so much to construct a grammar generating all the acceptable sentences of a natural language, as to clarify many of the issues relating to the

16

evaluation of alternative theoretical models of language. The question was no longer: 'How does language work?' but 'How do we understand our language competence?' Similarly the question that literary critics began to ask was no longer: 'What do texts mean?' but 'How do readers construct meanings?' The theories of production of literary texts have been supplanted by theories of their reception; the analysis of how they came to be constructed by elaborate deconstructions. Let me now move towards my conclusion by sketching some of the difficulties arising from the new critical approaches.

We may readily agree with Jonathan Culler that, since there is no rigorous way to distinguish fact from interpretation, nothing can be deemed to be definitively in the text prior to interpretive conventions. The fact remains nevertheless that someone produced the text, and did so in the full knowledge of the prevailing or possible interpretive conventions. Granted that the literary text is unlike most objects of scientific investigation, like a crystal or a gene, it is so because unlike crystals and genes it is the outcome of an intention to mean something. That should not be taken as if *all* the meanings the text carries were deliberately planted there by its author, for many are not; nor as if the reader's task were to reconstruct the author's intentions; but in the general sense that the author has a conscious project to produce meaning. The author's intention to mean has as its necessary counterpart the reader's assumption that the text is meaningful. Meaning is therefore *teleological*, whereas what a scientist can discover about crystals or genes is *teleonomical*, according to the distinction made by Jacques Monod. Nature's overall tendency is that crystals and genes should produce copies of themselves, but this tendency is built in the system; and, even if one believes in a Divine plan, it is not necessary to suppose that God personally supervises every crystalline accretion or genetic replication, as opposed to having created a system where these things occur by themselves. But texts do not happen by themselves. Furthermore they do not replicate themselves. Whereas the natural universe exhibits stability and invariance as its most startling characteristic, and mutations as exceptions to the rule, literature, and art in general, is infinitely variable and unrepeatable, and the stable point of reference offered by tradition is only the

springboard for endless mutations.

The impossibility of sequential comprehension of a text applies to its writer before it applies to anyone else. I spent several days preparing this lecture, admittedly not an artistic text, and in the process I have read each of its paragraphs, in sequence and out of sequence, at least fifty times. So must anyone writing a poem or a novel. Writers are the first consumers of their texts. An interesting metaphor of this fact, widespread in the eighteenth and nineteenth centuries, was that writers often disguised themselves as mere editors of accidentally found manuscripts. They presented themselves as readers, before pretending to be re-writers. But can the fact that authors are the first consumers of the text they destine for their public bridge the unavoidable gap that separates authors and readers? Authors may have some understanding of their contemporary readers' literary competence but may not always be able to foresee future trends or cultural changes even when they include future readers in their virtual audience. And we may be unable to share today the same viewpoint as the author's original readers.

We have already touched on various ways of bridging the gap, all implying the gathering of philological, historical, literary, philosophical, ideological, biographical evidence to bear on our understanding of the text. The problem is that there are no theoretical limits to the extension of the cultural context, or to the number of intertexts that may be relevant to a text. It would not be safe to presume that the relevant ones are only those preceding the text, since some later writers may show in their work illuminating references to it which it would be perilous to neglect. Tradition extends both ways. There are furthermore no sure and objective criteria to define what is relevant. The field of investigation thus becomes practically infinite. If we now move, out of desperation, from what mediates between the author and the reader to the structure of the reader's competence and the study of the theoretical models whereby the reader understands the text, we fall into an infinite regress, because the reader's understanding of the text presupposes certain theoretical models, our understanding of those theoretical models needs an epistemological theory, the epistemological theory requires a decision procedure to choose between epistemological theories, the decision procedure has to be set up according to valid

18

criteria, the determination of those criteria ... and we could go on. Between any reader and a text we can easily interpose: a reading of the text, an analysis of the reading of the text, a criticism of various types of analysis, a history of the various criticisms levelled at possible types of analysis, a general theory of text analysis, a survey of the theories of text analysis suggesting that textual analysis is impossible, and so on and so forth. It is easy to forget that reading comes before any analysis of the reading. Perhaps the fact that reading, a seemingly simple operation, is so inherently complex, as I have tried to describe, induces us to confuse it with a complex critical procedure. But to read is not to criticise. I do not embark upon the criticism of the love sonnet we started from because I want to find out whether I enjoy it or not. I already know that. The end of the author's meaning-generating project is reading and enjoyment, not criticism. Criticism only helps me to understand how and why I enjoy what I enjoy, and it may improve my enjoyment only as a consequence of my improved understanding of myself and the mental processes of another reader (the critic). Criticism throws more light on the critic than on the author who is its object.

Two final transplants, both related to the idea I foreshadowed that it may be impossible to arrive at a global understanding, or a perfectly coherent description of the meaning of anything. The first one comes from the uncertainty principle discovered by the physicist Werner Heisenberg in 1927 according to which measuring one quantity renders impossible the simultaneous measurement of a related quantity because our observation interferes with either one or the other measurement. This principle was readily adapted by social scientists who began to understand how the outcome of any observation is vitiated by the fact that the observer interferes with what is being observed. It has been suggested that the impossibility of finding out both the mass and a velocity of a subatomic particle by hitting it with another particle, which is the only way we can conduct the investigation, is in some ways similar to an anomaly found by Kurt Gödel in the construction of theories of mathematics by means of mathematical reasoning carried out by Russell, Whitehead and Hilbert. In 1931 Gödel stated his famous theorem, that it is impossible to prove the consistency of a formal system within the system itself, and that all consistent axiomatic

19

formulations of a self-referential system include undecidable propositions. Transplants must be performed very cautiously, because of the very serious chance of rejection. But if we were to extend Gödel's theorem to language, it would seem to suggest that any use of metalanguage to investigate language, however rigorous, leads to paradoxes; which is perhaps what Sapir sensed when he said that 'all grammars leak'.

The most famous of these paradoxes is the Epimenides paradox. Epimenides was a Cretan who said 'All Cretans are liars'. If you take Epimenides's quotation as language, then what I say about him and his statement lies within a first-level metalanguage. If Epimenides is a Cretan and all Cretans are liars, then his statement that all Cretans are liars must be a lie, hence Cretans are not liars. But if we thus accept that Epimenides, as a Cretan, is not a liar, then his statement that Cretans are liars must be the truth, hence he must be a liar. Russell tried to solve this and other similar paradoxes by means of the theory of types. Applying it to language, it says that any statement in a language is not referred to by any statement in a higher order metalanguage. Thus what we say in our metalanguage about Epimenides and his use of language has no bearing on his use of language. It is easy to show that this modified theory of types creates more problems than it solves, because it allows the possibility of setting up an infinite regression of metalanguages, and does away with what we have assumed to be the fundamental property of language which is self-reference. A final passing thought is that, if Heisenberg and Gödel are right, then it may be impossible for human brains to produce a consistent theory of the workings of human brains, which is what language, mathematics, the arts and criticism are all about.

This conclusion is far from being depressing. To begin with nobody needs an absolute, perfectly consistent formal theory of anything. After all mathematicians, according to Gödel, can get on perfectly well without one. Physicists continue to probe successfully the mysteries of the universe in spite of Heisenberg's uncertainty principle, or perhaps because of it. Only literary theorists fail to realise that they cannot at the same time demonstrate anybody else's inability to produce a consistent theory of literature, and present their own work as being *the* ultimate and absolute theory of

literature, covering essential aspects the others have neglected or ignored. Given what they themselves have revealed and emphasised, the practically infinite complexity of the textual and intertextual system, added to the complex infinity of our human culture in its historical development over time and space, and to any as yet unrevealed complexities that future generations of critics may reveal, it may be totally unreasonable to aim for total understanding. A more reasonable task may be for critics to define as clearly as possible the margins of applicability of any methodology they may wish to use to the limited purpose for which they wish to use it, in the full knowledge that wider margins or different purposes may require a different methodology. Different answers to critical questions are not necessarily contradictory or incompatible, and it is only because of the dictates of the PhD industry and the career needs of academics that they are often alleged to be so.

A second positive conclusion is that we must do away with what I would call the 'humanistic cringe', the absurd idea that the humanities are inherently incapable of the same order of achievement in the elaboration or acquisition of knowledge as the so-called exact sciences; when it has been increasingly apparent for the past half century or longer that the sciences are not as exact as people used to believe. The reason why all chemists agree on the formula of hexachlorophene, while most critics will disagree in their conclusions about a love sonnet, is not that chemistry has better decision procedures than literary criticism, simply that literary critics do not need to have the same area of agreement as chemists because, as we suggested earlier on, natural objects are teleonomically invariant, whereas artistic objects are teleologically mutant and therefore posit a totally different type of scientific investigation.

The final positive conclusion is that both the arts and the sciences benefit from mutual contact and understanding: and that is where interdisciplinarity comes in. We have suffered far too much from a particularised, compartmentalised approach, all too often resulting from the pertinacity with which academics defend their perceived territory; the deep-seated tendency of educational administrators to see educationally sound developments not as the aim of their professional career but as the means to advance it; the inability of politicians and those whom they persuade to toe their line to

21

understand that we already have a clever country: the country of Alan Bond, Brian Burke, Laurie Connell, Brian Youill, Christopher Skase and John Spalvins, to name but a few who were mentioned until recently as shining examples of true Aussie cleverness. What we need is an intelligent country, where education does not come second best to employment and is not confused with training, but enjoys the true breadth, depth and creativity that comes from the wider horizons of interdisciplinarity; where a society whose horizons have been perversely restricted to one single valueless dimension, the economy of disposable incomes, can rediscover the dimension of human values which the humanities, the arts, and especially literature can provide.